

BUSINESS RISK AND ITS RETURN: A STUDY ON SELECTED INDIAN REAL ESTATE COMPANIES

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ABSTRACT

The paper explores the connection between business risk and returns in Indian real estate industry, wherein the top 5 firms have been chosen based on their market position and market standing. In order to measure financial performance, the study uses the following key measures: Return on Capital Employed (ROCE) to measure the profitability of the owners, Operating Profit to Capital Employed (OPCE) to measure the operating efficiency, Degree of Operating Leverage (DOL) to measure business risk and Degree of Financial Leverage (DFL) to measure financial risk. Based on secondary data over a period of twelve years between 2011-12 and 2022-23, the analysis uses correlation and t-test to assess the statistical significance of the relationships among the variables. The results indicate that DOL positively relates highly to OPCE, and DFL to ROCE, meaning that the greater the risk in business, the greater the operating returns, and the greater the financial risk, the greater the profitability of owners is. In addition, there exists a high positive correlation between DOL and DFL, which highlights the interdependence of business risks and financial risks in the business. All in all, the research paper has shown that despite the high amounts of risk that real estate companies are exposed to, these risks are generally countered by their corresponding returns in a balanced manner, thus confirming the principle of risk-return trade off in the industry.

Key words – Risk, Return, Financial Leverage, Operating Leverage, Capital Employed

I. INTRODUCTION

For employment and GDP growth purpose, the real estate sector acts as critical role and contribute to the nation's economy of the country. It includes a different type of sector such as residential house, commercial and infrastructure purpose. The real estate sector has competent as accelerated growth with the expansion of urban property and the increasing the demand for housing. Moreover, Non-resident Indian Investment in particularly, is increasing in cities and captured the market position i.e., Bengaluru and Ahmadabad

In India, the market of real estate sector is estimated to achieve Rs 65000 crore by 2040 and it is anticipated to grow into a \$ 1 trillion market size by 2030. In terms of investment decisions and risk management, the real estate sector grows and particularly it feels complication. The main industry operates in different region such as Ansal Properties & Infrastructure Ltd, D B Realty Ltd, Peninsula Land Ltd, HDIL, and Parsvnath Developers Ltd. On the basis of the project portfolios, market capitalization, these types of companies face different level of business risk and financial risk.

The real estate sector is not only very important contributor to economic development but also a significant tool for increasing employment in various projects. However, real estate project need big investments and take a long time to complete, companies naturally face high risks. Although, the sector is expected to grow, it is important for investors, managers and policymakers to analyze the balance between risk and returns.

II. STATEMENT OF THE PROBLEM

An important role in India's economic development and service creation is played by the real estate companies. However, significant fluctuations in the sector's profitability are caused by various business and financial risks, despite its potential for growth. These risks are enhanced by project delays, regulatory changes, market volatility, and dependence on debt financing, which can undermine investor confidence and affect expected return. While the connection between risk and return has been examined in multiple industries, there is a lack of focused research on this relationship within the Indian real estate companies. This study aims to fill this research gap by investigating the business and financial risks, their effects on returns, and the influence of leverage on the financial performance of selected Indian real estate companies.

III. REVIEW OF LITERATURE

Studies like Tiwari et al. (2011) and Vijayanthimala & Vijayakumar (2014) has highlighted the complex relationship between liquidity, risk, and profitability. Their findings vary across different industries, underscoring the importance of conducting sector-specific studies. Studies by Madhavi (2014) and N. Suresh Babu & G.V. Chalam (2014) highlight the influence of financial management practices, including cash ratio and working capital management, on a company's performance. These findings emphasize the importance of internal financial controls in risk management.

Regarding the importance of evaluating business and financial risks for company's performance and investment feasibility, the several numbers of studies of industries have been highlighted. For example, Jose (2017) showed a negative relationship between profitability and financial leverage of Indian cement Industries and it is signified that the heavy reliance on borrowed funds can lower profits. In the same way, Muthukumara et al. (2023) found that a statistically significant effect on returns of selected Indian cement Industries and it is highlighted the need for proper risk management.

