RESEARCH ON RISK EVALUATION OF SHOPPING MALL INVESTMENT

Ping LIU¹, Dong Lang YANG²

1. Xi'an Jiaotong University 2274#; 710049
2. The public policy and administration school; Xi'an Jiaotong University; 710049

Abstract: Shopping mall already became a new popular investment spot now. Shopping mall investment had the characteristic of great invest, long time of return, high level of risk and high profit., so investors must carry on rational prediction and scientific evaluation to the risk of the project as investor's basis of investment decision before investing in, so as to ensure to obtain the participated investment return. This paper took the risk evaluation of a large-scale shopping mall investment as an example, in terms of investor, discussed how to evaluate all kinds of risks that are appraised to shopping mall investment. This paper divided the investment risk of the shopping mall into: project risk, construction period risk, selling risk, design risk, construction quality risk, and complete risk. This paper used methods of investigate and Delphi, statistics and probability, sensitivity analyze etc synthetically to study how to evaluate the risk level of each aspect quantificationally, aim at making investors have an overall knowledge of risk level of the project through quantifying and qualitative research, to support to make investment decision.

Key words: shopping mall; risk evaluation; sensitivity analyze

Currently, the domestic commercial real estate developed very fast. In the double promotion of domestic commercial capital and real estate capital, it was becoming a new area of investment; the whole country came into being an upsurge of investing and constructing large shopping mall. Not only large cities, and some cities, counties or even towns all launched a lot of projects. Foreign capital also flowed into this area; therefore, it was urgent and necessary to make scientific and serious risk analysis before the investment.

1 Commercial real estate and large-scale shopping mall

Commercial real estate primarily means the property for commercial purposes, including hotels, supermarkets; shops face the street, with commercial neighborhoods, commercial plaza, professional wholesale markets, shopping malls and other uses of real estate [1]. And shopping mall is a typical commercial real estate pattern.

Shopping mall refers to an large integrated entertainment shopping center larger than 100,000 square meters, operated by the professional shopping center management groups, the compound degree of the trade being extreme complete (all trades, all kinds of business, and demonstrated highly specialized and highly integrated maturity structural characteristics), a lot of trades, a lot of shops, a lot of function, extremely wide and deep of portfolio (high-grade commodities must be available to ensure that commodity varieties available. large department stores, supermarkets center carried out very wide portfolio of products from many different positioning width. commodity portfolio depth is extremely deep because of the numerous brand stores, professional theme shopping stores); positioning in the home (family / all-layer) : Family-style consumer-driven direction -- through the creation of large department stores and supermarkets and the large number of different types of retail businesses, such as home appliances, children and youth recreational facilities, cultural Square, restaurants to cover the old, middle-aged, young generation, and children all four different types of customers; with various types of sales for consumer demand, in addition to the various characteristics of shops to attract domestic and international tourists, to meet the full consumer-level one-stop shopping and one-stop enjoyment(cultural, entertainment, leisure, catering, exhibitions, services, tourism).

Mall had the following two characteristics: First, large: large size, large green spaces, car parks, large scale construction. Second, abundance: many industries, many shops, many functions (including shopping, restaurant, leisure, entertaining) [2]. Mall is not a simple decentralized business model, but rather a unified and efficient functioning organic whole.
2 The flourish of shopping mall in the country

Mall in the modern sense origins after the 4th decade of twentieth century from the United States, and developed rapidly from late 1950th. 1960, the U.S. city suburbs became flourishing, and then large-scale malls developed in suburbs. Thereafter, with the mature of the Mall’s development, this business ideas were transplanted to urban centers, urban-based Mall gradually developed. It had become the mainstream of European and the United State’s national retail activities, the total sales have occupied its half of social consumer goods[3]. The development of Mall in China was not only backward than Europe and the United States, but also backward than many Southeast Asian nations. However, behind also means opportunities for development, China's recent emerged a boom of " mall-construction movement", Beijing, Shanghai, Guangzhou, Shenzhen, Wuhan, Dalian, Chengdu, Qingdao, Xi’an have launched a number of Mall projects, following even lock supermarkets, shopping stores, Mall business became a new revolution of commercial style.

