

# Investment decisions of public and private manufacturing firms in India

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## Abstract

The study intends to explore the factors that influence the investment decisions of public limited and private limited manufacturing firms in India. The data for the study was collected for a period of 10 years from CMIE Prowess. Variables such as ROA, Debt/Equity, Dividend and Total Expenditure have been considered as independent variables for the research. The study found that investment decisions of private firms are influenced by factors like ROA, Debt/Equity and Expenses, whereas the public firms' investment decisions are influenced by ROA, dividend and Expenses.

**Keywords:** Investment; Fixed Assets; Public; Private; Return on Assets; Debt Equity Ratio; Dividend; Total Expenditure.

## 1. Introduction

The manufacturing sector in India has a huge potential to develop in the coming decades. Our presence can be felt globally from the small handicrafts built in our villages to important engineering goods and chemicals. It is anticipated that India will be ranked among the top three manufacturing countries in the world.[9] The various initiatives by the government, skilled workforce, increased domestic consumerism, and availability of manpower at relatively low cost are some of the reasons that will contribute to the expansion of the sector. Another important factor is the availability of a strong local market. The financial year 2016-17 witnessed a 7.7% growth in the sector. [9].

One of the major sources of income for the manufacturing sector is through the export of goods. India was famous since the ancient times for the products such as jewellery, precious stones, clothes etc. The quality of these items exported has attracted many foreigners since olden times. In the present time, chemicals and engineering goods are the commodities in which India is holding a key position. Currently engineering goods holds the highest percentage of export from India, followed by jewellery and precious stones and chemicals.

One of the main reasons for this extensive popularity is the quality of the goods exported. India has adopted various quality control measures such as Total Quality Management to ensure the superior quality of the commodities. Currently, India encourages innovation by increasing the investment in research and development which has resulted in an increase in India's contribution in the global market. The government is also adopting various measures to up bring the industry as it is one of the ways through which India's problem of unemployment and other issues can be solved.

The Make in India project launched in 2014 is one of the major initiatives of the government to facilitate innovation, investment and to encourage the manufacturing industry. The main aim of the project is to attract both domestic and foreign investors to invest in

India. This has led many global leaders to announce about starting their business in India.

Another major factor introduced in favour of the Indian manufacturing sector is the Goods and Service taxes bill. By eliminating several indirect taxes the Goods and Service tax will transform the manufacturing sector of India by reducing the cost of production. [25].

The manufacturing sector is also getting benefitted with the Internet of Things which helps the manufacturers to reduce cost, effort, time and resources. By increasing the investment in these technologies the industry will be able to gain huge profits with the help of technology. [9].

Manufacturing sector is one area where huge amount will be required in the form of investment in fixed assets, research etc. The factors contributing to the investment decisions will be different for public firms and private firms. [25].

## 2. Motivation

The motivation to do this study is [1], which compared the investment pattern of public and private firms in India. The paper considered one public firm and one private firm. This paper tries to expand the study by considering the Indian manufacturing sector as a whole and looking at public limited and private limited firms instead of only one public limited company and one private limited company.

## 3. Literature review

- 1) Diagnosed the relationship between investment pattern of public and private firms in India. For the study, they used the annual financial reports for seven years of the firm HINDALCO (private) and NALCO (public). The study concluded that public firms are less responsive to investment opportunities.

- 2) Studied how the information relating to investment opportunities can influence the performance of that industry. The data was collected from Sageworks Inc for the US firms from 2001 to 2010. The study found that the presence of public firms in an industry can influence the investment decision of private firms in that industry. They also found that the quality of information revealed can also influence investment decisions.
- 3) Tries to analyse the difference between the investment behaviour of public and private natural gas producing firms in the US. The study was done using the data collected from 1997 to 2010 of all the private and public firms of the industry, which consisted of 369 private and 88 public firms. The analysis was done by considering effect of change in price of natural gas on both sectors by studying the reaction of both the sectors towards investment opportunity shock. The study found that private firms are less responsive to price changes.
- 4) Examines the capacity expansion decisions of public and private firms in US. The data from 1989-2006 of [7] commodity chemical firms were used to do the study. The study consisted of a total sample of 128 firms where 52 were private and 76 were public firms. The study concluded that the efficiency of investment is more in private firms, and they tend to increase capacity when the demand increases.
- 5) Analysed the effect of investment in fixed assets on profitability of selected Nigerian banks. The data was collected from annual reports and accounts of the banks. The duration of research was from 2000-2012. The study found that investment in fixed assets positively impacted the profitability of the sector.
- 6) Tries to find how the investment behaviour of firms vary by their listing status and to what extent does this help to understand about their governance. The data was collected for period 2001-2007 from Sageworks Inc. the study concluded that private firms have higher investments and respond to changes more quickly.
- 7) The study was done to analyse the current manufacturing strategies implemented by India for the development of its manufacturing sector. For the analysis, the factors that affect the manufacturing sector for different state across India was considered.
- 8) The aim of the study was to know more about the incentives the where provided for the fixed assets revaluation. The study was UK based and factors such as firm size, intensity of fixed assets and foreign operation of the firms where considered for the study. The study used logistic and linear regressions for the analysis and found that there is a positive relation between firm size and fixed asset revaluation. The study found that the firms, which are having foreign operations with high capital needs and low fixed assets have higher chance of performing revaluation of fixed assets. The study also found that fixed asset revaluation and earning assets are negatively correlated.
- 9) The aim of the research is to find out the major factors that contribute to determine the capital structure of manufacturing firms in India. 422 companies listed under the Bombay stock exchange were selected as a sample for the empirical study. The study was conducted for a period of 10 years by using the standalone financial data. The empirical evaluation was conducted using panel data approach and ratio analysis. The study found that profitability, growth, age size, asset tangibility, business risk, ownership structure are correlated with the advantage of the firm.
- 10) The study aims to analyse how the profitability incators affects the debt levels of a company. The data from 1994 to 2015 of 86 companies, which listed with Istanbul Stock Exchange Market, is used to conduct the study. The analysis is done by using panel regression. Return on equity, advantage ratio, return on asset, growth ratio, current ratio etc are some of the variables used for the study. The research found that