Although studies on sectors like cement, paper, leather and manufacturing provides helpful findings, but there is little work on business risk and financial risk in the real estate company's return. Because, the company faces distinct risks such as regulatory challenges, market fluctuations and high debt levels, a detailed analysis is needed to evaluate how these risks shape returns. To fill the research gap, the study aims how business and financial risks affect the profitability of selected Indian real estate companies.

IV. OBJECTIVES OF THE STUDY

The following are the specific objectives of the study area:

- To analysis the connection between risk levels and returns for chosen real estate companies
- To evaluate the business and financial risks linked to the chosen real estate companies
- To examine the relationship between leverage and profitability of companies and their impact

V. RESEARCH METHODOLOGY

SAMPLE SELECTION AND TIME FRAME

The current research is purely built on secondary data gathered in the form of published annual reports of companies, financial statements, and websites of the selected companies. The analysis period is twelve financial years (2011-12 to 2022-23). This period is specifically selected because it includes both the pre-COVID and post-COVID market conditions, which has a great impact on the Indian real estate industry. It is also an entire business cycle, including growth, deceleration, and recovery, and hence it has greater scope for the analysis.

The research targets five major real estate firms: D.B. Realty Limited, Ansal Properties and Infrastructure Ltd., Peninsula Land Ltd., Housing Development and Infrastructure Ltd. (HDIL) and Parsvnath Developers Ltd. These companies are selected because they are among the top-ranking of the Indian real estate companies in terms of their market capitalization, project portfolio and visibility at the time of study. This guarantees that the sample sufficiently captures the overall risk-return dynamics of the sector.

RATIOS USED

Operating Profit to Capital Employed

The operating profit to capital employed ratio measures how effectively a company's capital investment is being used to generate profits. It should be higher than the borrowing rate to ensure that any increase in borrowing does not negatively impact shareholders' earnings. The ratio is given below-

$$\text{Operating Profit to Capital Employed} = \frac{\text{Operating Profit}}{\text{Equity Share Capital} + \text{Reserves \& Surplus}}$$

Return on Capital Employed

A company's profitability in relation to the capital invested by its shareholders is estimated by Return on Capital Employed (ROCE). It expresses the ratio of net income to equity, highlighting the company's profitability. In simple terms, ROCE shows the efficiency with which a company employs shareholders' funds to earn profits. It is measured by dividing net profit after taxes by the sum of equity share capital and reserves & surplus. The same is expressed in equation form:

$$\text{Return on Capital Employed} = \frac{\text{Net Profit(after Tax)}}{\text{Equity Share Capital} + \text{Reserves \& Surplus}}$$

Operating Leverage

The sensitivity of a company's operating profit to changes in sales is represented by operating leverage. When a company has high operating leverage, carries a larger share of fixed costs compared to variable costs, which makes their earnings rise or fall disproportionately with changes in revenue. On the contrary, a company with low operating leverage which depend more on variable costs and it generates in smaller profit variations. The same is expressed in equation form:

$$\text{Operating Leverage} = \frac{\text{Percentage change in Operating Profit}}{\text{Percentage change in Net Sales}}$$

Financial Leverage

The extent of financial leverage is determined by the ratio of long-term debt to total funds utilized. It represents how much the net income changes in relation to operating profit (EBIT). The increased share of securities with interest or dividend will lead to an increased financial leverage. It is calculated by dividing the percentage change in EBIT by percentage change in EBT.

$$\text{Financial leverage} = \frac{\text{Percentage Change in EBIT}}{\text{Percentage Change in EBT}}$$

STATISTICAL TOOLS AND TECHNIQUES

The annual company level data is analyzed using the annual value, i.e., not aggregated. Key financial ratios are calculated against each company and then tested statistically across each financial year. This will enable the research to look at differences over the years and show the consistent trends in the relationship between business risk and profitability. In the study, the strength and direction of the relationships among the ratios (DOL, DFL, OPCE, ROCE) are determined by using Spearman Rank Correlation. Also, the statistics of these correlations were tested using t-tests. These techniques are appropriate because they model ranked data and determine relationship without necessarily making distributional assumptions.

