



Analysis of Financial Performance and its Impact on Capital Structure: A study on Indian Real Estate Industry

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Abstract

Real estate sector is one of the most globally recognized sectors and in India Real estate is one of the major revenue generating sectors with the growth that influences the economy of the country. In this research an attempt has been made to analyze the financial performance of real estate industry in India and to measure the impact of its financial performance on the capital structure of the industry. In this study we have analyzed the financial and operating performance of real estate companies to analyze its financial position within the entire Industry. A financial performance analysis is executed in terms financial ratios of liquidity, profitability and solvency of a company. Hence the main objectives of this research are to analyze the liquidity, profitability & capital structure of real estate companies and to measure the impact of liquidity and profitability on capital structure of real estate companies in India.

This study has been conducted on 10 major real estate companies in India for the period of year 2011 to 2020. Descriptive statistics and ANOVA has been used to determine the average financial position of selected real estate companies and to find if the financial performance of these companies differ significantly within the industry. To measure the impact of liquidity and profitability on capital structure of real estate companies we have used multiple regression analysis.

The primary analysis of the study has shown that there exists a significant difference in the profitability, liquidity and capital structure performance of selected firms in the industry. It also pointed out that some of the real estate firms are under debt burden and liquidity crunch. Also study found out that there is a significant impact of financial performance (liquidity and profitability) on capital structure of real estate industry in India. Among various selected measures of liquidity and profitability Return on Capital Employed, Return on Assets and Current Ratio has shown significant impact on the capital structure decision of these real estate companies. This study will help investors, shareholders and internal management of the company in better decision making with regards to these Indian real estate companies.

Keywords: *capital structure, debt, financial performance, liquidity, profitability.*

Introduction

Analysis of financial performance is a method to determine the financial and operating performance of a business from its accounting and financial statements. Financial performance analysis is important for management, stakeholders as well as potential investors who are



looking for investment opportunity in the companies. Internal management and stakeholders look for financial performance analysis to determine their respective company's financial health and benchmark it with the industry standards to which they belong. For potential investors financial performance analysis is important to find potential investment opportunities and determine if the particular company's performance is worth investing in it. The aim of this analysis is to determine the profitability, liquidity and solvency position of companies under study over the period of time. Profitability is the ability of the firm to earn profit or generate earnings from all the activities of its business. It indicates how well the management of an enterprise generates earnings by using all the resources. Any business in the world will be sustainable only if it is profitable in the long run period. When we talk about liquidity, it is the ability of a business to pay off its short-term liabilities with its current assets. Analysis of the liquidity position of company is important for stakeholders and investors who want some information about the short term financial situation of a company. Solvency is the ability of a business to pay off its long-term debt & financial liabilities. When we consider solvency of company we often check capital structure of company and how they have financed their operations. In capital structure or financial structure analysis we evaluate weightage of debt and equity financing of a business. In financial management dilemma is to achieve desired trade-off between liquidity, solvency and profitability of a firm. In business, management of firm's liquidity and profitability is very crucial as it can have direct impact on the performance of company. It has been also observed that more profitable and liquid companies have better capital structure as they are successful in paying off their large debt if any using cash flows of business.

In financial structure, too much dependence on any of these capital financing methods can be risky and unprofitable. For example, if firm's capital structure is concentrated mainly on equity financing then it may lose the benefit of leverage and may not give maximum returns to its shareholders. On the other hand, a company with high debt on its capital structure may have to pay out high interest charges and hence their net income and cash flows may not be sufficient for the further operations of the business. Hence capital structures may vary from industry to industry. But it should be framed in a way that maximizes returns to its shareholders. There are many trade-offs that shareholders and management of a company have to consider while determining their optimal capital structure. Hence financial structure analysis is a very important aspect in studying the financial performance of any industry as it directly affects the financial performance of a firm.

Many researchers have conducted studies on financial performance analysis and determinants of capital structure in many different industries. Result of the studies suggested that profitability and liquidity of a company strongly impacts its capital structuring decisions. More profitable the company is less being the burden of debt it carries normally. Studies have found that liquidity and profitability impact differently to different industries and their business operations nature.

Real estate sector is one of the most globally recognized sectors and in India Real estate is one of the major revenue generating sectors with the growth that influences the economy of our country. But Real Estate industry is a heavily capital intensive industry. Large set of cash and assets go into business operations and new project developments. But due to future growth prospects of this industry people from all parts of the globe are keen to invest in this sector. But



normally these Real Estate companies in India, often times have liquidity and capital structure issues since these companies often have huge debt on their balance sheet and large proportion of their liquid assets exists as inventory and receivables. Hence this makes Indian real estate industry a potential sector to analyze their financial performance and study the possible impact of liquidity and profitability on capital structure of these real estate companies.

Statement of the Purpose

Real estate sector is one of the most globally recognized sectors and in India Real estate is one of the major revenue generating sectors with the growth that influences the economy of our country. Real estate Industry in India is expected to reach US\$ 1 trillion by 2030. It is also estimated that by 2025, it will contribute 13% to the country's GDP. Driven by increasing transparency and returns, there's a huge surge in private investment in the industry. The Government of India has allowed FDI of up to 100% for townships and settlements development projects. Construction is the third-largest sector in terms of FDI inflow. Thus due to various policy supports Real Estate Industry is set to grow very rapidly in the coming decade.

Also the rapid pace of urbanization in India is another factor that is contributing to the growth of real estate industry. Demand for residential properties has surged due to increase in urbanization and rising household income. Due to future growth prospects of this industry people from all parts of the globe are keen to invest in this sector. These foreign investments in real estate will ultimately lead to the development of Indian economy. Thus it would not be wrong to say that the real estate firms are the important sources of development in Indian economy. Hence due to growth in the industry competition among companies is increasing and they are under pressure to maintain and improve their financial performance. So it becomes necessary to study the financial performance and growth of the Industry which has direct impact on the development of the economy. Therefore, an attempt has been made to study the financial performance of real estate industry so as to guide the investors, policy makers, stakeholders and employees in their future decision making regarding the industry's financial performance. Also in real estate industry being heavily capital intensive, often most of firms are loaded with debt and also struggle with maintaining its liquidity and profitability position. Liquidity and profitability trend differs from industry to industry and also makes huge impact on debt and equity structure of company. This makes Indian real estate industry a potential sector to analyze their financial performance and study its possible impact on capital structure of these real estate companies.

Review of Literature

J. C. Edison. in "*Financial Analysis of the Real Estate Industry in India*" studied the relationship between real estate industry and countries GDP. He also analyzed the financial parameters of Indian real estate industry. The study indicated a strong positive relationship between real estate industry investment and GDP. In order validate this sales of the industry were projected up to 2014-15 by using linear regression analysis. This research revealed that the real estate industry's sale is declining. Therefore, it is essential to augment the real estate industry's sales so that growth of the economy can be improved through estate industry's backward and forward linkages.



Vishal Panchal and other in “*Fundamental Research Analysis of Real Estate Sector: A Case Study of IRB Infrastructure and Developers Ltd.*” adopted a top down approach for analysis where economic analysis followed by industry analysis and finally company level analysis has been done specifically for “IRB Infrastructure and Developers Ltd.” This study was conducted with the purpose of helping an investor decide on making equity investment in real estate sector and specifically in IRB Infrastructure and Developers Ltd. Hence study was concluded with recommendation of long investment in real estate sector given the good past performance and potential of IRB Infrastructure and Developers Ltd., also similar recommendation was extended for the company’s equity.

T. Venkatesan and **DR. S. K. Nagarajanan** in “*Empirical study of profitability analysis of selected steel companies in India*” analyzed the data of selected steel companies. After the analysis of various data, related to selected steel companies of India, it was clear that profitability more or less depends upon the better utilization of resources, cut-off expenses and quality of management function in the products, customer services and to manpower and goodwill and market share. It is worthwhile to increase production capacity and use advance technology to cut down cost of production and wage cost in order to increase profitability, not only against the investment, but also for investor’s return point of view. These programs were helpful to increase profitability of selected steel companies in India in future.

Gunavelan and **Kannan** in “*A study on financial performance of automobile industries in selected company*” attempted to measure the firm’s operating performance, profitability, liquidity, solvency etc., to prove the financial position during 2008 to 2017 in Indian Automobile Industry. The study also measured the extent of influence of the factors responsible for the profitability and to analyze the direct and indirect effects of the factors of the financial variables of Indian Automobile Industry. The findings of the study strongly suggest that the solvency and liquidity position should be significantly improved. Almost all the select companies in the Automobile Industry entered into foreign collaborations after liberalization of FDI policies which led to increase in financial performance of this industry. Study also suggest that government should encourage export of this industry by providing required infrastructure and reliefs to enhance performance.

Rajput V in “*An Analysis of Financial Performance of Selected Telecom Companies in India*” throws light on the financial condition and financial performance of Indian telecom sector over a given period of time. This research attempted to measure profitability, liquidity, efficiency and financial position of select companies. Study attempted to analyze the trend of financial ratios of selected companies using ANOVA and others descriptive statistics measures. It was observed that the financial performance of telecom companies is under pressure during the study period, their liquidity position is observed to be very weak, both the public sector companies are generating continuous loss from the year 2009-10 onwards, efficiency and productivity level is observed at low level. Therefore, it was suggested that the telecom companies should improve its performance to survive in the competitive and fast changing market.

Reddy, Kishore Kumar K. in “*Financial performance of Indian real estate industry A study of select enterprises*” studied various dimensions of management of finances of Indian Real Estate



Industry represented by selected Real Estate companies. They analyzed the capital structure, acquisition and utilization of fixed assets, efficacy of working capital and profitability performance of individual companies with industry comparison. In light of the foregoing findings, the researcher offered some suggestions to overcome the weaknesses and strengthen the financial performance of Indian real estate industry. They suggested that the Indian Real Estate Industry has to design and develop a balanced financial structure, use fixed assets effectively, create adequate depreciation provision, optimize the inventory investment, adopt sound credit policy, strengthen the degree of liquidity and control operating expenses effectively in order to improve its financial efficiency.

Kavita Rani in “*The Impact of Capital Structure on Financial Performance of Different Sectors in India*” conducted a study to investigate the impact of capital structure (Debt, Equity ratio) on financial performance measured by EPS, Return on Investment, Capital Turnover, Debt to Net Worth, Net Profit Ratio, Return on Capital Employed and Return on Equity. The analysis was done by applying correlation and regression statistics. The findings indicated that the capital structure has a no significant impact on financial performance in the automobile sector on the other hand electronic and metal sector had shown that financial performance was significantly affected by capital structure.

Vishnu Prasad G in “*Impact of Capital Structure on Financial Performance of Small Finance Banks*” attempted to analyze the influence of capital structure on the financial performance of small finance banks in India. In order to measure the capital structure, debt to total assets ratio and debt to equity ratios were used and to measure the financial performance, return on capital employed (ROCE), net profit ratio (NP) and net interest margin (NIM) were used. The results of the study indicated that the capital structure has significant impact on the financial performance of the small finance banks in India.