3 Shopping mall investment risk identification

Risk identification is a prerequisite to guard against risks. The risk refers to so-called uncertainty, the investment risk is the possibility of the capital investment can not achieve the anticipated benefits or can not be returned because of difficulty, uncertainty, or as a result of various factors’ operation[4]. Mall had the characteristics of high investment, high risk, high return, and therefore it was necessary to make detailed risk analysis and evaluation. Review From many home and abroad Mall project, the main Mall investment risks exist in the following areas:

3.1 Project risk

3.1.1 Operating and management risk

Operating risk refers to the possibility of the expected level of return could not achieve because of the factor real estate investors themselves and their own operational problems. It was the risk that the outflow of cash was different from expectation, thereby leading to the achievement of income high or low than expectations[5]. Such risk was mainly associated with the investment enterprises’ internal factors, including business decision-making errors, poor management, increasing in the costs and business income below expectations. It is the most important risks faced by commercial real estate.

Mall was different than other real estate investment projects. Other real estate projects, especially residential real estate, investment’s recovery mainly relied on sales of products. But in the investment of commercial real estate, especially Mall, investment recovery relied on the rent and self-operating projects. It could be said that a key to success of Mall project is the later management and operation.

The rapid development of Mall in China was in recent years, so there were very few cases of successful experience of operation. The majority Mall which has opened were not ideal, and some are even to be closed or reorganized. Mall developer on one hand, lacked for management expertise, On the other hand, they accustomed to the previous residential real estate model. Therefore the current lack of Mall management experience brought great risk to such real estate’s development.

3.1.2 Financial risk

Financial risks meant the losses brought to operators mainly because of changes in various financial factors to of real estate losses. Financial risks can be divided into: inflation risk, the risk of changes in interest rate, the risk of changes in tax rate.

Inflation risk

Inflation risk refers to the investors’ future earnings’ decrease rise because of the rise of the price level; it was closely related to rate of inflation. When the inflation rate was high, inflation would lead to the decline in
value of future earnings. If the real estate investment returns achieved by instalment way, investors will face serious inflation risk. For example, real estate investors sold products at fixed rates in instalment or long-term rent with fixed rental, investors would bear the losses caused by price increase. The large investment funds, long cycle would increase the risk that investors faced with when prices rose faster.

Interest rate risk

Interest rate risk referred to the loss caused to investors by the increase of market interest rates. Mall’s large volume of funds required for investment must be supported by bank credit, usually loans accounted for more than 50% of the total investment, or even as high as 80-90%, the level of interest rates and credit decided the supply of Mall project, and directly impacted on product prices. Market interest rates and Mall’s value changed on opposite directions, namely higher interest rates, smaller value and investment value, investment income was also smaller. If in a stable period, investment income was not enough to offset interest on loans, investments would be nonprofit.

The real estate market Interest rate risk referred to the potential impact of the loss brought by the changes of interest rate. When interest rates rise, the cost of capital would increase, consumer’s desire to purchase would lower. Therefore, the whole market would be formed the situation that on the one hand, increase in production costs and lower demand on the other hand, which no doubt would brought losses to investors and operators.

Risk of tax rate

Tax rate risk referred to the changes of the real estate investment, development and operation, resulting to the change of costs and earnings in real estate development and operating. Tax Rate change reflected national and regional financial system change, the possibility of change is not great, but once the change happened, the impact could be large. Therefore, it was a small probability, but great outcome event.

3.2 construction period risk

construction period risk major included risk of timbering renewal and change, risk of construction techniques and technologies innovation, risk of architectural design changes or calculation errors, equipment malfunctions, damage or construction accident. Project techniques risk were becoming increasingly important as the increasing number of construction projects and companies, particularly the recent construction accidents.