VI. DATA ANALYSIS AND FINDINGS

The data analysis explores the relationship between leverage and profitability in Indian real estate companies by examining financial metrics. The strength and direction of these relationships are evaluated using Spearman's rank correlation which highlights the various levels of risk and return across the five countries analyzed.

ANALYSIS OF RELATION BETWEEN LEVERAGE AND PROFITABILITY

The connection between leverage and profitability in Indian real estate companies can be analyzed using some financial indicators such as Operating Leverage (DOL), Financial Leverage (DFL), Operating Profit to Capital Employed (OPCE), and Return on Capital Employed (ROCE). These metrics indicates varying levels of risk and efficiency. Higher leverage can lead to higher profits during good times but also increases risk during tough times. On the basis of the study, it employs Spearman's rank correlation to assess the strength and direction of the relationship between two ranked variables, regardless of the data's distribution, shown from TABLE 1 to TABLE 3.

TABLE 1: SPEARMAN'S RANK CORRELATION BETWEEN DOL AND OPCE OF SELECTED REAL ESTATE COMPANIES

No	Year	Rank of DOL(x)	Rank of OPCE(y)	d =X-Y	d ²
1	2022-23	5	6	-1	1
2	2021-22	7	7	0	0
3	2020-21	3	3	0	0
4	2019-20	1	2	-1	1
5	2018-19	8	5	3	9
6	2017-18	10	11	-1	1
7	2016-17	11	10	1	1
8	2015-16	12	8	4	16
9	2014-15	4	9	-5	25
10	2013-14	9	4	5	25
11	2012-13	6	12	-6	36
12	2011-12	2	1	1	1
					Σ d ² =116

$$R = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$
$$= 0.594$$

As indicated in the table above, the rank correlation coefficient of the Degree of Operating Leverage (DOL) and Operating Profit to Capital Employed (OPCE) is 0.594.

Here, n=12, d.f=n-2=12-02=10

Table value of t at 5% level with 12 d.f.=2.228

When R=.594

$$t = .594 \sqrt{\frac{12-2}{(1-.594)^2}}$$

$$t = 2.3348$$

The calculated t value (2.3348) is higher than critical t value at 5% level (2.228). The Degree of Operating Leverage (DOL) indicates the level of business risk to the company and Operating Profit per Capital Employed (OPCE) indicates operating profitability. The Pearson's rank correlation coefficient between the variables of DOL and OPCE was calculated as +0.594 which means that the relationship between them is positive and statistically significant at the 5% level. The study, however, also shows that the greater the business risk was effectively offset by greater risk premium in the form of greater operating returns to the company.

TABLE 2: SPEARMAN'S RANK CORRELATION BETWEEN DFL AND ROCE OF SELECTED REAL ESTATE COMPANIES

No	Year	Rank of DFL(x)	Rank of ROCE(y)	d = X-Y	d ²
1	2022-23	3	4	-1	1
2	2021-22	2	6	-4	16
3	2020-21	5	7	-2	4
4	2019-20	4	2	2	4
5	2018-19	9	11	-2	4
6	2017-18	7	3	4	16
7	2016-17	10	5	5	25
8	2015-16	12	10	2	4
9	2014-15	8	8	0	0
10	2013-14	11	9	2	4
11	2012-13	6	12	-6	36
12	2011-12	1	1	0	0

$\sum d^2 = 114$

No	Year	Rank of DFL(x)	Rank of ROCE(y)	d =X-Y	d ²
$R = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$ $= 0.601$					

Spearman's rank correlation coefficient between financial leverage and Return on Capital Employed is.601