Vibha Tripathi in “*Panel Data Analysis of Determinants of Leverage in the Automobile Industry in India*” studied the key determinants of capital structure of leading automobile companies in India. Panel data regression technique was used to find the most significant determinants that affect the capital structure of 10 leading automobile companies and the Automobile Industry as a whole for a period of 14 years from 2000–2001 to 2013–2014. Regression results of the study reveals that profitability is the only significant determinant having negative relationship with debt equity ratio; and the other variables were insignificant.

Osaretin, K.O., Sodik, A.O. and Fredrick, I. in “*Capital Structure & the Profitability-Liquidity Trade-off*” mentioned about effects of liquidity and profitability on capital structuring decisions of a firm. This research was focused on finding the link between capital structure and profitability-liquidity trade-off using Panel data analysis for 18 listed manufacturing companies in Nigeria. Findings of the research pointed out that profitability and liquidity affects in a similar way to capital structure of company. It further pointed out that debt to equity ratio has negative impact on profitability and liquidity and debt to assets ratio has positive effect on profitability and liquidity in manufacturing companies in Nigeria. The study further suggested that the way profitability and liquidity will impact capital structure is dependent on the business process, industry and the economy.



Prof.(Dr). Velnampy, T. and Nireesh, J.A. in *“The Relationship between Capital Structure & Profitability”* investigated the relationship between capital structure of a firm and its profitability for Srilankan banks for the period of 8 years from 2002 to 2009. They have analyzed the data by using descriptive statistics and correlation analysis to find out the relationship between capital structure and profitability. Results of this research analysis proved that there is a negative relationship between capital structure and profitability except for the association between debt to equity and return on equity.

Rosario S. and Chavali K. in *“Capital Structure and Its Impact On Profitability - A Study of Indian Hotel Industry”* attempted to establish the relationship between the capital employed and profitability using the financial data of 22 companies in hotel industry in India. This analysis was executed with the help of descriptive statistics and correlation analysis, in order to establish the relationship among these variables. This research revealed that nearly 58% of the assets of the hotel industry are funded by debt. Also the correlation analysis indicated the positive relationship between debt structure and profitability and slightly negative correlation among other variables.

Research Gap

The review of literature points out to some limited studies conducted on Indian Real Estate Industry like studying the relationship between industry and economy. In some of the literature they have studied the financial and operational performance of the Real Estate companies independently. It has been observed that many of the studies have focused on the basic comparison of the companies, impact on the economy, competitive environment in the industry, growth trend in the sector, and the future prospect of the sector. But very few studies have focused on in-depth financial performance analysis of real estate companies and their respective position in the industry. Lot of research has been conducted on various sectors of the economy to analyze their financial performance such as liquidity analysis, profitability analysis, capital structure analysis and to compare this financial performance within the industry. But no specific weighted was given to such study focused on Real Estate Industry in details.

Also literature review pointed out that there is a significant relationship between firm’s financial performance and its capital structure decision. Many studies have been conducted on various industries which had broad results of impact of financial performance like profitability and liquidity on capital structure of a company. These results varied from one industry to other. Real Estate industry being one of important sectors for the economy, it is vital to conduct such study on capital structure of real estate companies in India. No such attempt has been made to study the impact of firm’s financial performance on the capital structuring decisions.

Hence, the present study is an attempt to fill these research gaps. It aims at analyzing financial performance of the major Real Estate companies in India and their financial position within the industry. Also an attempt will be made to study the impact of financial performance on capital structure of Indian real estate companies.



Problem Statement

A financial performance analysis in terms of liquidity, profitability and solvency is an important aspect in decision making for any business. This analysis attempts to measure the operating and financial performance of a company to prove its financial position within the Industry. Hence this research focuses on studying the financial performance of selected real estate companies and its position within Industry for the period of 2011 to 2020. In this research an attempt has been made to analyze the position of profitability, liquidity and capital structure of selected real estate companies. Also this research will try to find the possible relationship between capital structure and financial performance (in terms of liquidity and profitability) of selected real estate companies in India. And towards the end we will measure the impact of financial performance in terms of liquidity and profitability on capital structure of the real estate companies in India.

Research Objectives

- To analyze the profitability position of selected Real Estate companies in India.
- To analyze liquidity position of Selected Real Estate Companies in India.
- To analyze the capital structure of selected Real Estate companies in India.
- To study the impact of liquidity on capital structure of selected Real Estate Companies in India.
- To study the impact of profitability on capital structure of selected Real Estate Companies in India.

Hypotheses of the Study

With the above objectives, the following null hypotheses have been formulated to test during the study period.

- There is no significant difference between the profitability position within the selected Real Estate companies in India
- There is no significant difference between the capital structure of selected Real Estate companies in India.
- There is no significant difference between the liquidity position within the selected Real Estate companies in India.
- There is no significant impact of profitability on capital structure of selected Real Estate Companies in India.
- There is no significant impact of liquidity on capital structure of selected Real Estate Companies in India.



Research Methodology

This study is descriptive as well as causal research design as we will be evaluating the financial performance of companies under study in detailed and analytical manner. It is also a causal research as we will study the impact of financial performance in terms of liquidity and profitability on capital structure of the industry. This research will be Quantitative research design where we will evaluate financial position of companies using financial ratios and measure the impact of these ratios on capital structure.

Data Collection Method

Secondary Data collection method is adopted that specifically include Bloomberg database and company reports for collecting the financial data of companies and their ratios. We have also used official websites of companies for further analysis of their financial data.

Sampling Design

Convenience Sampling method is adopted for selecting Real Estate companies in India. Indian real estate industry is dominated by private sector comprising several small, medium and large size Real Estate companies. For this study target population under study is considered as all the real estate companies listed on NSE and BSE Stock Exchange. For selecting the sample of companies in real estate industry we have considered S&P BSE Realty index as our sample frame. All the companies who are part of S&P BSE Realty index are considered as the sample size for this study. Total 10 companies who represent and are part of **S&P BSE Realty index** are selected as sample size for this research.

Following are the companies representing Real Estate Industry as a part of S&P BSE Realty Index:

- Brigade Enterprises Ltd
- DLF Ltd
- Godrej Properties Ltd
- Indiabulls Real Estate Ltd
- Mahindra Lifespace Developers Ltd
- Oberoi Realty Ltd
- Phoenix Mills Ltd
- Prestige Estates Projects Ltd
- Sobha Limited
- Sunteck Realty Ltd

Data Analysis Tools

For financial performance analysis we will be using Descriptive statistics method for data analysis as data collected will be quantitative in nature. The collected secondary data will be carefully classified and analyzed using various type of relevant statistical techniques and employing the most suitable parametric and non-parametric test. The hypotheses formed for the research will be tested at 5% level of significance with the help of ANOVA and Regression



Analysis. For Data Analysis we will be using Excel as analytical tool for hypothesis validation and testing.

- **Descriptive Statistics (Average):** To find out the average of financial ratios of selected companies to that of the industry.
- **ANOVA:** To find the average financial position of selected real estate companies within the industry and does their financial performance differ significantly within the industry.
- **Regression Analysis:** To study the impact of financial performance in terms of liquidity and profitability on capital structure of selected real estate companies in India.

Data Analysis & Interpretation

I. Profitability Analysis

When we talk about any business or company, its reason for existence in past and in the future will be for profit making. Any business in the world will be sustainable only if it is profitable in the long run period. Profitability is the ability of the firm to earn profit or generate earnings from all the activities of its business. It indicates how well the management of an enterprise generates earnings by using all the resources. Profitability of a firm is of vital importance to its shareholders because it drives the revenue to them in the form of appreciated share value or dividends being paid out to shareholders by the company. Also profitability is important parameter to creditors because profits are one of sources of funds for debt payment. Thus, profit is the primary purpose and it is the responsibility of the management to make an intensive use of capital invested. Hence profitability is of vital importance to management as well as to all the stakeholders as a financial performance measurement parameter. Profitability ratios are determined on the basis of two aspects i.e. either sales or investments. Some of the profitability ratios which will be used in this research with respect to sales are (i.) gross profit margin and (ii) net profit margin. Profitability in relation to investment is measured by (i) return on assets, (ii) return on capital employed, (iii) earnings per share and (iv) return on shareholder's equity.

With respect to the Real Estate companies, the profitability concept will give detail idea about the profit and profit making capacity of these companies. In this research profitability analysis of the Real Estate companies we have included financial ratios with respect to profitability such as net profit margin, operating profit margin, return on capital employed, return on owners' equity, earning per share and return on assets, which will give the detailed idea about profit and profit making capacity of the selected real estate companies. In the next part of this chapter we will see detailed analysis of each profitability ratio selected with respect to all the real estate companies over the years.

1. Operating Profit Margin

Operating profit margin is equivalent to operating income divided by the total revenue from business. Operating profit margin is a profitability ratio measuring total revenue after covering operating and non-operating expenses of a business. Operating income indicates how much of your generated sales revenue is left when all the operating expenses are paid off.

$$\text{Operating Profit Margin} = (\text{Operating Income} / \text{Total Revenue}) * 100$$

Generally Operating Income represents the income which a company is making from its core operations of business, not including other sources of income that are not directly related to its main business activities.

A business which is capable of generating operating profit rather than operating at a loss is a positive metric for potential investors, creditors and all the stakeholders. Hence the company's operating profit margin creates value for shareholders. The higher the profit margin that a company maintains, the less financial risk it will have as compared to having a lower profit ratio, indicating a lower profit margin of a company.

Over the period of time increase in profit margin shows that profitability is improving and attributing to efficient control of operating costs that may influence revenue build-ups such as increase in sales, pricing, better marketing, and increase in customer demand.

Table No. 1
Operating Profit Margin Ratio
For Year 2011- 2020

Year / Company	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017-2018	2018 - 2019	2019 - 2020	Mean
Brigade Enterprises	36.69	14.94	17.95	23.91	22.57	18.85	22.32	21.97	21.85	17.90	21.89
DLF	32.65	33.39	23.54	21.96	32.41	32.56	34.80	27.49	22.91	15.37	27.71
Godrej Properties	22.91	20.62	31.05	25.76	14.19	13.39	16.69	-13.79	6.13	13.88	15.08
Indiabulls	21.55	25.56	47.34	28.21	22.76	28.68	25.29	71.39	20.73	67.62	35.91
Mahindra Lifespace	27.50	25.95	31.58	22.71	37.84	17.80	6.00	9.39	3.72	-10.56	17.19
Oberoi Realty	55.56	55.36	55.71	51.05	51.32	45.29	47.49	49.68	43.03	44.83	49.93
Phoenix Mills	51.99	39.39	51.29	41.80	37.74	36.71	37.88	37.58	41.85	41.24	41.75
Prestige Estates	20.30	22.44	26.23	24.76	24.98	16.97	15.84	20.41	21.87	20.79	21.46
Sobha Ltd	23.87	30.44	26.29	24.60	22.40	23.38	15.97	16.72	17.77	27.81	22.93
Sunteck Realty	8.82	16.08	13.29	29.94	44.15	31.55	36.73	41.71	43.86	26.04	29.22

Source: Bloomberg Database (All Values in percentage %)

Primary Data Analysis: In the Table No.1 operating profit margin of real estate companies from year 2011 to year 2020 is represented. As we can analyze from the data the average



operating profit margin for the selected real estate companies lie in the range of 21% to 49%. The average operating profit margin for Oberoi Realty is highest among all the peers at 49.93%. Over the period of last 10 years the operating profit margin performance for Oberoi Realty looks profitable and healthy. After Oberoi Realty the second highest average is for Phoenix Mills. The company's performance in terms of operating profit margin looks promising for last 10 years. The average operating profit margin for Phoenix Mills stood at 41.75% which is way higher than all the peers in the industry.

