

USING DUPONT FRAMEWORK IN SELECTED AUTOMOBILE COMPANIES TO ANALYSIS FINANCIAL PERFORMANCE

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ABSTRACT

This study examines the profitability, asset application, and fiscal influence of select machine companies by assaying crucial rates similar as return on equity(ROE), return on means(ROA), and fiscal influence rates. The analysis covers the period from 2020 to 2024, exercising secondary data sourced from balance sheet and profit and loss accounts. The findings indicate that Maruti Suzuki demonstrates excellent profitability, effective asset application, and applicable fiscal influence, performing in advanced returns reflected in both ROE and ROA. In discrepancy, Tata Motors and Apollo Tyres show sins in asset effectiveness and capital application, leading to lower returns.

The study reveals a correlation among net profit periphery(NPM), asset development rate(ATR), fiscal periphery(FM), ROE, ROA, and return on capital employed(ROCE). These factors are interrelated and significantly impact the fiscal performance of these companies.

In conclusion, the experimenter asserts that Maruti Suzuki outperforms its challengers in terms of profitability and shareholder returns. still, there's substantial eventuality for Tata Motors and Apollo Tyres to enhance their asset application and capital effectiveness. The results suggest that employing DuPont analysis can effectively punctuate the fiscal strengths and sins within the machine assiduity.

1. INTRODUCTION

The DuPont Model is a century-old logical tool developed in 1912 by Donaldson Brown, a salesperson for DuPont snares. In an internal effectiveness report, Brown introduced a interpretation of the return on investment formula — now generally appertained to as the DuPont formula — to estimate operation effectiveness at the DuPont Corporation. This model is also known as the DuPont Identity, DuPont Analysis, DuPont Equation, DuPont Framework, or DuPont Method. It breaks down the Return on Equity(ROE) or Return on Investment(ROI) into three critical factors net profit periphery, asset development, and the influence factor, all in relation to a pot's performance. assaying a establishment's profitability involves several complex factors. For case, the ROE formula includes the book value of common equity, which can occasionally lead to misleading conclusions when the reasons for changes in common equity are unclear. therefore, a detailed approach is necessary to minimize the threat of incorrect conclusions drawn from ROE analysis. Profitability refers to a business's capability to induce earnings relative to its charges and costs. It's one of the most significant measures for assessing a company's performance. ROE is a generally used fiscal rate that calculates a establishment's profitability as a chance of the shareholder investment generated in profit. Understanding a establishment's health, growth eventuality, and fiscal performance is frequently measured through the company's fiscal data. Among the colorful tools used to estimate profitability, DuPont Analysis stands out. By breaking down ROE into its factors, it helps identify the factors driving profitability. The ROE formula can be further deconstructed to show whether profitability stems from functional effectiveness, asset operation effectiveness, or fiscal influence. This paper focuses on applying the DuPont Analysis model to assess the fiscal performance of machine companies. Given the competitive nature and diversity of operations in the machine assiduity, this analysis is particularly applicable. By exercising the DuPont model, this study investigates how profitability, asset operation, and fiscal influence impact the financials of enterprises in this sector. The analysis examines crucial rates from the enterprises' fiscal statements to explore the connections among net profit periphery, asset development rate, and fiscal influence and their goods on both ROE and ROA. This study aims to identify trends and patterns in fiscal performance through an in- depth analysis of named machine companies, fastening on how these associations manage their means, induce gains, and use capital effectively. Relationship between fiscal variables in DuPont Analysis This indicates that Return on Equity(ROE) results from the combined goods of Net Profit periphery(NPM), Asset Development rate(ATR), and fiscal influence. These factors inclusively measure a company's profitability and show how effectively it generates gains using investors'

finances. Experimenters constantly use these rates when creating pro forma fiscal statements. ROE can be expressed as the product of two factors Return on means(ROA) and fiscal influence.

2. OBJECTIVES

- ❖ Analysis of the financial performance of selected automobile companies by applying the DuPont Model.
- ❖ Assessment of the profitability of automobile companies in terms of ROE and ROA with the DuPont framework.
- ❖ To provide a detailed, component-based understanding of the financial health of automobile companies and how factors like operational efficiency, asset management, and leverage affect their profitability. To find the interaction between Net Profit Margin and Asset Turnover Ratio that affects ROA statistically.
- ❖ The sampling technique employed was simple random sampling, which was used to select five automobile companies for presentation in this paper. The analysis covers five years of data, from 2020 to 2024, utilizing secondary data obtained from the annual financial statements of these companies.
- ❖ Descriptive statistics, including mean, standard deviation, maximum, and minimum values, were used to analyze the data. Additionally, correlation regression was employed to assess the impact of Return on Assets (ROA) and financial leverage.

