



# ASSESSMENT OF RELATIONSHIP BETWEEN FINANCIAL PERFORMANCE AND MANAGERIAL EFFICIENCY IN INDIAN CORPORATIONS

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**Abstract:** The present explores the impact of managerial efficiency on the financial performance of the selected companies. The study covers a sample of eleven companies belonging to capital goods sector listed on the Bombay Stock Exchange. The data has been collected from the Capitaline database for a period of twelve years from 2009-10 to 2020-21. The study considered Return on Assets (ROA) as financial performance variables, however, independent variables representing managerial efficiency include Current Ratio (CR), Debt Equity Ratio (DER), Fixed Assets Turnover Ratio (FATR), Inventory Turnover Ratio (ITR), Total Assets Turnover Ratio TATR and Interest Coverage Ratio (ICR). Further, firm size is taken as control variable. To achieve the objectives, various statistical tools such as descriptive analysis, correlation and regression analysis have been used. The results of the study indicates that current ratio, debt-to-equity ratio, fixed assets turnover ratio and inventory turnover ratio do not have statistically significant impacts on ROA, while, total assets turnover ratio and interest coverage ratio show statistically significant relationships with ROA.

**Keywords-** Financial Performance, Managerial Efficiency, Capital Goods Sector

## I. INTRODUCTION

The manufacturing of capital goods is a significant component of the economy, that plays a pivotal role in economic development by enhancing productivity and efficiency. The capital goods industry holds significant importance in promoting the rising course of manufacturing companies. The accelerating demand within the Indian market has driven the expansion of the capital goods sector, which contributes to approximately 12% of total manufacturing output, equivalent to 2% of the country's GDP. The functioning of the manufacturing companies is closely linked with the capital goods industry, as numerous essential capital goods such as machinery, equipment and plants are essential for manufacturing miscellaneous products. The connection between the capital goods sector and the manufacturing companies is significant. The manufacturing sector, comprises areas like infrastructure, construction and engineering, heavily relies on the machinery and equipment produced by the capital goods industry. In today context of technological advancement, the businesses are able to create innovative products, resulting in increased job opportunities and higher incomes for individuals. Consequently, the success of manufacturing company is closely tied to the performance of the capital goods sector. Effective managerial efficiency plays an important role in affecting the financial performance of business, as established by various financial indicators, including the turnover ratios. The management of inventory usage is a crucial aspect in evaluating the company's performance. Additionally, the skillful handling of fixed assets and total assets is indicative of a business's ability to generate sales relative to its asset structure. Fixed assets are long-term tangible assets essential for revenue generation. Furthermore,

Return on Assets (ROA) is a key metric for assessing the profitability performance of the companies. It provides valuable insights into financial efficiency within the scope of operational activities.

There has been a tremendous increase in demand for capital goods in India during last decades and at the same time it has been observed that one-third of its demand were fulfilled by imports. The improved monetary rearrangement has directed this sector to be more resourceful. Managerial powers ratify the success of the firm by attaining various outcomes relating to operational as well as financial areas. In the pursuit of long-term survival and success, managers must proactively undertake initiatives to develop and deploy innovative methods as the need arises. Management efficiency plays a key role in shaping a business's performance. It reflects the management's capability to maintain productivity even in the face of reduced technical, financial and infrastructural resources. In this context, understanding the influence of managerial efficiency on the performance of Indian capital goods manufacturing companies is of paramount importance. This knowledge will shed light on how proficient management practices can strengthen the performance and resilience of these firms, even in challenging situations.

## II. LITERATURE REVIEW

**Baik et al. (2012)** examined whether firm performance influenced by changes in operational efficiency. For the measurement of changes in efficiency, authors have considered two efficiency indexes from frontier analysis namely DEA-based Malmquist index and SFA-based Malmquist index. They observed positive association between efficiency changes measures and current and future profitability changes.

**Almumani (2013)** conducted a study to investigate how managerial factors affect the profitability of commercial banks in Jordan. The findings of the study indicated a positive correlation between operational efficiency and the profitability of Jordanian commercial banks. However, other variables such liquidity, credit composition, credit risk, capital adequacy and the size of the bank were found to have no statistically significant impact on profitability.

**Barus et al. (2017)** employed a multilinear regression model to analyze the influence of managerial efficiency on the performance of savings and credit societies in Kenya. The results of the study suggested that there was no significant impact of managerial efficiency on the performance of these societies. Similar findings were observed in studies conducted by **Meliani (2021)**, **Arifiana (2022)** and **Jacob (2017)**.

In another study, **Budiharjo (2019)** investigated the effects of activity ratio, leverage, market ratio, profitability and environmental performance on share prices. The research revealed that Return on Equity (ROE), Price-Earnings Ratio (P/E ratio) and environmental performance had a significant and positive impact on stock prices. However, the debt-equity ratio was found to have significant negative impact on the stock prices.