The average operating profit margin for Indiabulls Real Estate for the study period of last 10 years stood at 35.91% which is higher than the average operating profit of all the companies under study. Operating Profit margin for Brigade Enterprises, Prestige Estates and Sobha Ltd ranged in average of 21% to 22% for period of 2011-2020. Performance of these companies in terms of operating profit margin was average where these companies operating profit margin ranged between 14% to 26% in study period. For DLF properties the average operating profit margin was 27.71% which is on the mark with all the industry peers average.

In case of Sunteck Realty the average operating profit margin was 29.22%. Tough in the initial years of study period between 2010 to 2013 company suffered with very low operating profit margin, it has substantially covered the same in later years with good growth in their operating profit margin. For Godrej Properties and Mahindra Life-space developers the average operating profit margin was 15.08% and 17.19% respectively which is way lower than average of all peer's performance. Also for both these companies the average operating profit margin turned negative during 2018 and 2020 respectively. These companies are having below average operating profit margin from period of 2015 to 2020. Hence the profitability position of these two companies looks weak compared to the other competitors in the industry. Further an attempt has been made to know whether any difference exist between the company's net profit margin. For that ANOVA test has been used and results have been given in the Table No.2 .

Operating Profit Margin (ANOVA Test)

ANOVA has been applied on Operating profit margin of selected Real Estate companies in order to test whether there is any significant difference among the ratios between the sample companies. For this purpose, the following null hypothesis was framed and tested. The results of the above are presented in Table No. 2

Null Hypothesis: There is no significant difference in Operating Profit Margin of Selected Real Estate companies under study.

Alternative Hypothesis: There is a significant difference in Operating Profit Margin of Selected Real Estate companies under study.



Table No. 2
ANOVA on Operating Profit Margin

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	11226.82	9	1247.425	11.58799	6.88744E-12	1.985595
Within Groups	9688.327	90	107.6481			
Total	20915.15	99				

Source: Calculated ANOVA F-Statistics Values (Significance level of 5%)

The ANOVA Test result reveals that P-value is less than 0.05 and also calculated F value (11.58) is greater than F critical value (1.98) at 5% significance level hence the null hypothesis is rejected and alternative hypothesis is accepted. This means that there exist significant level of difference and variance in the Operating profit margin of selected real estate companies. We can see from the table 1 data that few companies profit margin is very healthy but some of the companies are in red zone of below average profit margin to that of other companies in the industry.

2. Net Profit Margin

Net Profit Margin measures the percentage of profit that a company produces from its total revenue. Net profit margin is financial ratio that is calculated by dividing net profit by total revenue in terms of percentage. It indicates how much net profit that a company makes is achieved with total sales. A higher level of net profit margin indicates that a company is more efficient in converting their sales into actual profit. While calculating net profit margin all costs are included to get the final profit of a business. Hence Net profit margin is percentage of revenue left after all the expenses are deducted from sales revenue.

$$\text{Net Profit Margin} = (\text{Net Profit} / \text{Total Revenue}) \times 100$$

The net profit margin is the measure of the overall success of a business. The higher net profit margin indicates that a business is pricing its products correctly and is exercising good cost control. This ratio useful for comparing the results of businesses within the same industry, as they all are subject to the same business environment and may have the similar cost structures.

Table No. 3
Net Profit Margin Ratio
For Year 2011- 2020

Year / Company	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019-2020	Mean
Brigade Enterprises	25.00	10.50	8.51	10.15	7.57	6.82	7.56	7.34	8.07	4.96	9.65
DLF	17.15	12.47	9.16	7.79	7.06	3.08	8.69	66.56	15.77	-9.59	13.81
Godrej Properties	29.66	13.10	14.73	14.83	10.95	9.23	14.49	6.15	9.47	11.41	13.40
Indiabulls	11.11	11.92	13.39	12.96	9.58	10.25	18.40	52.70	10.20	10.62	16.11
Mahindra Lifespace	17.68	16.98	19.15	14.27	24.51	11.27	13.41	17.84	20.19	-31.66	12.36
Oberoi Realty	51.92	56.13	48.19	38.96	34.37	30.76	34.00	36.26	31.63	30.81	39.30
Phoenix Mills	40.06	26.77	19.92	9.37	2.25	4.89	9.76	15.71	22.32	18.16	16.92
Prestige Estates	11.08	7.85	14.68	12.33	9.72	11.03	5.55	6.75	8.04	4.96	9.20
Sobha Ltd	13.02	14.65	11.67	10.83	9.78	8.27	7.21	7.79	8.64	7.51	9.94
Sunteck Realty	15.70	18.27	13.31	16.31	22.51	20.70	21.42	24.11	26.56	16.50	19.54

Source: Bloomberg Database (All Values in percentage %)

Primary Data Analysis: In the table 3 Net profit margin of real estate companies for the year 2011 to year 2020 is given. As we can analyze from the data the average net profit margin for the selected real estate companies lie in the range of 9% to 39%. The average operating profit margin of Oberoi Realty for these years is highest among all the peers at 39.30% and the company has maintained healthy net profit margin for all the 10 years' data. The second highest average net profit margin position of 19.54 % is of Sunteck Realty with decent performance. The net profit margin though decent but was fluctuating between 13% to 26% for the given period. The average net profit margin of Indiabulls real estate and Phoenix Mills is at par with the average net profit margin of the selected companies within the industry at approximately 16%. Though Phoenix Mills struggled to maintain the net profit margin in the period of 2015 to 2016 where it went below 5% level. For DLF, Godrej properties and Mahindra Lifespace the average net profit margin ranged in 12% to 13% level which can be considered as decent performance



but if compare it with other industry peers it is slightly on a lower side. Also for DLF and Mahindra Lifespace in year 2020 net profit margin turned negative which is not a healthy sign. For companies like brigade enterprises, Prestige Estates and Shobha Ltd. The average net profit margin ranged at level of 9% which is way below the industry average as compared with other companies. Hence these companies have lot of scope to improve their net profit margin numbers to match with the industry peers.

Net Profit Margin (ANOVA Test)

ANOVA has been applied on Net profit margin of selected Real Estate companies in order to test whether there is any significant difference among the ratios between the sample companies. For this purpose, the following null hypothesis was framed and tested. The results of the above are presented in Table No. 4

Null Hypothesis: There is no significant difference in Net Profit Margin of Selected Real Estate companies under study.

Alternative Hypothesis: There is a significant difference in Net Profit Margin of Selected Real Estate companies under study.

Table No. 4
ANOVA on Net Profit Margin

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	7045.198	9	782.7997	6.84103	1.94E-07	1.985595
Within Groups	10298.45	90	114.4272			
Total	17343.64	99				

Source: Calculated ANOVA F-Statistics Values (Significance level of 5%)

The ANOVA Test result reveals that P-value is less than 0.05 and also calculated F value (6.84) is greater than F critical value (1.98) at 5% significance level hence the null hypothesis is rejected and alternative hypothesis is accepted. This means that there exist significant level of difference and variance within the Net profit margin of selected real estate companies. We can see from the table 3 data that few companies net profit margin is below 10% margin level while all the other companies average net profit margin is in the range of 11% to 19% level which looks good. While Oberoi Realty has significantly outperformed all its peers with average 39% net profit margin maintained over last 10 years.

3. Return on Capital Employed Ratio

ROCE or Return on Capital Employed is a profitability ratio which evaluates company’s efficiency in terms of using its capital to generate profits in the business. ROCE shows how much of operating income is generated using each dollar of capital invested in a business. It is calculated by dividing operating income with capital employed by business.

$$ROCE = (EBIT/Capital Employed) *100$$

Where EBIT is earnings before interest & taxes that includes profit but excludes interest and tax expenses and Capital employed is found out by reducing current liabilities from total assets.

In a business higher the ROCE level more it is favorable, as it indicates more profits generated from per dollar of capital employed. Higher ROCE Companies indicate that they have employed capital in a more efficient manner and hence has higher profitability levels. It also indicates company's strong cash flow position.

ROCE is a long-term profitability ratio because it tells how effectively assets are performing while taking into consideration long-term financing. Hence the value of company's returns should always be higher as compared to the rate at which they are borrowing their funds of business. Therefore, ROCE is one of the important parameters which has to be considered before investing in any company. Also, we should always analyze ROCE of a company for several years in long run as there should be a consistency in it over the period of time.

Table No. 5
Return on Capital Employed Ratio
For Year 2011- 2020

Year / Company	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020	Mean
Brigade Enterprises	6.82	5.40	5.97	7.41	7.60	7.40	7.74	5.79	7.59	5.64	6.74
DLF	5.50	5.35	4.65	3.92	3.85	2.99	6.14	11.65	5.06	-8.05	4.11
Godrej Properties	11.67	8.47	10.01	10.01	11.42	9.59	6.18	5.87	8.67	5.53	8.74
Indiabulls	1.48	2.46	2.75	3.27	4.36	4.87	5.22	27.26	9.56	3.73	6.50
Mahindra Lifespace	7.59	7.92	8.29	7.93	13.21	5.34	4.97	6.12	6.08	-8.53	5.89
Oberoi Realty	19.85	13.07	12.79	7.21	7.46	8.39	6.88	6.45	9.54	7.61	9.93
Phoenix Mills	3.68	5.08	4.28	7.89	5.90	5.56	7.68	7.64	9.76	7.06	6.45
Prestige Estates	8.06	3.74	8.20	8.17	7.68	10.21	5.64	6.92	7.28	8.34	7.42
Sobha Ltd	7.61	8.78	9.55	9.29	8.74	5.12	5.05	6.84	9.01	13.91	8.39
Sunteck Realty	0.49	0.57	0.86	17.18	4.63	6.34	8.45	8.23	8.03	3.64	5.84

Source: Bloomberg Database (All Values in percentage %)



Primary Data Analysis: In the table 5 Return on Capital Employed ratio of real estate companies for the year 2011 to year 2020 is given. As we can analyze from the data the average ROCE ratio stood in the range of 4% to 9% for the selected real estate companies. The average ROCE ratio of all companies is coming as 7% for the study period of 10 years as industry average of these set of selected companies. The highest average ROCE is for Oberoi Realty at 9.93% among all the peers and the company has effectively utilized all its assets for better performance for all the 10 years' data. This ROCE performance for Oberoi has maintained between 6% to 19% range and its average ROCE is higher than industry average of 7% among all the peers. After this Godrej Properties and Shobha Ltd. had a very healthy ROCE ratio at 8.74% and 8.39% respectively which above the average industry ROCE among all the peers. The average ROCE ratio for Prestige Estates in the study period stood at 7.42% which is at par with the industry average numbers and all the peers performance in terms of ROCE.