DUPONT ANALYSIS CALCULATION IN THREE STEP

$ROE = ROA * \text{Financial leverage}$

$ROE = \text{Net income/Revenue} * \text{Revenue/Average total assets} * \text{Average total assets/Average stockholder equity}$

$ROE = \text{Net profit margin} * \text{Total assets turnover} * \text{Financial leverage}$

3. RESULT OF DESCRIPTIVE ANALYSIS

	NET PROFIT MARGIN	ASSETS TURNOVER RATIO	FINANCIAL LEVERAGE	ROE	ROA	ROCE
Number of observation	5	5	5	5	5	5
Mean	0.94	0.59	376.32	0.91	193.18	0.15
Minimum	0.92	0.49	84.66	0.73	45.68	0.02
Maximum	0.97	0.74	759.26	1.16	411.38	0.28
Std. Deviation	0.02	0.1	278.85	0.19	151.47	0.11

Net Profit Margin: mean 0.94, SD 0.02 High with good profitability but with low deviation among companies. Asset Turnover Ratio: mean 0.59, SD 0.10 Companies have a moderate level of efficiency of assets to generate revenues with some deviations in efficiency among companies. Financial Leverage: mean 376.32, SD 278.85 High and highly variable; a mix of companies in different debt levels: some firms relatively highly leveraged and others conservative Return on Assets (ROA): mean 193.18, SD 151.47 High ROA, which means highly profitable assets; however, there is quite a variation in this regard between companies. ROE (0.91 mean, 0.19 SD): Good returns for shareholders with moderate company performance variation. ROCE (0.15 mean, 0.11 SD): Low average return on capital, therefore capital is not being efficiently utilized, although some companies are different.

Financial variables in DuPont Analysis of Automobile companies

Company name	Net profit margin	Assets turnover ratio	Financial leverage	ROE	ROA	ROCE
MARUTI SUZUKI	0.92	0.74	756.26	411.38	1.16	0.13
TATA MOTORS	0.97	0.55	84.66	45.68	0.8	0.025
BAJA AUTO	0.93	0.65	165.75	77.97	1.09	0.28
APOLLO TYRES	0.96	0.49	317.91	151.57	0.73	0.065
EICHER MOTORS	0.93	0.53	554	279.28	0.76	0.23

1. Profitability

TATA MOTORS, the highest Net Profit Margin (NPM) of 0.97 represents the best conversion of revenue into profit. MARUTI SUZUKI boasts of the highest Return on Equity with 411.38 means generating excellent returns on shareholders' capital.

2. Asset Efficiency

MARUTI SUZUKI has the highest Return on Assets (ROA) at 1.16 followed by BAJA AUTO at 1.09.

APOLLO TYRES has the lowest ROA, 0.73, meaning weaker utilization assets.

3. Financial Efficiency :

BAJA AUTO has the highest capital efficiency with ROCE at 0.28, while the lowest ROCE is recorded by TATA MOTORS at 0.025. MARUTI SUZUKI and EICHER MOTORS have high financial leverage, implying higher debt use. 4. Volatility: The most volatile stock goes to MARUTI SUZUKI with a high ATR of 0.74, while APOLLO TYRES is the least volatile at an ATR of 0.49

COEFFICIENT CORRELATION

	NPM	ATR	FM	ROE	ROA	ROCE
NPM	1					
TAT	-0.70606001	1				
FM	-0.71327169	0.455856447	1			
ROE	-0.71026207	0.498950646	0.997657139	1		
ROA	-0.69818701	0.975216067	0.328792329	0.365988819	1	
ROCE	-0.7606841	0.309145183	0.171379572	0.145783366	0.408265792	1

NPM (Net Profit Margin) Strong negative correlation with ATR, FM, ROE, ROA, and ROCE. That is, higher profitability (NPM) tends to lessen capital efficiency and asset utilization. ATR (Volatility) Strongly positive with ROA at 0.98, suggesting that volatile companies are better at employing assets, but they tend to have lower NPM. FM (Financial Leverage) Strong positive correlation with ROE at 1, showing that leverage increases the return on equity. However, high leverage tends to lead to low NPM and also lower ROA. ROE (Return on Equity): The indicator is strongly linked with FM (1), while moderately negative with NPM and ROA, meaning higher returns on equity do not automatically indicate higher profitability or asset efficiency. ROA (Return on Assets): Slightly positive with ATR (0.98) meaning the volatile companies use assets more efficiently. Also, it is positively related with ROE and ROCE. ROCE (Return on Capital Employed): Moderately negatively correlated with NPM (-0.76), showing that more profitable firms might be less efficient in using capital.

4. CONCLUSIONS

Maruti Suzuki emerges as the strongest performer across most metrics, demonstrating high net profit margins, efficient asset turnover, and very high financial leverage, which results in an impressive return on equity (ROE) and return on assets (ROA).

Tata Motors, while recording decent margins, is comparatively less effective in asset utilization and financial leverage, which noticeably impacts its ROE and ROA.

Baja Auto shows prudent performance with solid net margins and financial leverage, but its asset turnover does not match the high levels seen at Maruti Suzuki.

Apollo Tyers and Eicher Motors exhibit relatively lower performance levels, facing challenges in terms of asset and financial leverage that diminish their overall return on capital.

In conclusion, Maruti Suzuki stands out as the best in terms of financial performance, profitability, and return on equity. Other companies, including Tata Motors and Apollo Tyres, have opportunities to optimize asset utilization and capital efficiency to further enhance their performance.

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