**Arifiana and Khalifaturafi Ah (2020)**, studied the impact of financial ratios on predicting financial performance. The research encompassed a sample of 87 manufacturing companies listed on the Indonesia Stock Exchange during the period 2016-2020. The findings of the study indicated that liquidity and profitability had a significant negative impact on predicting financial distress.

**Binsaddig et al. (2022)** conducted a study to explore the relationship between activity ratios and the gross profit margin within Bahrain's communication sector. Various activity ratios, including accounts receivable turnover, inventory turnover and total assets turnover ratios, were considered in the analysis. The empirical results revealed a positive relationship between total assets turnover and profitability. However, no significant relationship was found between inventory turnover and accounts receivable turnover and profitability. This study offers insights into the specific activity ratios that impact the gross profit margin in Bahrain's communication sector.

**Kariuki (2021)** investigated into the effect of operational efficiency on financial performance of Cement firms listed at the Nairobi Securities Exchange. The findings revealed that among the selected cement companies, EAP had least operating efficiency. Further, the study asserted that administrative cost ratio had positive effect on both (ROA, ROE) the measures of financial performance while cost of sales had a negative effect on ROA and ROE and total operating cost ratio had a negative effect on ROA.

**Mithas et al. (2012)** examined the impact of input costs on firm profitability of Nigerian companies. The study applied cross-sectional data for a period of twelve year from 1999 to 2010. The study revealed that cost of sales was considered to be a major factor in analyzing profitability. Further, the study added that operating expense had a significant positive impact on profitability of the selected companies.

**Das and Swain (2017)** investigated the effect of various organizational factors on the performance of selected listed companies. The study considered price to book value (PBV), Return on Assets, Return on

Capital Employed, and Net Profit Margin as dependent variables. However, Brand Value, Employee productivity, marketing expenses, working capital ratio, company size, leverage and dividend payout ratio as independent variables. The study revealed that the organizational factors have significant impact on the financial performance of the selected companies during the study period.

**Duarte et al. (2011)** analyzed the relationship between selected variables representing operational practices in financial performance and growth. In the study multiple linear regression was applied and the results revealed that there was direct effect of practices and their interaction on industry dummies. Outsourcing was found to be negatively associated with profitability and growth.

**Hazimah et al. (2022)** aimed at understanding the effect of liquidity, solvability and activity ratios on profit growth of Indonesian Industry. The study covered a period of five years using a sample of 34 companies. The findings of the study exposed that inventory turnover and total assets turnover had significant negative impact on the profit growth. However, profit growth was not affected by current ratio, quick ratio, debt to assets ratio and debt to equity ratio.

### III. OBJECTIVE AND METHODOLOGY

The present study examines the impact of managerial efficiency on performance of selected companies belonging to capital goods sector listed on Bombay Stock Exchange. The study covers a period of twelve years from 2009 to 2020 considering eleven manufacturing companies listed on BSE 200 index. The data for the study has been gathered from the 'CAPITALINE' database. The present study considers Return on Assets (ROA) as financial performance measure. However, Current Ratio (CR), Debt Equity Ratio (DER), Fixed Assets Turnover Ratio (FATR), Inventory Turnover Ratio (ITR) and Total Assets Turnover Ratio (TATR) has been considered as managerial efficiency variables while Size of the companies is taken as control variable.

Variables	Types
Return on Assets (ROA)	Dependent
Current Ratio (CR)	Independent
Debt Equity Ratio (DER)	Independent
Fixed Assets Turnover Ratio (FATR)	Independent
Inventory Turnover Ratio (ITR)	Independent
Total Assets Turnover Ratio (TATR)	Independent
Interest Coverage Ratio (ICR)	Independent
Size Log (TA)	Control

#### 3.1 Hypothesis:

H<sub>1</sub>: There is negative impact of managerial efficiency on the financial performance of selected companies.

H<sub>2</sub>: There is negative impact of managerial efficiency on the financial performance of selected companies.

The present study examines the impact of managerial efficiency on the financial performance using Panel Regression Model with fixed and random effects. In this study, Redundant Fixed Effects-Likelihood Ratio test (F-Test) has been used to choose between Pooled Ordinary Least Squar (POLs) Method and Fixed Effects Method (FEM). However, to select between fixed effect and random effect, the Hausman test has been applied. Therefore, in this study to accomplish the objective to test the impact of managerial efficiency on firm performance, following regression models has been established.