For Indiabulls, Brigade Enterprises and Phoenix Mills the average ROCE for the study period was in 6% range which is slightly lower than the industry average among all the peers. For Indiabulls ROCE for most of the years remains below 5% range which does not look very profitable and healthy. For DLF and Mahindra lifespace the average ROCE level was 4.11% and 5.89% respectively which is way below the industry average ROCE level. This looks negative outlook for both these companies and also for the year 2020 ROCE level turned negative 8% which represents the EBIT performance for these companies was negative and declining. Hence from all the peers ROCE level of Godrej Properties, Oberoi Realty and Shobha Ltd. Looks very positive and profitable in terms of efficiency of their asset performance.

Return on Capital Employed (ANOVA Test)

ANOVA has been applied on Return on Capital Employed Ratio of selected Real Estate companies in order to test whether there is any significant difference among the ratios between the sample companies. For this purpose, the following null hypothesis was framed and tested. The results of the above are presented in Table No. 6

Null Hypothesis: There is no significant difference in Return on Capital Employed of Selected Real Estate companies under study.

Alternative Hypothesis: There is a significant difference in Return on Capital Employed of Selected Real Estate companies under study.

Table No. 6
ANOVA on Return on Capital Employed

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	252.6885	9	28.0765	1.599078	0.127455	1.985595
Within Groups	1580.214	90	17.55793			
Total	1832.902	99				

Source: Calculated ANOVA F-Statistics Values (Significance level of 5%)



The ANOVA Test result reveals that P-value is greater than 0.05 and also calculated F value (1.59) is less than F critical value (1.98) at 5% significance level hence the null hypothesis is accepted. This means that there is no significant level of difference and variance within the Return on Capital Employed Ratios of selected real estate companies. As we can see from test results over long run ROCE of all companies did not vary too much and has been in consistent range of 4% to 9%.

4. Return on Assets (ROA)

Return on Assets or ROA indicates profitability of a company relative to its total assets, in percentage terms. Return on assets gives shareholders an idea about efficiency of management in using its assets to generate earnings. Hence ROA indicates the performance of a company by comparing the profit that it is generating to the capital it has invested in assets. Higher the returns, the company is more productive and efficient in utilizing its economic resources or assets. ROA is calculated by dividing company’s net income to the total assets.

$$\text{Return on Assets} = (\text{Net Income} / \text{Average Total Assets}) \times 100$$

Assets of a company generate revenues and help produce profits for a business, and hence this ratio is useful for management & investors to evaluate the efficiency of company in converting its assets into revenue streams.

ROA can be considered as a return on investment for the company as capital assets are usually the biggest investment for most of the companies. Whereas ROA is more useful in comparing companies which belong to the same industry as different industries use assets differently. For instance, construction and real estate companies use large, expensive equipment. Hence they are asset intensive companies and might have lower ROA. However, these companies with a large asset base can have a large ROA, if their income is high enough.

Table No. 7
Return on Assets
For Year 2011- 2020

Year / Company	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020	Mean
Brigade Enterprises	5.01	2.12	2.15	2.92	2.49	2.70	2.48	1.96	2.58	1.13	2.55
DLF	2.68	1.93	1.11	1.00	0.82	0.48	1.14	7.05	2.04	-0.94	1.73
Godrej Properties	6.63	2.83	2.95	2.95	2.83	3.04	2.76	1.12	3.09	2.94	3.11
Indiabulls	1.01	1.09	1.39	1.70	1.64	1.69	2.16	12.28	2.78	0.88	2.66
Mahindra Lifespace	5.75	5.57	5.53	3.20	7.57	2.33	2.82	3.43	4.00	-6.99	3.32
Oberoi Realty	15.82	10.55	10.02	5.77	5.03	5.97	4.74	4.90	7.65	6.17	7.66



Phoenix Mills	2.89	2.91	1.84	2.18	0.53	1.17	2.35	3.13	4.52	3.24	2.48
Prestige Estates	3.85	1.49	4.21	3.70	3.06	4.24	1.59	2.07	1.74	1.38	2.73
Sobha Ltd	4.68	5.07	4.77	4.53	4.08	2.40	2.07	2.42	3.00	2.59	3.56
Sunteck Realty	0.18	0.14	0.15	5.42	1.93	3.75	5.01	5.84	6.00	2.47	3.09

Source: Bloomberg Database (All Values in percentage %)

Primary Data Analysis: In the table 7 Return on Assets ratio of real estate companies for the year 2011 to year 2020 is given. As we can analyze from the data the average ROA ratio stood in the range of 1.7% to 7.6% for the selected real estate companies. The highest average ROA is for Oberoi Realty at 7.66% among all the other industry peers. The ROA value more than 5% is generally considered as good but in case of these real estate companies being asset intensive has ROA on slightly lower side and their industry average for selected companies is coming as 3.3%. Oberoi Realty has consistently maintained ROA of above 5% in period of 10 years which shows healthy utilization of assets to generate income. For Mahindra Lifespace and Shobha Ltd. the ROA performance is above average among all the industry peers. They have average ROA of 3.32% and 3.56% over the period of 10 years. For Mahindra Lifespace ROA performance has declined below 5% level from 2016 to 2020 and for the year 2020 it was negative indicating loss in business. For Shobha Ltd also the performance of ROA has been declined below 5% level from year 2016 to 2020. For companies like Godrej properties and Sunteck Realty the average ROA level has been at 3.11% and 3.09% respectively for given 10 years' period. Their performance in terms of asset efficiency has been at par with industry peers average performance. All the other companies from above table had average ROA level below 3% which indicates poor performance and non-profitability in terms of its assets utilization. For DLF the ROA performance for 10 years' period has been significantly lowest among all the peers indicating poorest company in terms of its asset utilization capacity.

Return on Assets (ANOVA Test)

ANOVA has been applied on ROA ratio of selected Real Estate companies in order to test whether there is any significant difference among the ratios between the sample companies. For this purpose, the following null hypothesis was framed and tested. The results of the above are presented in Table No.8.

Null Hypothesis: There is no significant difference in Return on Assets of Selected Real Estate companies under study.

Alternative Hypothesis: There is a significant difference in Return on Assets of Selected Real Estate companies under study.

Table No. 8
ANOVA on Return on Assets

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	235.9957	9	26.22174	4.578426	5.51E-05	1.985595
Within Groups	515.4516	90	5.72724			
Total	751.4473	99				

Source: Calculated ANOVA F-Statistics Values (Significance level of 5%)

The ANOVA Test result reveals that P-value is less than 0.05 and also calculated F value (4.57) is greater than F critical value (1.98) at 5% significance level hence the null hypothesis is rejected and alternative hypothesis is accepted. This means that there exist significant level of difference and variance within the Return on Assets ratio of selected real estate companies.

5. Return on Equity (ROE)

Return on equity ratio can be described as a financial ratio that is a Measure of a corporation's profitability by revealing how much profit a company generates with the money that shareholders have invested, in percentage. This ROE ratio represents the total return on equity capital invested and tells about the business's ability to turn equity investments into profits. Therefore, ROE measures the profits made for each dollar invested from shareholders' equity. The Return on Equity ratio is calculated by dividing the net income available for Common Shareholders of the company by total shareholder equity and is expressed in terms of percentage.

$$\text{ROE} = (\text{Net Income} / \text{Average Total Common Equity}) * 100$$

Here, net income is computed before dividends are allocated to the common shareholders and after dividends are paid out to preference shareholders, and interest is paid to lenders.

Analyzing the ROE of a company can help investors to choose a profitable investment options. By using ROE metric we can easily compare a company's performance to the industry's average, and get some insights about the company's competitive advantage or weakness. It also provides information about how the company's management is utilizing financing from equity to grow the business.

A long run sustainable and increasing ROE over time means that a company is reinvesting its earnings wisely and generating good returns and value to the shareholders. On the other hand, decreasing ROE over long run can tell that management is reinvesting capital in unproductive assets and its poor decision making.

Table No. 9
Return on Equity
For Year 2011- 2020

Year / Company	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020	Mean
Brigade Enterprises	11.19	4.97	5.15	7.38	7.22	9.61	9.47	6.99	10.77	5.87	7.86
DLF	6.69	4.81	2.78	2.43	1.97	1.19	2.94	14.91	3.83	-1.71	3.98
Godrej Properties	15.14	8.32	9.64	9.90	10.49	11.51	9.91	5.41	13.76	7.35	10.14
Indiabulls	1.57	1.88	2.37	3.28	3.53	5.30	9.88	59.05	12.62	3.19	10.27
Mahindra Lifespace	10.53	10.73	11.55	7.88	19.45	6.13	6.27	5.37	6.00	-10.65	7.33
Oberoi Realty	19.99	13.07	12.79	7.27	7.02	8.73	6.84	7.76	11.57	8.28	10.33
Phoenix Mills	5.14	6.25	4.84	7.36	2.09	4.60	8.36	9.69	13.31	9.32	7.10
Prestige Estates	11.88	3.87	11.69	10.99	9.78	15.29	6.18	8.12	9.28	8.41	9.55
Sobha Ltd	10.20	10.70	10.50	10.62	10.08	6.14	6.18	8.01	11.88	12.09	9.64
Sunteck Realty	0.49	0.46	0.70	26.79	6.47	10.49	11.89	9.68	8.33	3.49	7.88

Source: Bloomberg Database (All Values in percentage %)

Primary Data Analysis: In the table 9 Return on Equity ratio of real estate companies for the year 2011 to year 2020 is given. As we can analyze from the data the average ROE ratio stood in the range of 4% to 10% for the selected real estate companies. The highest average ROE for the period of 10 years is for Oberoi Realty at 10.33% among all the other industry peers. After Oberoi Realty Indiabulls real Estate and Godrej properties also had ROE performance on the same range of 10.26% and 10.14% respectively. Return on equity for Prestige Estates and Shobha Ltd was also above industry average at 9.54% and 9.64% among all the peers.

The average ROE performance for Brigade enterprises, Sunteck Realty and Phoenix mills was at 7.8%, 7.8% and 7.1% respectively which looks at par with all the industry peers average performance. Except DLF at average ROE of 3.9% for 10 years' period all the other companies have very healthy ROE level for shareholder's profitability. For DLF, the average ROE performance has been consistently low for the period of these 10 years.



Return on Equity (ANOVA Test)

ANOVA has been applied on ROE ratio of selected Real Estate companies in order to test whether there is any significant difference among the ratios between the sample companies. For this purpose, the following null hypothesis was framed and tested. The results of the above are presented in Table No.10

Null Hypothesis: There is no significant difference in Return on Equity of Selected Real Estate companies under study.