return on equity and active growth positively affect the new borrowing variable and current earnings per share ratios and investment will affect the new borrowing negatively.

## 4. Data and methodology

### Data

The data for the research was collected from CMIE Prowess IQ for the period 2006-2016. All the public limited and private limited manufacturing firms in India were considered for conducting the study. Foreign companies, cooperatives, and jointly owned companies were excluded from the study. 17484 firms were selected for the study among which 6255 were private and 11229 were public firms.

### Methodology

Linear regression is the methodology used to conduct the study. It is a common tool used to do predictive analysis. Regression was done with stata. The dependent variable is Investment and independent variables are ROA, Debt/Equity, Dividend and Total Expenses.

$$Inv = \beta_1 ROA + \beta_2 DE + \beta_3 Dividend + \beta_4 + Exp$$

**Table 1:**

Inv	Purchases+ Acquisition+ work in progress	
	Net income	Total assets
ROA	Total assets	
DE	Leverage ratio measured as Debt/Equity	
Dividend	Interim and Financial equity dividends	
Exp	Total expenses	Total assets

Following the literature, investment and expenses are deflated by total assets. Higher the return on assets, firms are expected to invest more. Hence, we expect a positive relation between investment and ROA. Firms paying higher dividends may be doing so for lack of investment opportunities or because of higher returns. Hence, we do not predict the sign of the relation between investment and dividend. Firms with expenses per unit of total assets are expected to invest less. Hence, we expect a negative relation between investment and Expenditure.

## 5. Result and discussion

The regression was run separately for private and public firms. The results for the private firms are given in Table 1 and the results for the public firms are given in Table 2.

**Table 2:**

Inv_TA	Coefficient	Pvalue
ROA	-.2094003	0.000
DE	-.0000676	0.036
Dividend	-7.68e-07	0.734
Exp_TA	-.0092868	0.000
Cons	.1023884	0.000
No. of observations	11887	
R square	0.7328	

The results show that the return on assets, advantage and expenses as a proportion of total assets have a significant impact on the investment of private limited firms. Return on assets, Debt/equity ratio and expenses are negatively correlated which implies that the increase in investment will lead to a decrease of these variables.

**Table 3:**

Inv_TA	Coefficient	Pvalue
ROA	.0311944	0.010
DE	1.48e-07	0.984
Dividend	-7.57e-07	0.000
Exp_TA	-.0105502	0.000
Cons	.0804553	0.000
No. of observations	35333	
R square	0.0146	

The results show that return on assets, dividend and expenses as a portion of assets have a significant impact on the investment of public limited firms. Return on assets is positively correlated which implies that an increase in investment will also lead to an increase in return on assets. Dividend and expenses are negatively correlated which shows that a decrease in investment will lead to a decrease of these variables.

## 6. Conclusion

The findings were that in Public Companies return on assets, debt/equity ratio and expenses were significant predictors of Investment and in Private Companies return on assets, dividend and expenses were significant predictors of investment. The study also found that return on assets and expenses are significant to both private and public companies. Expenses in both the cases is negatively correlated whereas return on assets is negatively correlated for private firms and positively for public firms which shows the different effect of this variable on private and public limited companies.

## 7. Future scope

The result of the study shows that the Return on assets influences both public limited companies and private limited companies differently. The study has not examined the reasons for this difference. More variables relating to the investment decisions on fixed assets can be considered so that the reason for difference in correlation can be examined.

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