**3.2 Model:**  $ROA_{it} = \beta_0 + \beta_1(CR)_{it} + \beta_2(DER)_{it} + \beta_3(FATR)_{it} + \beta_4(ITR)_{it} + \beta_5(TATR)_{it} + \beta_6(ICR)_{it} + \beta_7(LogTA)_{it} + \varepsilon_{it}$

Return on Assets (ROA) has been considered as dependent variable which represents the firm performance. However, the independent variables include Current Ratio (CR), Debt Equity Ratio (DER), Fixed Assets Turnover Ratio (FATR), Inventory Turnover Ratio (ITR), Total Assets Turnover Ratio (TATR) and Interest Coverage Ratio (ICR) with Size as control variable. Here,  $\beta_0$  is intercept,  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$  and  $\beta_7$  are the coefficients of managerial efficiency ratios and  $\varepsilon_{it}$  is the cross-section time specific error component.

### IV. ANALYSIS AND INTERPRETATION

#### 4.1 Table 1: Descriptive Statistics

Variables	Observations	Mean	Std. Dev.	Minimum	Maximum
ROA	87	0.116984	0.073506	-0.03408	0.30592

CR	87	0.470485	0.612233	-0.8675	2.083185
DER	87	-1.60801	2.052589	-4.60517	2.279316
FATR	87	1.199942	0.848077	-0.77653	2.789323
ITR	87	1.614494	0.908474	-0.41552	3.371425
TATR	87	1.86069	1.936763	0	7.92
ICR	87	2.562024	1.636562	-2.12026	6.070946
LOGTA(SIZE)	87	1.226828	0.324314	-0.51855	1.547095

Source: Eviews 9 software output

Table 4.1 above shows the result of descriptive analysis, which presents the key statistics for various financial variables. The Return on Assets has a mean of approximately 0.117, with a standard deviation of 0.0735 and it ranges from -0.03408 to 0.30592. The variable Current Ratio (CR) has a mean of 0.4705 and a wider standard deviation of 0.6122, ranging from -0.8675 to 2.0832. The Debt-to-Equity ratio (DER) has an average of approximately -1.608 with a standard deviation of 2.0526 and it ranges from -4.6052 to 2.2793. The average Fixed Assets Turnover Ratio (FATR) stands at 1.1999 with a standard deviation of 0.8481 and it varies from -0.7765 to 2.7893. The Inventory Turnover Ratio (ITR) has an average of 1.6145 and standard deviation of 0.9085, which ranges from -0.4155 to 3.3714. The Total Assets Turnover Ratio (TATR) has an average of 1.8607 with a standard deviation of 1.9368 and it ranges from 0 to 7.92. Interest Coverage Ratio (ICR) has a mean of 2.5620 and a standard deviation of 1.6366 and it ranges from -2.1203 to 6.0709. lastly, the variable LOGTA representing the SIZE of the companies, has a mean of 1.2268 and a standard deviation of 0.3243 and it ranges from -0.5186 to 1.5471.

**Table 4.2: Correlation Analysis**

Variables	ROA	CR	DER	FATR	ITR	TATR	ICR	LOGTA
ROA	1.000							
CR	0.104 (0.337)	1.000						
DER	-0.528** (0.000)	0.341** (0.001)	1.000					
FATR	0.366** (0.001)	0.127 (0.241)	-0.228* (0.034)	1.000				
ITR	0.178 (0.099)	-0.538** (0.000)	-0.280** (0.009)	0.216* (0.045)	1.000			
TATR	0.291** (0.006)	-0.286** (0.007)	-0.103 (0.343)	0.698** (0.000)	0.466** (0.000)	1.000		
ICR	0.710** (0.000)	0.238* (0.026)	-0.641** (0.000)	0.126 (0.243)	-0.227* (0.035)	-0.129 (0.232)	1.000	
LOGTA	-0.188 (0.082)	0.017 (0.875)	0.033 (0.760)	-0.398** (0.000)	-0.122 (0.258)	-0.398** (0.000)	-0.070 (0.522)	1.000

\*\*Correlation is significant at 1% (2-tailed)

\* Correlation is significant at 5% (2-tailed)

Source: Own Computation, statistical tool-EViews 9

Value within parentheses denotes p-value

Table 4.2 above shows the result of correlation analysis. The ROA shows a weak positive correlation with the CR (0.104) with a p-value of 0.337, suggesting that firms with higher current ratio tend to have slightly higher ROA, although this correlation is not statistically significant. Conversely, ROA displays a substantial and statistically significant negative correlation with the Debt Equity Ratio (DER), which implies that firms with higher debt levels consistently exhibit lower ROA. The FATR exhibits a moderate and statistically significant positive correlation with ROA ( $r = 0.366$ ,  $p = 0.001$ ), indicating that firms with higher fixed assets turnover tend to have higher ROA. Similarly, the ITR shows a weak positive correlation with ROA ( $r = 0.178$ ,  $p = 0.099$ ), suggesting that firms with higher inventory turnover ratio may have slightly higher ROA, although