Alternative Hypothesis: There is a significant difference in Return on Equity of Selected Real Estate companies under study.

Table No. 10
ANOVA on Return on Equity

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	360.2939	9	40.03265	0.796268	0.620549	1.985595
Within Groups	4524.782	90	50.27536			
Total	4885.076	99				

Source: Calculated ANOVA F-Statistics Values (Significance level of 5%)

The ANOVA Test result reveals that P-value is greater than 0.05 and also calculated F value (0.79) is less than F critical value (1.98) at 5% significance level hence the null hypothesis is accepted. This means that there is no significant level of difference and variance within the Return on Equity Ratios of selected real estate companies. We can see from the table no. 9 data that companies average Return on Equity Ratio were ranged from 4% to 10% in period of last 10 years. As we can see from test results over long run ROE of all companies did not vary too much and has been in consistent average industry range.

6. Earnings Per Share (EPS)

Earnings per share ratio divides net profit available for common equity shareholders by the average common shares outstanding. The EPS value indicates a company's profitability position in terms of its ability to generate profits for common shareholders. EPS Value represents money each share of a company would have received if all of the profits were distributed back to the shareholders at the end of the year.

Earnings per share or EPS is calculated by subtracting preferred dividends from net income and dividing it by the common shares outstanding.

$$\text{EPS} = (\text{Net Income} - \text{Preferred Dividends}) / \text{Common Shares Outstanding}$$

While analyzing the EPS, higher earnings per share is always better than a lower ratio because this means the company is more profitable and the company has more profits to distribute to its shareholders. This ratio helps to decide if investing in that particular company would help investors generate more earnings. Higher EPS ratio indicates a profitable status of company,



which suggests that it may increase dividend pay-out over the period of time. It also helps in comparing the performance of promising companies within the particular industry to help pick the most suitable investment option.

Primary Data Analysis: In the table 11 Earnings per Share ratio of real estate companies for the year 2011 to year 2020 is given. As we can analyze from the data the average EPS ratio stood in the range of 6 to 23 Rupees per share for the selected real estate companies. The highest average EPS for the period of 10 years is for Mahindra Lifespace at 23.06 per share among all the other industry peers. Though EPS ratio for Mahindra Lifespace looks very attractive and profitable it is majorly because of the less number of shares outstanding for equity capital rather than very high earnings. Similarly, average EPS ratio for Shobha Ltd. has been at 22.43 per share being second highest among all the peers. The average earnings per share for selected Real Estate company’s data for last 10 years comes out be 12.8 per share as the industry average.

Table No. 11
Earnings Per Share For Year 2011- 2020

Year / Company	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019-2020	Mean
Brigade Enterprises	10.74	5.07	5.45	8.01	8.47	10.9	13.5	10.4	17.62	6.39	9.66
DLF	9.66	7.07	4.19	3.65	3.03	1.86	3.89	25.02	7.38	-2.41	6.33
Godrej Properties	18.73	14	17.74	8.62	9.58	7.56	9.6	10.86	11.16	10.84	11.87
Indiabulls	3.75	3.73	3.74	5.28	5.84	7.26	8.66	50	11.04	2.67	10.20
Mahindra Lifespace	26.2	29.16	34.61	24.64	64.98	22.35	23.08	19.93	23.32	-37.66	23.06
Oberoi Realty	16.88	14.1	15.38	9.48	9.66	12.96	11.15	13.51	22.8	18.96	14.49
Phoenix Mills	5.81	7.29	5.81	8.87	2.45	8.56	10.97	15.83	27.48	21.82	11.49
Prestige Estates	5.86	2.52	8.62	8.98	9.09	16.3	7.06	9.9	11.08	10.63	9.00
Sobha Ltd	18.49	21	22.15	23.97	24.27	14.08	16.59	22.68	31.33	29.69	22.43
Sunteck Realty	0.53	0.52	0.67	25.18	11.37	3.83	17.01	16.74	16.22	7.14	9.92

Source: Bloomberg Database (All Values in Rupees)



For Oberoi Realty average EPS for the 10 years’ period is 14.49 per share which is above the industry average performance in terms of EPS. Hence Oberoi Realty looks very profitable in terms of shareholder’s wealth as EPS looks consistently high for last 10 years. For Godrej Properties, Phoenix mills and Indiabulls the average EPS ratio for 10 years’ period is 11.87, 11.49 and 10.2 per share. They have below average to average performance in terms of EPS ratio and except Godrej properties other two has been inconsistent in maintaining the healthy EPS for their companies for 10 years’ period. The average EPS for Brigade Enterprises, Prestige Estates and Sunteck Realty is coming to be 9.66, 9,9.92 per share respectively which is below average performance if we compare it with the other industry peers. The lowest EPS performance has been for DLF for given 10 years’ period at 6.33 rupees per share. Hence this company’s performance being consistently low in terms of EPS it is not likely company to be invested.

Earnings Per Share (ANOVA Test)

ANOVA has been applied on EPS ratio of selected Real Estate companies in order to test whether there is any significant difference among the ratios between the sample companies. For this purpose, the following null hypothesis was framed and tested. The results of the above are presented in Table No. 12

Null Hypothesis: There is no significant difference in EPS of Selected Real Estate companies under study.

Alternative Hypothesis: There is a significant difference in EPS of Selected Real Estate companies under study.

Table No. 12
ANOVA on EPS

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2845.18	9	316.1311	2.85019	0.005318	1.985595
Within Groups	9982.424	90	110.9158			
Total	12827.6	99				

Source: Calculated ANOVA F-Statistics Values (Significance level of 5%)

The ANOVA Test result reveals that P-value is less than 0.05 and also calculated F value (2.85) is greater than F critical value (1.98) at 5% significance level hence the null hypothesis is rejected and alternative hypothesis is accepted. This means that there exist significant level of difference and variance within the Earnings per share ratio of selected real estate companies.

II. Liquidity Analysis

Liquidity is the ability of a business to pay off its short-term liabilities with its current assets. Analysis of the liquidity position of company is important for stakeholders and investors who want some information about the short term financial situation of a company. Financial liquidity of a company is also defined in terms of how quickly firm’s assets are capable of converting into



cash and cash equivalents. Financial assets like stocks, bonds of a company can be easily converted into cash, but fixed assets of company like machinery, property or plant cannot be easily sold out to be converted into cash. Hence such easily liquidated assets are current assets of a company.

These current assets are very important for smooth functioning of day to day business operations. Liquidity position of a company also depends on its outstanding short term liabilities or current liabilities. These current assets and current liabilities of the company are the parts of short term finance commonly known as working capital. Efficiency of a firm depends largely on its ability to manage its working capital properly. Inefficient working capital management will give adverse effect to the business, sometimes even to the extent of bankruptcy. Hence, working capital and liquidity management are important aspects in the overall financial management of a business.

In case of Real Estate companies which are heavily capital intensive, the amount of credit purchase is more. Hence liquidity management of these Real Estate companies is very crucial, because these companies might have more short-term liabilities. Hence we will be analyzing the liquidity position of these Real Estate companies using liquidity ratio analysis. Usually, the company's liquidity is measured by comparing the value of the current assets with the value of the current liabilities. Computation and analysis of the liquidity are made by a system of ratios. We will be using current ratio and quick ratio to analyze the trend in liquidity position of these companies over the years. These selected liquidity ratios represent the financial situation and its cash generation capacity for meeting its liabilities and its operations. In the next part of this chapter we will see detailed analysis of each liquidity ratio selected with respect to all the real estate companies over the years.

1. Current Ratio

The current ratio is a working capital and liquidity ratio which evaluates the capability of a business to meet its short-term liabilities with its current assets. This ratio measures the amount of total current assets versus total current liabilities. Current ratio indicates the financial health and liquidity of a company in terms of its current assets to settle down short term debt and payables.

The current ratio is calculated by dividing total current assets by total current liabilities of a company.

$$\text{Current Ratio (CR)} = \text{Current Assets} / \text{Current Liabilities}$$

Here, current Liabilities are short term debt payments which are due and a company has a limited time to raise the funds to pay for these liabilities. Current assets of a company are cash and cash equivalents that can be easily converted into cash in the short term. Hence companies with large amount of current assets will be in a position to pay off current liabilities more easily without selling off any long-term assets.

Since current ratio helps investors and creditors understand the liquidity position of a company and will the company be able to pay off its current liabilities. Hence higher liquidity is always desirable. Hence while comparing companies higher current ratio is always more favorable than a lower ratio since it tells that the company can more easily make current debt payments. On the other hand, lower current ratio tells that companies cash flows are suffering as means it is not making enough from operations to support its activities.



Primary Data Analysis: In the table 13 Current Ratio of real estate companies for the year 2011 to year 2020 is given. As we can analyze from the data the average current ratio stood in the range of 1.09 to 3.30 for the selected real estate companies. The highest average current ratio for the period of 10 years is for Mahindra Lifespace at 3.30 among all the other industry peers. This shows that Mahindra Lifespace has 3.3 times more current assets than its current liabilities which is very good sign of more liquid company. The average current ratio of the industry is 1.90 for the selected period of 10 years. For Oberoi Realty average current ratio is 2.90 which is above the industry average performance. Hence its current ratio above 2 indicates the liquidity in the company to pay off its liabilities. The average current ratio position for Indiabulls and Sunteck Realty is at 2.24 and 2.13 respectively which is also above industry average of 1.90 indicating more liquidity within companies. However, for Sunteck Realty in the initial years of 2011 to 2014 and for Indiabulls between year 2018 to 2019 the current ratios of these companies went below 1.5 which indicates liquidity crunch in short term for these companies.

The average current ratio of DLF is 1.82 which almost at par with the industry average ratio indicating good liquidity in the company. The liquidity performance of Brigade enterprises, Godrej Properties and Shobha Ltd. at average current ratios of 1.21, 1.50 and 1.47 respectively is below industry peers average performance in terms of liquidity. This below average liquidity position indicates possible liquidity crunch in future. The liquidity position of Phoenix Mills and Prestige Estates is very poor in terms of current ratio as for last 3 years' period the current ratio of these companies turned below 1 indicating less assets to pay off its debt and liquidity crunch.

Table No. 13
Current Ratio For Year 2011- 2020

Year / Company	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	Mean
Brigade Enterprises	1.42	1.53	1.48	0.99	1.02	1.07	1.05	1.26	1.16	1.11	1.21
DLF	2.15	1.78	1.67	1.79	2.03	1.76	2.19	1.72	1.31	1.83	1.82
Godrej Properties	1.92	2.07	1.63	1.52	1.48	1.50	1.34	0.97	1.08	1.45	1.50
Indiabulls	3.73	3.29	1.95	1.83	2.52	2.40	2.48	1.20	1.44	1.59	2.24
Mahindra Lifespace	5.15	4.12	2.96	4.03	4.18	2.92	2.68	2.22	2.50	2.25	3.30
Oberoi Realty	4.38	2.61	2.55	3.18	2.77	2.78	2.92	1.95	3.03	2.87	2.90
Phoenix Mills	1.92	1.14	1.31	1.44	1.43	1.76	1.25	0.83	1.04	0.90	1.30
Prestige Estates	1.50	1.17	1.05	0.99	1.16	1.17	1.13	0.94	0.89	0.90	1.09
Sobha Ltd	1.62	1.59	1.58	1.55	1.62	1.69	1.40	1.37	1.10	1.14	1.47
Sunteck Realty	1.40	1.29	1.16	1.22	1.53	1.59	1.84	3.74	4.10	3.40	2.13



Source: Bloomberg Database

Current Ratio (ANOVA Test)

ANOVA has been applied on Current ratio of selected Real Estate companies in order to test whether there is any significant difference among the ratios between the sample companies. For this purpose, the following null hypothesis was framed and tested. The results of the above are presented in Table No. 14

Null Hypothesis: There is no significant difference in Current Ratio of Selected Real Estate companies under study.