3.3 sale price risk

Sale price risk referred to the future product price did not reach the expected level of sales price, thereby could not achieve the expected return, and even could not recover investment Mall projects’ price risk was associated with real estate cyclical fluctuations. Cyclical fluctuation in the real estate market was the result and form of supply and demand relations’ campaign and was an integral part of macroeconomic cycle fluctuations. According to the analysis, the U.S. real estate cycle was about 18-20 years, approximately seven years in Japan, Hong Kong was about 7-8 years, Taiwan was 5-6 years. The real estate cycle closely linked with macroeconomic fluctuations. In China, real estate cycle was consistent with the basic macroeconomic operation cycle, which was about five years. Macroeconomic operation cycle was divided into depression-recovery-peak-recession four stages. As The impact of macroeconomic operations cycle, the real estate cycle was divided into depression-recovery-peak-recession four stages, and had the same circulation direction with macroeconomic fluctuation cycle. According to the characteristics of the real estate cycle and the time nature of the real estate development, Mall projects investment opportunities should be elected in the early stages of recovery in the real estate cycle. The choice of timing would have two advantages: First, the interest rate was low and macroeconomic cycle had been on the road to recovery, and therefore easier to finance. Second, the pre-sale period and the actual sale period was the time from recovery to the peak time, or were just on the peak time, the product prices would be higher than usual and the risk of investors would be small.
3.4 design risk

Design risk referred to the loss resulted by developer. in the preliminary design stage, the design standing order was too simple, design time was pressing, design units and developers did not communicate detailedly on design task, designers was inexpert, which resulted in the construction design was not deep enough, and because of design and construction were at the same time, the design progress was too slow, all the above factors resulting in the stalling of the construction progress and the delay of time limit.

3.5 construction quality risk

Construction quality risk meant the quality errors occurred in quality control, root in raw material disfigurement or technical errors, and improper methods of operation, construction techniques premature. Quality problems inevitably aroused the waste of materials and the increase of project costs. Correcting and dealing with quality disfigurement would also extend the time limit of project.

3.6 The completion and check risk

Mall project needed long construction period, and large investment, once the project could not be completed on schedule; it would bring developers, investors and banks enormous loss. But since during the construction period and the test-operating period, the existence of various uncertainties, whether the project could be completed and operated according with its design specifications on schedule or not were always unknown. If the project could not be completed, the time of the project was extended or the project would not meet the expected operation or standard, the completion risk happened[7]. Completion risk brought serious harm to the project financing participants. The variety of direct and indirect role in the delay of time limit for a project could increase the project cost more than 50%. The consequence has in a great extent, influenced the viability of the project. To the project company, the loss of completion risk meant the increase in interest payments, extension of loan repayment period and miss of market opportunities; to the lender, it meant the fund could not be repaid in a specified time period. To this end, the completion risk was one of the core financing risks and should take appropriate measures to reduce and avoid it.

4 Shopping Mall investment risk evaluation

4.1 qualitative analysis methods

Qualitative analysis was also known as subjective evaluation which was directly dependent on people's subjective factors such as knowledge, experience and ability subjective factors and so on. It made sure the existence of risk and evaluated the level of risk though the analysis of all kinds of factors that affected risk. There were three way to risk’s qualitative analysis : Delphi, coordinate evaluation, Scenarios Analysis.

4.2 quantitative risk analysis methods [8]

Break even analysis was also called output-cost-benefit analysis, which determine the break even point and judged the degree of the risk through the analysis of the relationships among project’s output, cost and profit. On the break even point, risk projects neither profit nor loss. Using this way could know the investment projects’ adaptability to the changes of market demand.

Sensitivity analysis was a way that calculating the degree of the guide line’s change from one or more uncertain factors, and then judged the degree that the expect targets was affected by different uncertain factors.

Probability analysis used concepts of expectation and variance in probability theory, to study the economic effects of uncertainty factors. There were a number of ways to make Probability analysis; Monte Carlo law was one that was much commonly used in real estate investment risk analysis.
5 Case study

The following is the process of evaluating the risk of a shopping Mall project with both of quantitative and qualitative methods.

5.1 sensitivity analysis

A sensitivity analysis of the project to determine the future of the project precedes the biggest influencing factor.

