

# A case Study on Risk Identification and Risk Assessment in Real Estate Projects

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**Abstract** - Most of the construction projects worldwide involve a variety of complex processes working simultaneously. It can be quite challenging to manage these processes. A big part of meeting these challenges is mitigating the RISKS involved. Risk management include identifying risks, assessing risks either quantitatively or qualitatively, choosing the appropriate method for handling risks, and then monitoring and documenting risks. on- availability of supporting infrastructure, political issues like instability of the government leading to regulatory issues, social issues, marketing forms an important part in these projects as this is an onetime investment and the purchase cycle is long, long development period makes the same project be at different points in the real estate value cycle. This Project focused on identification of various types of risks involved in the real estate projects and giving appropriate managerial implication for the risks identified. Time constraints and project managers with sufficient experience are critical when identifying the appropriate level of risk for large and/or complex projects.

**Key Words:** Risk, Estate Projects, Economy, Assessment, Identification.

## 1. INTRODUCTION

The real estate sector plays a leading role in the development and progress of any economy and is often considered as the prominent indicator of the economic health of any country. A risk can be defined as exposure to the possibility of economic and financial loss or gain, injury or physical damage, or delay as a consequence of the uncertainties associated with pursuing a particular course of action. Risk can also be defined as an array of all the uncertain factors which will have a combined negative effect on the objectives of the project. Real estate is cyclical, more than most industries. Real estate developers are often faced with considerable changes in their environment and new challenges driven by the macro-economic, social, urban-planning, political-legal, regulatory, environmental and technological framework conditions. Economic growth and population growth are perceived to create demand for real estate product in all categories.

### 1.1 Need of Study

- Economic growth and population growth are perceived to create demand for real estate product in all categories.

- As a result, developers try to fulfill the demand and attract the cash flows from investment and lease rentals.
- Consequently equilibrium between demand and supply is created due to reduction in supply over a time period. However, over a period of time the demand starts rising slowly, and as the industry players are slow to respond to the new demand and demand exceeds supply.
- Since the high profitability of real estate, in recent years, a large number of enterprises invest the money into real estate industry with an attempt to obtain great achievements; however, during the process of investment of high-profit industries, the avails also equal to high risks.
- The need behind this study is to identify the various major risks and their dependent risks that affect real estate projects.

### 1.2 Objective

- To identify various risks affecting real estate projects.
- To rank risks, based on the severity of risk affecting real estate projects.
- To give managerial implication for the risk identified.

## 2. Literature review

### A. The importance assessing of property development risk factors:

Property development makes a significant contribution to the Australian property industry and economy. However, property development is inherently risky, with a number of risks evident throughout the property development process. From a survey of leading property developers in Australia, the importance of 34 property development risk factors is assessed. The most important property development risk factors identified were environmental risk, time delay risk and land cost risk. After reviewing the available literature on property development risk (see previous section), 34 property development risk factors were identified

throughout the chronological stages in the property development process.

**B. A New Approach to Real Estate Risk:**

Traditionally relegated to the back of the bus by institutional investors, private equity real estate has recently been afforded larger allocations in recent years on the brute strength of its performance, rather than any theoretical justification arising out of new methodology or data. While real estate is a known diversifier, the true extent to which it increases a portfolio’s risk adjusted return is difficult to quantify. The purpose of this paper is to present a model that bridges the methodology divide between real estate risk assessment methods, and those used in securities markets. Using this approach, it is possible to assess the risk of specific properties and measure the expected contribution of such properties to the enterprise-wide risk of typical institutional portfolios.

**C. Integrating Sustainability Issues into Property Risk Assessment – An Approach to Communicate the Benefits of Sustainable Buildings:**

Although the ‘green’ building community has created a number of processes and tools to assess the design and performance of green buildings, this has had an insignificant impact on the financial appraisal of green buildings and the property markets. However, new property rating systems are emerging as a means of creating risk profiles of property assets. These rating systems are intended for use within both property financing processes as a consequence of new, international banking capital adequacy rules (Basel II) as well as within property investment analyses. The inclusion of sustainability issues into property rating systems allows the advantages of sustainable buildings to be displayed as well as the disadvantages of sustainability to be treated as additional risk factors.

**D. Measuring Risk for Private Property Funds:**

The objective of this thesis is to expand on previous studies by various industry organizations and experts on the topic of measuring risk of private property funds. The analysis should contribute to ABP’s portfolio risk management by providing a methodology to better evaluate single private property fund investments as well as the real estate portfolio as a whole. The study should add an academic perspective to this relatively young investment product area and provide further research opportunities for the academic society. Although not the key objective of this study, improved analysis of the risk and return of real estate in general and that of private property funds in particular, could result in changing perspectives on the appropriate percentage of an investment portfolio to be allocated to real estate.

The major Risks identified that affects real estate projects are as follows.

- Political Risks
- Regulation, social & legal Risks
- Construction Risks
- Financial Risks
- Force majeure
- Commercial Risks
- Economical Risks

Table -1: Risk Factors:

Very Severe Risk	5
Severe Risk	4
High Risk	3
Medium Risk	2
Low Risk	1

Saaty scale	Definition	Fuzzy Triangular Scale
1	Equally important (Eq. Imp.)	(1, 1, 1)
3	Weakly important (W. Imp.)	(2, 3, 4)
5	Fairly important (F. Imp.)	(4, 5, 6)
7	Strongly important (S. Imp.)	(6, 7, 8)
9	Absolutely important (A. Imp.)	(9, 9, 9)
2		(1, 2, 3)
4	The intermittent values between two adjacent scales	(3, 4, 5)
6		(5, 6, 7)
8		(7, 8, 9)

Table 2 Linguistic terms and the corresponding triangular fuzzy numbers

According to the corresponding triangular fuzzy numbers of these linguistic terms, for example if the decision maker states “Criterion 1 (C1) is Weakly Important than Criterion 2 (C2)”, then it takes the fuzzy triangular scale as (2, 3, 4). On the contrary, in the pair wise contribution matrices of the criteria, comparison of C2 to C1 will take the fuzzy triangular scale as (1/4, 1/3, 1/2). The pair wise contribution matrices is shown in Eq.1, where  $d_{ij}^k$  indicates the  $K^{th}$  decision maker’s preference of  $i^{th}$  criterion over  $j^{th}$  criterion, via fuzzy triangular numbers. Here, “tilde” represents the triangular number demonstration and for the example case,  $d_{12}^1$  represents the first decision maker’s preference of first criterion over second criterion, and equals to  $d_{12}^1 = (2, 3, 4)$ .

$$A_{\tilde{k}} = \begin{bmatrix} d_{11}^{\tilde{k}} & \dots & d_{1n}^{\tilde{k}} \\ \vdots & \ddots & \vdots \\ d_{n1}^{\tilde{k}} & \dots & d_{nn}^{\tilde{k}} \end{bmatrix}$$

### 3. CONCLUSIONS

- Various major risk factors and their dependent risk factors were identified that affects real estate projects.
- Many enterprise enters blindly in real estate project, without considering the risks and their impacts on project. The outcomes from this study enables the real estate developers to systematically develop a holistic risk management approach to handle risks of real estate projects.
- Managerial implications suggested can help real estate developer to reduce the risk of failure of their projects

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