Alternative Hypothesis: There is a significant difference in Current Ratio of Selected Real Estate companies under study.

Table No. 14
ANOVA on Current Ratio

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	49.88529	9	5.54281	14.74034	2.12E-14	1.985595
Within Groups	33.84269	90	0.37603			
Total	83.72798	99				

Source: Calculated ANOVA F-Statistics Values (Significance level of 5%)

The ANOVA Test result reveals that P-value is less than 0.05 and also calculated F value (14.74) is greater than F critical value (1.98) at 5% significance level hence the null hypothesis is rejected and alternative hypothesis is accepted. This means that there exist significant level of difference and variance within the Current ratio position of selected real estate companies.

2. Quick Ratio

The Quick Ratio is also liquidity ratio which measures the ability of a company to pay off its short-term liabilities by using current assets that are easily convertible into cash. These current assets are, namely, cash, marketable securities, accounts receivable and do not include inventories and prepaid expenses. Generally, Inventories take longer time to be converted into cash for paying off the immediate liabilities hence they are excluded from assets while calculating the quick ratio.

$$\text{Quick ratio} = \frac{\text{Cash and Near cash items} + \text{Accounts receivable} + \text{Marketable securities}}{\text{Current liabilities}}$$

The ratio is the parameter of a company’s ability to pay its current obligations quickly. A well-defined liquidity ratio is a signal sound business performance that can lead to sustainable growth. The higher the value of quick ratio, better it is for a company's liquidity and financial health and the lower ratio indicate company might struggle with paying debts in short run.

Table No. 15
Quick Ratio
For Year 2011- 2020

Year / Company	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020	Mean
Brigade Enterprises	0.45	0.34	0.55	0.5	0.2	0.2	0.2	0.37	0.19	0.19	0.32
DLF	1.01	0.8	0.74	0.83	0.98	0.63	0.71	0.57	0.46	0.4	0.71
Godrej Properties	1.00	0.85	0.46	0.56	0.48	0.53	0.5	0.74	0.65	1.04	0.68
Indiabulls	1.97	0.83	0.57	0.67	1.02	1.03	1.04	0.3	0.27	0.5	0.82
Mahindra Lifespace	2.42	1.96	1.05	1.55	1.5	1.2	1.17	1.52	0.83	0.83	1.40
Oberoi Realty	3.01	1.56	1.38	1.34	0.66	0.86	0.94	0.66	1.22	0.64	1.23
Phoenix Mills	1.47	0.67	0.52	0.48	0.45	0.6	0.41	0.45	0.54	0.47	0.61
Prestige Estates	0.82	0.61	0.57	0.45	0.48	0.38	0.33	0.35	0.21	0.22	0.44
Sobha Ltd	1.08	0.81	0.85	0.75	0.79	0.56	0.49	0.52	0.33	0.33	0.65
Sunteck Realty	0.27	0.26	0.23	0.36	0.25	0.27	0.26	0.78	1.06	0.96	0.47

Source: Bloomberg Database

Primary Data Analysis: In the table 15 Quick Ratio of real estate companies for the year 2011 to year 2020 is given. As we can analyze from the data the average quick ratio stood in the range of 0.32 to 1.4 for the selected real estate companies. The highest average quick ratio is for Mahindra Lifespace at 1.4 for the period of 10 years among all the other industry peers. Generally, the Quick ratio above 1 is considered as good for analyzing the liquidity of a company. For selected real estate companies the average quick ratio is coming as 0.73 as the industry average performance. The average quick ratio of Oberoi Realty is 1.23 for selected period of 10 years which is above the industry average performance. For DLF and Indiabulls the average quick ratio at level of 0.71 and 0.82 is at par with the industry average performance. Though there is scope for improvement for these companies as quick ratio has significantly fallen down from year 2018 to 2020.

For Godrej properties had poor quick ratio in the period of year 2013 to 2017 but it had slightly improved on this and had better quick ratio for next 3 years. The average quick ratio for Godrej properties is 0.68 which is slightly below the industry average performance. For other companies



the quick ratio is significantly below the industry average with more than 5 to almost all years' quick ratio being in the lower zone indicating liquidity problem.

Quick Ratio (ANOVA Test)

ANOVA has been applied on Quick ratio of selected Real Estate companies in order to test whether there is any significant difference among the ratios between the sample companies. For this purpose, the following null hypothesis was framed and tested. The results of the above are presented in Table No. 16

Null Hypothesis: There is no significant difference in Quick Ratio of Selected Real Estate companies under study.

Alternative Hypothesis: There is a significant difference in Quick Ratio of Selected Real Estate companies under study.

Table No. 16
ANOVA on Quick Ratio

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	10.51708	9	1.168564	8.284359	6.89E-09	1.985595
Within Groups	12.6951	90	0.141057			
Total	23.21218	99				

Source: Calculated ANOVA F-Statistics Values (Significance level of 5%)

The ANOVA Test result reveals that P-value is less than 0.05 and also calculated F value (8.28) is greater than F critical value (1.98) at 5% significance level hence the null hypothesis is rejected and alternative hypothesis is accepted. This means that there exist significant level of difference and variance within the Current ratio position of selected real estate companies.

III. Capital Structure Analysis

Financial structure of a business refers to the way its assets and business operations are financed. Hence the financial structure represents the long term and short term funding of capital for the business. In capital structure or financial structure analysis we evaluate weightage of debt and equity financing of a business. This analysis will give us an idea about feasible combination of debt and equity that a business should have in order to be profitable. This debt to equity mix can vary over the time based on their costs and the industry they belong to.

Decision making regarding debt and equity mix in financial structure also involves selecting right proportion of each type of securities such as debentures, shares, retained earnings etc. in the capital of the business. Each of these capital financing methods have advantages and disadvantage and hence one should always seek optimal mix of all of these.



In financial structure, too much dependence on any of these capital financing methods can be risky and unprofitable. For example, if firm's capital structure is concentrated mainly on equity financing then it may lose the benefit of leverage and may not give maximum returns to its shareholders. On the other hand, a company with high debt on its capital structure may have to pay out high interest charges and hence their net income and cash flows may not be sufficient for the further operations of the business. Hence capital structures may vary from industry to industry. But it should be framed in a way that maximizes returns to its shareholders. There are many trade-offs that shareholders and management of a company have to consider while determining their optimal capital structure. Hence financial structure analysis is a very important aspect in studying the financial performance of any industry as it directly affects the profitability of a firm.

For the analysis of financial structure of selected real estate companies, we will study the trend in debt and equity financing, their weightage using Debt to equity ratio then we will analyze percentage of assets that are financed using debt with help of debt to assets ratio and analyze trend in interest coverage ratio to determine the firm's ability to pay off its interest expense with the help of debt. This study will give us a detailed idea about financial and capital structure of Indian real estate companies and how their business operation is financed. This will give shareholders and investors one aspect on financial health and performance to make decision regarding business operations and investments. For analyzing the capital structure of Real Estate industry in a better way we have used debt to equity ratio, debt to assets ratio and interest coverage ratio. In the next part of this chapter we will see detailed analysis of each capital structure ratio selected with respect to all the real estate companies over the years.

1. Debt to Equity Ratio

The Debt / Equity ratio is a capital structure ratio that calculates company's total debt and liabilities amount to the total shareholders' equity. D/E Ratio tells us whether company's capital structure is tilted towards debt financing or equity financing. It helps us in analyzing the financing strategy of a company by looking at its D/E ratio. The D/E ratio is calculated by dividing total debt & liabilities by total shareholders' equity.

$$\text{D/E Ratio} = \text{Total Debt \& Liabilities} / \text{Shareholder's Equity} * 100$$

While analyzing the D/E ratio, Lower ratio tells us that company's equity financing is in excess and the company is not dependent on debt financing for its operations and business. This can be a good signal for investor looking for financially stable company. On the other hand, high debt to equity ratio can be considered good since it shows that a company can easily payoff its debt obligations with cash flow generated in business and it is using the leverage to increase return on equity for its shareholders. This is because typically the cost of debt is lower than the cost of equity and hence increasing the D/E ratio up to a certain limit can lower a firm's weighted average cost of capital (WACC).

An extremely high D/E ratio represents high risk since these companies typically depend more on borrowing to finance its business operations and does not have own capital funding. It can also suggest that it is engaging in more debt financing as its own finances run under deficit. Hence companies with a higher D/E ratio are considered riskier to investors and creditors than companies with a lower D/E ratio. On the other hand, we should also look at industry at which



the company belongs. Highly capital intensive industries like construction can have a higher D/E ratio while companies from services and technology sector may have lower capital expenditure needs and hence they can have a lower D/E ratio.

Primary Data Analysis: In the table 17 D/E Ratio of real estate companies for the year 2011 to year 2020 is given. As we can analyze from the data the average D/E ratio stood in the range of 11% to 151% for the selected real estate companies. The lowest average debt to equity ratio is for Oberoi Realty at 11.01% for the period of 10 years among all the other industry peers. This shows that company has very low debt as compared to its equity shareholding. The industry average debt to equity ratio of selected companies is coming as 86.28% which means that companies having debt to equity ratio of more than 86 are debt loaded companies as compared to its peers. For Mahindra Lifespace and Sunteck Realty the average debt to equity ratio is 51.95% and 58.57% indicating debt to equity ratio way below the industry average. These companies have lower debt compared to the equity holdings. For DLF the average debt to equity ratio is 73.68% which is below the industry average ratio indicating good capital structure balance in these years. Also for last 2 years the debt to equity ratio of DLF has been significantly improved lowering its debt dependency. The Debt to equity position of Indiabulls and Shobha Ltd. is 89.27% and 82.74% respectively which is at par with the industry average ratio. For all the other selected companies the average debt to equity ratio is above 100% indicating the risk to business due to more burden of debt in the capital structure.