Here, n=12, d.f=n-2=12-02=10

Table value of t at 5% level with 10d.f=2.228

When R=.601

$$t = .601 \sqrt{\frac{12-2}{(1-(.601)^2)}}$$
$$t = 2.228$$

The calculated t value (2.3789) is greater than the t value at the critical level (5% level) of the t test (2.228). Degree of Financial Leverage (DFL) shows the risk of the company in terms of finances whereas Return on Capital Employed (ROCE) indicates profitability as seen by the owners (i.e. owners' profitability). Spearman rank correlation coefficient between DFL and ROCE is +0.601 which is significant at 5% level. This implies that the two variables are meaningfully related. The study also suggests that an increase in financial risk was sufficiently recompensed with the increase in risk premium, in the form of owners' profitability during the period.

TABLE-3: SPEARMAN'S RANK CORRELATION BETWEEN DOL AND DFL OF SELECTED REAL ESTATE COMPANIES

No	Year	Rank of DOL(x)	Rank of DFL(y)	d =X-Y	d ²
1	2022-23	5	3	2	4
2	2021-22	7	2	5	25
3	2020-21	3	5	-2	4
4	2019-20	1	4	-3	9
5	2018-19	8	9	-1	1
6	2017-18	10	7	3	9

No	Year	Rank of DOL(x)	Rank of DFL(y)	d =X-Y	d ²
7	2016-17	11	10	1	1
8	2015-16	12	12	0	0
9	2014-15	4	8	-4	16
10	2013-14	9	11	-2	4
11	2012-13	6	6	0	0
12	2011-12	2	1	1	1
					$\sum d^2 = 74$

$$R = 1 - \frac{6\sum d^2}{n(n^2-1)}$$
$$= 0.742$$

Spearman’s rank correlation coefficient between DOL and DFL is **.742**

Here, n=12, d.f=n-2=12-02=10

Table value of t at 1% level with 10d.f=3.169

When R=.742

$$t = .742 \sqrt{\frac{12-2}{(1-(.742)^2)}}$$
$$t = 3.489$$

The t value (3.489) computes higher than the critical t value at the 1 percent level (3.169). The rank correlation coefficient of DOL and DFL is +0.742 that is statistically significant at the 1% level. This shows that business risk and financial risk in the industry have a strong relationship. The study therefore gives a good support of positive correlation between business risk and financial risk in the company at the time of study.

FINDINGS

The main findings are given bellow:

- i. It is observed that the Spearman’s rank correlation coefficient (R) between DOL and OPCE is +0.594, indicating a moderate positive relationship (in table no-1). This means that an increase in the degree of operating leverage is generally associated with a rise in the company's operating profitability.

- ii. The computed t-value (2.3348) is greater than the table value (2.228) at a 5% significance level ($d.f = 10$) which indicates that the relationship is statistically significant (table no-1)
- iii. A positive relationship (0.601) exists between DFL and ROCE, indicating that as financial leverage increases, returns on capital employed also tend to rise (in table-2)
- iv. The t-value (2.3789) is greater than the critical value (2.228) at the 5% level of significance ($df = 10$), confirming that this relationship is also statistically significant (in table-2)
- v. The positive correlation coefficient between DOL and DFL is 0.742, which indicates a strong positive relationship between business risk and financial risk in table-3. This signifies that companies with higher operating leverage also tend to use more financial leverage.
- vi. The table-3 shows that the calculated t-value (3.489) exceeds the critical value (3.169) at the 1% level of significance ($df = 10$) and it implies that the relationship is highly statistically significant. Thus, the study provides strong evidence of an association between business and financial risks.

VII. CONCLUSION

Risk and return are closely connected. The analysis reveals that there is a very close relationship between business risk, financial risk, and profitability in the Indian real estate market. The empirical results demonstrate statistically significant positive associations and correlations between operating leverage (DOL) and operating profitability (OPCE) and between financial leverage (DFL) and return on capital employed (ROCE). In addition, the high proportionality between DOL and DFL suggests that the higher the business risk, the greater the financial risk taken by the companies.