Calculating the change of the financial internal return rate (Firr) when the four factors (total construction investment, sales revenue, operating revenue and operating costs) changed 5%, 10%, the result was shown in Table 1 below:

<table>
<thead>
<tr>
<th>Variation Factors Rate</th>
<th>Sales revenue</th>
<th>Operating revenue</th>
<th>Operating Cost</th>
<th>Total Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>23.50</td>
<td>29.85</td>
<td>12.49</td>
<td>18.46</td>
</tr>
<tr>
<td>5%</td>
<td>22.22</td>
<td>25.66</td>
<td>17.04</td>
<td>19.68</td>
</tr>
<tr>
<td>0%</td>
<td>21.00</td>
<td>21.00</td>
<td>21.00</td>
<td>21.00</td>
</tr>
<tr>
<td>-5%</td>
<td>19.97</td>
<td>15.75</td>
<td>24.71</td>
<td>22.61</td>
</tr>
<tr>
<td>-10%</td>
<td>18.97</td>
<td>9.16</td>
<td>28.13</td>
<td>24.41</td>
</tr>
</tbody>
</table>

The Fig. indicates that the financial internal return rate changed with the diversification of total construction investment and operating costs, and had the opposite direction, and from Figure 1 can be clearly seen that the operating costs’ negative slope was greater than the total investments’ negative slope, which meant on the two cost factors, the former was more sensitive to the financial internal return rate, therefore, in the project operating period, the management and operating should be paid a lot of attention, and minimize operating costs, made its impact on investment income fell to the lowest.

When sales revenue and operating revenue changed, bringing financial internal return rate change in the same direction, seen from Figure 1, the impact of the operating revenue’s changes was greater than the sales revenue’s change, meaning that the operating revenue was more sensitive than sales revenue to the financial internal return rate.
The sensitivity analysis showed: operating revenue and operating costs had greater impact on the internal return rate, but the probability of future revenue inconsistent with the expected income was not clear, so it was necessary to carry out further analysis of the risks.

5.2 subjectively evaluation of probability the operating revenue change

The Mall project’s revenue source was shown in the table (table 2) as below:

<table>
<thead>
<tr>
<th>Table 2 MALL Item Revenue Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>revenue</td>
</tr>
<tr>
<td>Hire (D Seat + Park)</td>
</tr>
<tr>
<td>Self-operating revenue (A Seat)</td>
</tr>
<tr>
<td>Self-operating Hotel (C Seat)</td>
</tr>
<tr>
<td>Rest</td>
</tr>
</tbody>
</table>

The factors which had great effect to the operation revenue included self-operating revenue, self-operating hotel revenue and park revenue.

<table>
<thead>
<tr>
<th>Table 3 MALL Item Revenue Variety Probability Evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>operation revenue</td>
</tr>
<tr>
<td>weigh</td>
</tr>
<tr>
<td>Probability of Fluctuation Less than 10%</td>
</tr>
</tbody>
</table>

Probability was the weighted average data of expert evaluation.
Determine of Weight primarily according to the revenue’s percentage it occupied to the total revenue during the normal operating period.

On the table, the weighted average probability, P=0.84 meant the operating revenue varied at the range of 10% of the expectation in 0.84 probability estimates. Seen from the results of the analysis, by way of comparison, the estimated value of self-operating revenue had the greater possibility of different from real revenue. And to a great extent affected the entire project revenue, therefore should pay attention to the operation and management of the shopping mall.

Overall, the greatest impact of the Mall project’s future revenue depend on its self-operating revenue, so the key to the success of the project was the operating and management in the future.

For investors, if acceptable risk levels higher than 0.84, then through risk evaluation, he would refuse investment, and if he can accept the risk level below 0.84, he would invest in the project.
6 Conclusion

The high-return of Mall projects had attracted a lot of investors, but there are few domestic successful Mall projects. Investor should fully consider future changes in the basis of risk analysis and made risk response mechanisms so that to reduced future losses to the minimum.

References

Zha Shu-kuan, Ma Li. The Analysis of Good-sized Realty Item Invest Evaluate Systematic[J]. Technology Development and Countermeasure, 2002-02, 118