Table No. 17
Debt to Equity Ratio
For Year 2011- 2020

Year / Company	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020	Mean
Brigade Enterprises	81.85	59.45	71.42	79.79	120.30	147.97	134.02	135.04	160.55	162.78	115.32
DLF	89.16	90.63	88.80	75.98	83.48	95.15	107.96	42.55	43.97	19.07	73.68
Godrej Properties	101.99	140.14	109.32	128.92	168.04	143.05	198.65	305.92	142.40	77.32	151.58
Indiabulls	29.89	26.90	34.42	43.25	90.84	184.47	197.93	98.03	110.26	76.69	89.27
Mahindra Lifespace	47.39	53.11	70.04	104.15	78.72	103.72	27.34	11.11	10.30	13.62	51.95
Oberoi Realty	0.00	0.00	0.00	1.73	19.45	8.55	15.17	27.81	19.75	17.60	11.01
Phoenix	51.53	80.71	100.0	139.2	148.2	168.6	149.2	110.5	90.34	86.85	112.5



Mills			8	9	6	2	2	0			4
Prestige Estates	54.94	72.73	80.55	85.58	91.34	122.85	124.30	149.42	195.61	184.41	116.17
Sobha Ltd	66.39	61.12	64.30	61.08	84.16	86.95	82.42	83.35	109.58	128.07	82.74
Sunteck Realty	58.36	74.35	103.69	88.45	69.83	73.61	50.58	19.13	16.15	31.56	58.57

Source: Bloomberg Database (All Values in percentage %)

Debt to Equity Ratio (ANOVA Test)

ANOVA has been applied on Quick ratio of selected Real Estate companies in order to test whether there is any significant difference among the ratios between the sample companies. For this purpose, the following null hypothesis was framed and tested. The results of the above are presented in Table No. 18

Null Hypothesis: There is no significant difference in Debt to Equity Ratio of Selected Real Estate companies under study.

Alternative Hypothesis: There is significant difference in Debt to Equity Ratio of Selected Real Estate companies under study.

Table No. 18
ANOVA on Debt to Equity Ratio

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	144826.0768	9	16091.79	9.659691	3.45E-10	1.985595
Within Groups	149928.2726	90	1665.87			
Total	294754.3494	99				

Source: Calculated ANOVA F-Statistics Values (Significance level of 5%)

The ANOVA Test result reveals that P-value is less than 0.05 and also calculated F value (9.65) is greater than F critical value (1.98) at 5% significance level hence the null hypothesis is rejected and alternative hypothesis is accepted. This means that there exist significant level of difference and variance within the Debt to equity Ratio position of selected real estate companies.

2. Debt to Assets Ratio

The Debt to Assets Ratio is a leverage ratio that indicates the percentage of assets that are financed with debt instead of equity. This ratio compares the percentage of assets that are funded by borrowing with the percentage of assets that are funded by the equity financing. While analyzing higher the debt to assets ratio, greater is the degree of financial leverage and risk.



The Debt to Assets Ratio tells us about company's leverage by evaluating how much of the company's assets are financed by the shareholders in the form of equity and creditors in the form of debt. Investors and creditors use this ratio actively for decision making about company. This ratio gives investors an idea about solvency of company and whether it has enough cash to meet its current obligations. The Total Debt/ Total Assets ratio is calculated by dividing total liabilities by total assets of a company.

$$\text{Debt/ Assets Ratio} = \text{Total Debt \& Liability} / \text{Total Asset} *100$$

This ratio is used to evaluate the overall risk of a business by investors and creditors. Companies with a higher debt to assets ratio are considered riskier since they are more leveraged. This is because a company with a high Debt to Assets ratio will have to pay out a greater percentage of its profits in principle and interest payments than the company with a lower debt to assets ratio.

Primary Data Analysis: In the table 19 Debt to Assets Ratio of real estate companies for the year 2011 to year 2020 is given. As we can analyze from the data the average D/A ratio stood in the range of 7% to 44% for the selected real estate companies. The lowest average debt to assets ratio is for Oberoi Realty at 7.48% for the period of 10 years among all the other industry peers. This lower debt to assets ratio indicates the strong capital structure of Oberoi Realty. The average debt to assets ratio for all the selected companies for 10 years is coming as 29.76% as industry mean among all the peers. The average debt to assets ratio for Sunteck Realty is 20.5% which is way below the industry average ratio indicating good financial structure.

Also for Indiabulls, Mahindra Lifespace, Shobha Ltd. the average debt to assets ratio performance is 28.88%, 24.70% and 28.37% respectively which is at par with the industry average ratio. But for Indiabulls and Mahindra Lifespace between year 2013 to 2017 assets quality was deteriorating leading to the higher debt to assets ratio than the industry average. For DLF the average debt to assets ratio is 32.54% which is slightly higher than the industry average ratio but has a consistent capital structure in these years. Also for last 3 years the debt to assets ratio of DLF has been significantly improved lowering its debt dependency. The Debt to assets position of Brigade Enterprises and Prestige Estates is 35.13% and 31.71% respectively which is slightly higher than the industry average ratio. Whereas for Godrej Properties and Phoenix Mills the average debt to assets ratio is above 40% which way higher than the other industry peers indicating the risk to business due to more burden of debt in the capital structure.

Table No. 19
Debt to Assets Ratio
For Year 2011- 2020

Year / Company	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020	Mean
Brigade Enterprises	34.89	25.33	29.41	30.56	38.67	40.99	40.56	43.34	35.05	32.49	35.13
DLF	39.45	39.54	38.38	34.63	36.85	37.29	41.67	24.02	22.09	11.49	32.54
Godrej Properties	42.61	44.32	35.86	41.87	47.35	41.79	55.43	44.76	43.44	36.76	43.42
Indiabulls	19.46	17.94	19.50	22.10	38.85	49.13	50.68	19.55	27.30	24.25	28.88
Mahindra Lifespace	26.96	29.51	33.79	40.89	34.29	41.11	16.51	7.79	6.79	9.34	24.70
Oberoi Realty	0.00	0.00	0.00	1.39	12.66	6.10	10.24	16.57	14.26	13.54	7.48
Phoenix Mills	30.65	40.56	43.82	50.39	51.23	53.57	51.73	43.15	41.95	41.07	44.81
Prestige Estates	24.84	29.61	31.61	30.03	31.18	32.69	33.90	39.09	29.57	34.62	31.71
Sobha Ltd	32.10	29.36	28.40	25.50	33.44	33.80	24.51	25.58	22.73	28.27	28.37
Sunteck Realty	19.27	19.67	18.73	20.75	25.37	27.91	25.65	14.17	12.04	21.96	20.55

Source: Bloomberg Database (All Values in percentage %)

Debt to Assets Ratio (ANOVA Test)

ANOVA has been applied on Debt to assets ratio of selected Real Estate companies in order to test whether there is any significant difference among the ratios between the sample companies. For this purpose, the following null hypothesis was framed and tested. The results of the above are presented in Table No. 20

Null Hypothesis: There is no significant difference in Debt to Assets Ratio of Selected Real Estate companies under study.

Alternative Hypothesis: There is a significant difference in Debt to Assets Ratio of Selected Real Estate companies under study.



Table No. 20
ANOVA on Debt to Assets Ratio

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	10632.13	9	1181.348	18.11342	8.78E-17	1.985595
Within Groups	5869.753	90	65.21948			
Total	16501.89	99				

Source: Calculated ANOVA F-Statistics Values (Significance level of 5%)

The ANOVA Test result reveals that P-value is less than 0.05 and also calculated F value (18.11) is greater than F critical value (1.98) at 5% significance level hence the null hypothesis is rejected and alternative hypothesis is accepted. This means that there exist significant level of difference and variance within the Debt to assets Ratio position of selected real estate companies.

3. Interest Coverage Ratio

Interest Coverage Ratio is a capital structure ratio that determines the company’s ability to pay off the interest expense on its debt. This Interest coverage ratio (ICR) is used by lenders, creditors, and investors in determining the associated risk of lending capital to a company. It is also called as “times interest earned” ratio since it tells us about the number of times a company can pay off its interest with its current earnings. ICR ratio calculates the firm’s ability to afford the interest on the debt.

The interest coverage is calculated by dividing the EBITDA (earnings before interest, tax and depreciation) by the interest expense of a company.

$$\text{Interest Coverage Ratio or ICR} = \text{EBITDA} / \text{Interest Expense}$$

While analyzing the interest coverage ratio of companies, lower the ICR greater is the business’s debt and its possibility of bankruptcy. Lower ratios also indicate less operating profit of a company to pay off its liabilities and hence company’s financial position is weak. Hence high interest coverage ratios are preferable since they indicate stronger financial health of the company.

On the other hand, a very high ICR ratio may also indicate that a company is not using the opportunity of leverage to magnify their shareholder’s earnings. A coverage ratio below 1 implies that a company has poor financial health, as it means that the company cannot pay out its short-term interest obligations. However, industries like constructions, manufacturing with fluctuating sales might have a higher interest coverage ratio. so, the ICR for different sectors will be different. Hence an analysis of the interest coverage ratio helps investors to get better idea about a company’s stability in terms of interest on debt obligations.

Primary Data Analysis: In the table 21 Interest Coverage Ratio of real estate companies for the year 2011 to year 2020 is given. As we can analyze from the data the average ICR ratio stood in the range of 0.92 to 12.51 for the selected real estate companies. The highest average ICR ratio is

for Oberoi Realty for the period of 10 years among all the other industry peers. Generally, the Interest Coverage Ratio above 1 is considered as good for analyzing the capital structure of a company and below 1 implies that a company has poor financial health. Interest coverage ratio for Oberoi Realty was very high in the initial years as they had 100 percent equity financing but over the years they have leveraged their capital structure. Its current capital structure looks very attractive and healthy. Also Sunteck Realty has a very healthy capital structure with average ICR ratio of 12.51 which is greater than the industry average performance. For DLF the average ICR ratio is 1.35 which looks good as company can pay off its liabilities. For Godrej Properties the average ICR ratio is 0.92 which indicates more interest payment in liabilities to company than its profit. For all the other companies the average ICR ratio was ranging in between 2.6 to 3.6 which is a decent ratio as they have less interest payments as compared to profit generated.

Table No. 21
Interest Coverage Ratio
For Year 2011- 2020

Year / Company	2010 - 2011	2011-2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020	Mean
Brigade Enterprises	13.99	2.34	2.41	2.95	2.94	2.46	2.40	2.24	2.97	1.95	3.67
DLF	2.44	1.85	1.24	1.12	1.51	1.49	1.15	0.82	1.03	0.85	1.35
Godrej Properties	1.32	1.00	1.42	1.25	0.54	1.00	1.22	-0.57	0.59	1.46	0.92
Indiabulls	5.77	1.70	3.32	2.62	1.94	1.79	1.10	4.45	2.25	1.67	2.66
Mahindra Lifespace	15.60	9.08	7.77	1.27	3.40	1.52	1.04	1.23	1.15	-2.30	3.98
Oberoi Realty	27613	268624	21034	4300	5.90	11.34	8.06	98.72	59.67	11.85	32176
Phoenix Mills	6.18	2.44	1.89	2.04	1.94	1.97	2.08	2.36	2.86	2.81	2.66
Prestige Estates	3.03	2.72	3.89	3.14	3.28	3.08	3.28	2.35	2.11	2.41	2.93
Sobha Ltd	4.61	4.32	3.40	3.71	3.52	3.22	3.16	2.92	3.14	1.69	3.37
Sunteck Realty	0.95	0.96	0.49	16.41	10.58	62.19	9.48	10.33	9.90	3.84	12.51

Source: Bloomberg Database



Interest Coverage Ratio (ANOVA Test)

ANOVA has been applied on Interest Coverage ratio of selected Real Estate companies in order to test whether there is any significant difference among the ratios between the sample companies. For this purpose, the following null hypothesis was framed and tested. The results of the above are presented in Table No. 22.