These findings imply that leverage, when used successfully, can lead to increased profitability; however, it increases the risk. One of the key points presented in this study is that profitability in volatile markets could be stabilized by using a carefully managed financial and operating leverage. Firms ought to pursue a sensible leverage approach, one that entails sound risk management and forecasting based on scenarios. Guidelines can be viewed by regulators as a way of curbing excessive exposure to debt within real estate companies and protecting investor confidence and stability in the sectors.

Regarding the industry, the results would be useful to managers, investors, and policymakers. Managers can use such insights to improve capital allocation decisions, investors can integrate leverage ratios into portfolio decisions, and regulators can contextualize industry-specific policies that balance growth with financial discipline.

The study provides sector specific evidence by developing statistically significant links between leverages and profitability, that expands the current body of risk-return literature to non-traditional sectors like cement, leather and manufacturing. The research therefore addresses a significant research gap and also offers useful insights that can be applied by both the academia and the industry players.

VIII. LIMITATIONS OF THE STUDY

- The study is based on secondary data obtained from published reports, articles, and financial databases, which may not always reflect real-time accuracy or recent changes.
- The analysis is conducted only five real estate companies and using data spanning twelve years. The results may not account for future market dynamics or emerging trends in the real estate sector.
- The study overlooks key external factors like economic conditions, regulations, and political influences affecting company performance.

IX. SUGGESTIONS AND RECOMMENDATIONS

The following recommendations are proposed to enhance the Company's revenue by considering the risk and return of five chosen Indian real estate companies.

- a. Balance Operating and Financial Leverage:** Since a moderate to strong positive relationship exists between both operating and financial leverage and profitability, companies should strategically manage their leverage to enhance returns. However, care must be taken to avoid excessive risk exposure.
- b. Use Leverage as a Profitability Tool:** The significant positive relationships between DOL & OPCE and DFL & ROCE suggest that companies can improve profitability by optimally utilizing leverage. Managers should consider increasing leverage within acceptable risk limits to maximize shareholder value.
- c. Monitor Risk Levels Closely:** Given the strong correlation between business risk (DOL) and financial risk (DFL), companies should regularly assess their overall risk profile. A rise in one form of leverage often signals increased exposure to the other, potentially compounding risk.

- d. **Strengthen Risk Management Practices:** With both relationships being statistically significant, especially at higher confidence levels, companies should implement robust risk management frameworks. Scenario planning and stress testing can help in understanding the impact of leverage decisions.

PROFESSIONAL INDUSTRIAL RELEVANCE

The findings of this study have important implications for multiple stakeholders in the Indian real estate sector:

- a. **For Investors:** The strong correlation between profitability and leverage (both operating and financial) indicates that leverage ratios need to be taken seriously by investors when assessing real estate firms. Moderate leverage may augment returns, but too much reliance on debt raises financial exposure. The leverage indicators, like DOL, DFL, etc., should therefore be included in the Portfolio strategies to balance the returns to be expected with the risks involved.
- b. **For Policymakers and Regulators:** The findings highlight the importance of regulatory guidelines that provide sustainable funding in the real estate market. Policy makers might think of incorporating industry-specific rules regarding the exposure to debt, norms of disclosure of leverage ratios, and stress-testing of listed real estate firms. These will enhance the transparency of the market, and protect the investors and help in the stability of the financial system.
- c. **For Real Estate Firms:** Leverage should be wisely employed by the companies to increase efficiency in the allocation of capital. Whereas operating leverage and financial leverage can increase profitability when the market is performing well, it will increase losses when the market is performing badly. Companies should then enhance risk management efforts, implement scenario planning, and align the funding strategies to the project timelines. Balanced capital structure will enable companies to maximize shareholder value whilst remaining financially stable in the long term.

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