this correlation is not highly significant. The total assets turnover demonstrates a moderate and statistically significant positive correlation with ROA ( $r = 0.291$ ,  $p = 0.006$ ), implying that firms with higher total assets turnover tend to have higher ROA. The interest coverage ratio shows a strong and highly significant positive correlation with ROA ( $r = 0.710$ ,  $p < 0.001$ ), indicating that firms with better interest coverage ratios consistently exhibit higher ROA. Lastly, the size of the sample companies shows a weak negative correlation with ROA, which suggest that larger firms may have slightly lower ROA, although this correlation is not statistically significant.

### Diagnostic Tests

The present study has applied Redundant Fixed Effects-Likelihood Ratio test (as shown in table 3 below) to choose among the Pooled Ordinary Least Square (POLS) and Fixed Effect Model (FEM). The result suggested that, as the p-value of cross-section F and cross-section chi-square is less than 0.05, so null hypothesis is rejected and hence Fixed Effect Model is selected with ROA as dependent variable.

**Table 4.3: Diagnostic Test Analysis**

<b>Redundant Fixed Effects-Likelihood Ratio test (F-Test)</b>			
Effect Test	Statistics	d.f.	Prob.
Cross-section F	5.776896	(10,69)	0.0000
Cross-section Chi-Square	52.9186	10	0.0000
<b>Hausman Test</b>			
Test Summary	Chi.Sq. Statistics	Chi. Sq. d.f.	Prob.
Cross-section random	10.05774	7	0.1853

Source: EViews 9 software output

Further, to choose between the Fixed Effect Model and Random Effect Model, Hausman test was applied. The result of Hausman test demonstrates that the p-value is 0.1853. As the p-value exceeds the conventional significance level of 0.05, there is no evidence to reject the null hypothesis in favour of the alternative hypothesis. This suggests that random effects model may be a suitable choice.

**Table 4.4: Regression Analysis**

Variable	ROA		
Model Selected	REM		
	Coefficient	t-statistics	Prob.
C	-0.079	-1.96213*	0.0533
CR	0.007923	0.531944	0.5963
DER	-0.00179	-0.35824	0.7211
FATR	0.003228	0.266052	0.7909
ITR	0.018403	1.47799	0.1434
TATR	0.024354	4.102484***	0.0001
ICR	0.03478	7.123532***	0.0000
LOGTA	0.012395	0.50667	0.6138
R <sup>2</sup>	0.675887		
Adjusted R <sup>2</sup>	0.647169		

Note: \*=significant at 10% level; \*\*=significant at 5% level; \*\*\*=significant at 1% level

Source: EViews 9 software output

Table 4.4 above presents the regression results based on the selected Random Effects Model (REM) examining the relationship between the dependent variable Return on Assets (ROA) and several independent variables. The intercept is -0.079, explains the expected value of ROA when all independent variables are

zero. The coefficient of CR is 0.007923, indicates that one unit of current ratio is related to an increase of about 0.0079 units in ROA. The p-value (0.5963) indicates that there is no significant impact of current ratio on ROA. DER with a coefficient of -0.00179 suggests that an increase in one unit of debt-to-equity ratio is associated with a decrease of about 0.002 units in ROA. The p-value of 0.7211 suggests that this effect is not statistically significant. The coefficient of FATR is 0.0032 with a p-value of 0.7909, suggests that this effect is also not statistically significant. The ITR with a coefficient of 0.0184, indicates an increase of about 0.018 unit increase in ROA with an increase in one unit of ITR. The p-value of 0.1434, denotes that this effect is not statistically significant. However, total assets turnover and interest coverage ratio statistically significant. The value of  $R^2$  (0.675887) denotes the proportion of variance in the dependent variable explained by the independent variables in the model.

## V. CONCLUSION AND SUGGESTION

The present study examined the relationship between Return on Assets (ROA) and several independent variables of by choosing Random Effects Model (REM). The study reveals that current ratio, debt-to-equity ratio, fixed assets turnover ratio and inventory turnover ratio do not have statistically significant impacts on ROA, as indicated by their respective p-values. On the other hand, total assets turnover ratio and interest coverage ratio show statistically significant relationships with ROA.

Based on the above results, it is recommended that firms pay close attention to managing and optimizing their total assets turnover ratio and interest coverage ratio, as these variables have been shown to have a significant positive impact on ROA. In contrast, the findings imply that the current ratio, debt-to-equity ratio, fixed assets turnover ratio and inventory turnover ratio, may not be significant drivers of ROA. Further, analysis of unaccounted factors might enhance the understanding these relationships and guide more targeted strategies for improving ROA.

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