Null Hypothesis: There is no significant difference in Interest Coverage ratio of Selected Real Estate companies under study.

Alternative Hypothesis: There is a significant difference in Interest Coverage ratio of Selected Real Estate companies under study.

Table No. 22
ANOVA on Interest Coverage Ratio

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	9315988050	9	1035109783	1.4780	0.1681	1.9855
Within Groups	63029068778	90	700322986.4			
Total	72345056828	99				

Source: Calculated ANOVA F-Statistics Values (Significance level of 5%)

The ANOVA Test result reveals that P-value is greater than 0.05 and also calculated F value (1.47) is less than F critical value (1.98) at 5% significance level hence the null hypothesis is accepted. This means that there is no significant level of difference and variance within the Interest Coverage Ratios of selected real estate companies.

IV. Impact of Financial Performance on Capital Structure

In this section of research, we will be analyzing the impact of financial performance in terms of firm’s liquidity and profitability on its capital structure. We will study this impact on all the selected real estate companies for period of 2011 to 2020. The impact of financial performance on capital structure has been evaluated by taking debt to equity ratio as a representative of capital structure and Net profit margin, return on assets, return on Capital Employed, return on equity, EPS, current ratio and quick ratio as representatives of profitability and liquidity of firm. Here capital structure will be dependent variable and financial performance metrics of liquidity and profitability ratios will be independent variables.

Hypothesis of Study

- There is no significant impact of profitability on capital structure of selected Real Estate Companies in India.

- There is no significant impact of liquidity on capital structure of selected Real Estate Companies in India.

Multiple Regression Analysis Results:

Table No. 23

Model Summary

<i>Regression Statistics</i>					
Model	Multiple R	R Square	Adjusted R Square	Standard Error	Observations
1	0.7219240	0.5211742	0.4847418	39.167416	100

Dependent Variable: Debt to Equity Ratio

Independent Variable: Net profit margin, return on assets, return on Capital Employed, return on equity, EPS, current ratio and quick ratio

In Table No. 23 model summary reveals that correlation coefficient R, using all the predictors simultaneously is 0.7219, R Square = 0.5211 and the adjusted R Square is 0.4847 that indicate 48% of the variance in debt to equity (Dependent Variable) can be predicted from Independent Variables Net profit margin, return on assets, return on Capital Employed, return on equity, EPS, current ratio and quick ratio, whereas the remaining 52% influenced by others which are not considered in this study.

In Table No. 24 shows that calculated overall F statistics value is 14.3052 with significance F value of 0.00 which is less than calculated F value at 5% significance level. Hence we reject the null hypothesis, and accept the alternative hypothesis which means that there is a significant impact of liquidity and profitability on capital structure of selected companies under study. This research analysis indicates the combination of independent variables (Net profit margin, return on assets, return on Capital Employed, return on equity, EPS, current ratio and quick ratio) significantly impact debt to equity ratio.

Table No. 24

ANOVA Model Results

	df	SS	MS	F	Significance F
Regression	7	153618.4	21945.48	14.30525	1.9E-12
Residual	92	141136	1534.087		
Total	99	294754.3			

Dependent Variable: Debt to Equity Ratio

Independent Variable: Net profit margin, return on assets, return on Capital Employed, return on equity, EPS, current ratio and quick ratio



Table No. 25
Variable Coefficients

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	96.69857	13.81479	6.999642	4.08E-10	69.26121216	124.1359
Net profit	-0.4873	0.564483	-0.86327	0.390234	-1.608413926	0.633811
ROA	-18.7654	4.608804	-4.07164	9.87E-05	-27.91886035	-9.61189
ROCE	10.94937	2.577867	4.247453	5.17E-05	5.829502604	16.06923
ROE	-0.17429	1.336358	-0.13042	0.896516	-2.828415624	2.479829
EPS	0.429863	0.540175	0.795785	0.428205	-0.642970641	1.502697
Quick Ratio	20.01752	15.33827	1.30507	0.195124	-10.44560616	50.48065
current Ratio	-19.1179	7.919511	-2.41403	0.017757	-34.84675614	-3.38909

Table 25 indicates the regression analysis coefficients between dependent variable (debt to equity ratio) and independent variables (Net profit margin, return on assets, return on Capital Employed, return on equity, EPS, current ratio and quick ratio). In the analysis if t-stat value is greater than 2 and P- value is less than 0.05 then we say that there is a significant relationship between dependent variable and independent variable. In this analysis the t-stat value and P-value of Net profit ratio, ROE, EPS and Quick ratio is less than 2 and 0.05 respectively. This means that these variables are insignificant and does not have any significant relationship between these ratios and debt to equity ratio. Hence we accept the null hypothesis in case of these ratios. However, the P- Value for ROA, ROCE and current ratio is less than 0.05 and t-stat value is also greater than 2, which means that these variable significantly impact our dependent variable i.e. debt to equity ratio. Hence we reject the null hypothesis in case of these variables and accept the alternative hypothesis. Hence we can say that there is a significant impact of ROA, ROCE and current ratio on capital structure (debt to equity ratio) of a company.

Findings of the Study

- In primary profitability analysis of selected companies Oberoi Realty has outperformed all its peers in terms of profit margins, return on investments and earnings per share. In profit margin analysis Sunteck Realty, Phoenix Mills and Oberoi Realty has very good performance compared with the other companies in analysis. In terms of good return on assets Oberoi realty was the only firm to perform significantly better than other. Though there was not much difference between ROCE and ROE performance within the companies Godrej properties and Oberoi Realty had performed better in terms of return on capital employed. For ROE performance only DLF had very poor performance compare to all the other peers. Hence we can conclude that profitability position of Oberoi Realty is best among all the industry peers.



- One of the objectives of the study was to analyze the profitability position of Real Estate companies in India. For that we had selected Operating profit margin, Net profit margin, Return on Assets, Return on Capital Employed, Return on Equity and EPS as indicators of profitability. The results of ANOVA confirmed that Operating profit margin, Net profit margin, Return on Assets, and EPS position of real estate companies within the industry differ significantly. However, results showed that Return on Capital Employed and Return on equity of real estate companies within the industry do not differ significantly.
- In liquidity analysis of real estate industry, we have used quick ratio and current ratio to measure the performance of these companies in terms of liquidity. There was a significant variance in the liquidity performance of these real estate companies. Liquidity position of Mahindra Lifespace and Oberoi realty was better than all the other industry peers. Among all the companies Prestige Estates has the poorest performance in terms of liquidity for long term.
- In the next part of research, we have analyzed the liquidity position of Real Estate companies in India. We have performed the analysis of variance within the selected real estate industry for the period of 10 years to find whether the liquidity position of these companies differ significantly within the industry. The results of ANOVA confirmed that Quick Ratio and Current Ratio position of real estate companies within the industry differ significantly. Hence we have concluded that there is a significant difference between liquidity position of selected real estate companies in India.
- In primary capital structure analysis, we have used debt to equity ratio, debt to assets ratio and interest coverage ratio to study the capital structure of companies in detail. The primary analysis showed that many of the companies were under debt burden having debt to equity ratio greater than 100 percent. Companies like Godrej Properties, Prestige Estates, Brigade Enterprises and Phoenix Mills are among the highest debt comprising companies in their capital structure indicating risk as compared to other peers. For Mahindra Lifespace, Oberoi Realty and Sunteck Realty are companies having lowest debt and healthy capital structure among all the peers.
- We also had an objective to analyze the capital structure of Real Estate companies in India. We have performed the analysis of variance within the selected real estate industry for the period of 10 years to find whether the capital structure pattern of these companies differ significantly within the industry. The results of ANOVA confirmed that debt to equity ratio and debt to assets ratio of real estate companies within the industry differ significantly. However, results showed that interest coverage ratio of real estate companies within the industry do not differ significantly. Debt to assets and debt to equity being major ratios of capital structure that shows the difference within the industry. Hence we have concluded that there is a significant difference between capital structure of selected real estate companies in India.



- The final objective of the research was to study the impact of liquidity and profitability on capital structure of real estate industry in India. The impact of financial performance on capital structure was evaluated by taking debt to equity ratio as a representative of capital structure and Net profit margin, return on assets, return on Capital Employed, return on equity, EPS, current ratio and quick ratio as representatives of profitability and liquidity of a company. We have run multiple regression model on our data to analyze the possible impact of these independent variables of liquidity and profitability on the debt to equity ratio of real estate companies in India. The results of the study pointed out that there is a significant impact of financial performance on capital structure of these companies. On further analysis we have found out that among the all selected variable as indicator of liquidity and profitability only ROCE, ROA and Current Ratio significantly impact the capital structure decision of these real estate companies.

Conclusion

Indian economy is set to grow rapidly in coming future and Real Estate Industry is one the major sectors contributing to this growth of economy. It is one of the major revenue generating sector in the country and contributes to its growth. The growth in corporate sector and demand for urban and semi urban development pushes the real estate sector growth. In this study attempt was made to analyze the financial performance of Indian real estate industry and to study the impact of its financial performance on capital structure. The initial analysis of the study has shown that there exists a significant difference in the profitability, liquidity and capital structure performance of selected firms in the industry. The primary analysis showed that some of the real estate firms are under debt burden having debt to equity ratio greater than 100 percent. The study suggests such companies to revisit their capital structure for better liquidity and cash flow generation to improve its financial performance. Also study found out that there is a significant impact of financial performance (liquidity and profitability) on capital structure of real estate industry in India. Among various selected measures of liquidity and profitability Return on Capital Employed, Return on Assets and Current Ratio has shown significant impact on the capital structure decision of these real estate companies. This analysis will help investors, shareholders and internal management of the company in better decision making with regards to these Indian real estate companies. The Indian Real Estate Industry has to develop and maintain a balanced financial structure, use their fixed assets efficiently, improve their profit margins, improve the liquidity position and control operating expenses efficiently in order to improve its financial performance and efficiency.

Limitations and Future Scope of the study

This research is based on the secondary data of selected real estate companies for limited period of 10 years. Hence further such study can be conducted on longer time frame and other real estate companies in the sector which are not included in this research. Besides this, the present study of financial performance is confined to only Real Estate sector in India. So in the further scope of research this analysis can be conducted on different sectors of the economy. Also, while conducting this research we have taken limited determinants of financial performance (such as net profit margin, operating profit margin, ROA, ROCE, EPS, ROE, Current ratio, Debt to equity



ratio etc.). Hence results of this research cannot be generalized for other sectors or other companies. In further scope researcher might include more determinants of financial performance and more companies in the sample size for longer time horizon.

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