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EMPARATIVE ANALYSIS OF FINANCIAL TOOLS FOR BUSINESS DECISIONS IN AUTOMOBILE SECTOR OF INDIA.

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Abstract:
The purpose of this study is to examine the performance evaluation employing DuPont methodology of a select group of automakers by calculating the return on common stockholder's equity (ROE). The current research assesses a business's efficiency and profitability in relation to total assets, sales, etc. The nine automobile companies listed on the NSE have been the focus of this research. The data was conducted from 2018 to 2022. The fundamental data used in this study comprises secondary data. The data is derived from publicly available annual financial accounts Analysis of the current study was done utilizing to calculate return on equity, use the equity multiplier, net profit margin, and asset turnover ratio. The most complete indicator of a company's profitability is ROCE. Regression and correlation Analysis are carried out to determine whether there is a relationship between the aforementioned variables. To understand how ROA and EM affect ROE The findings showed a favorable association. With the exception of EM and the financial returns on equity and return on assets performance of a sample of corporations, there is a significant difference between all of the variables.

Keywords: DuPont; automakers; ROA; EM; ROE; Asset turnover ratio.

1. Introduction:

The mid-1900s DuPont display was created to assess the productivity of a corporation. The initial DuPont technique for budgetary proportion analysis was developed in 1918 by F. Donaldson Brown, the DuPont expert in charge of comprehending the budgetary proportions. DuPont was acquiring accounts of a company that DuPont was acquiring, which observed a scientific connection between benefit and cost. Profit for value (ROE) is governed by profit for resources (ROA). There are several proportions. There are ratios that can measure the financial performance of a company, such as performance and liquidity ratios, ratios of profitability and leverage in contrast to previous research, DuPont Analysis's economic measuring shows both performance and profitability.

In his research, Saunders utilized the DuPont model for financial analysis based on return on equity. Three elements comprise the return on equity model: net profit margin, asset turnover ratio, and equity. multiplier After deducting all expenditures, a company's net revenue reveals its ultimate profitability. Interest and costs have been accounted for. A large net profit margin indicates that a business is able to limit its costs. The company purchases goods and services at considerably inflated prices. furnish them. Total Asset Turnover is a metric that indicates a company's asset use efficiency. sales, this gives financial experts and creditors an idea of how

a business is handled and utilizes its assets and resources to make and sell items. The greater the ratio, the better the company's performance. Equity The multiplier is a financial statistic that shows how an organization's assets are funded by its shareholders. This portion describes the amount of debt used to acquire assets. The greater this ratio, the more dependent the business is on external financing.

Massive debt in order to obtain funds The Return on Common Stockholders' Equity in the Pharmaceutical Industry, analyzed by DuPont Bangladesh, was carried out from 2011 to 2015, five ways in which Dupont disassembles pharmaceutical businesses were employed. This methodology provides a more accurate evaluation of a company's efficiency and profitability. related to revenue, total assets, etc. An examination of the study identifies the best candidate among those chosen pharmaceutical firms. MeriBoshkoskaand & MilchoPrisagjanec examined the planning and evaluation of the company's financial performance. Using a software simulation, DuPont's profitability was modeled using software. The analysis methodology to determine the company's financial performance by integrating the financial variables and the DuPont profitability analysis methodology is analyzed. This idea lets the people in charge figure out the best ways to improve the company's financial performance.

1.1 Financial Performance

Financial ratios illustrate the links between items in the financial statement. Management can use ratios to discover internal strengths and weaknesses and anticipate future financial performance despite the fact that they provide historical data. Using ratios, investors can compare companies within the same industry. In general, ratios are meaningless as isolated numbers, but they acquire significance when compared to historical data and industry norms. Financial Ratios are used to illustrate the performance of a company. These ratios are derived from the financial statement's components. To calculate a financial ratio, one company's financial variable is divided by the other. It depicts the connection between two financial variables. Small business enterprises and managers rely on financial ratios to gauge their progress toward achieving their objectives.

Financial Analysis is the summarization of large amounts of financial data for the purpose of evaluating and comparing the performance of a company over time. It is essentially the process of reducing a large amount of historical financial data, taken from financial accounting statements, to a smaller set of information that is more useful for decision making. This examination is typically performed using accounting ratios, also known as Financial Ratio. Definition of DuPont Model For any business in the private sector, there are a variety of models that characterize the business's performance.

Return on Assets (ROA)

ROA provides a unique perspective on managerial success by revealing how much profit a company produces per dollar of assets. Cash in the bank, accounts receivable, property, equipment, inventory, and furnishings are examples of assets. Few experienced portfolio managers will consider stocks with a ROA below 5%.

ROA = Net Income / Sales * Sales / Total Assets = Net Income / Total Asset.

Net Income = Net Income after TAX.

ROE is computed by dividing the profit after taxes and preferred dividends of a given year by the equity's book value (ordinary shares) at the start of the year. In addition, average equity

might be employed. The equity would consist of issued common share capital in addition to the share premium and reserves.

1.2 Review of Literature

Utilizing profitability, liquidity, solvency, and activity ratios, Rinaldo and Endri (2020) analyze the financial performance of Indonesian plantation firms. The analysis reveals that the solvency ratios, i.e., the debt asset ratio and the debt-equity ratio, were high during the study period, although the profitability performance fluctuated. In contrast, the liquidity and activity ratio indicate that the enterprises have sufficient liquid assets to cover their short-term debt. In another study, Firdaus and Endri (2020) analyzed the financial statements of the Indonesian bank BUKU IV using this set of accounting ratios. Prabowo and Korsakul (2020) examine the financial performance of Indonesian mining businesses from 2013 to 2017 using identical financial ratios and DuPont analysis. During the study period, profitability ratios, solvency ratios, liquidity ratios, activity ratios, and DuPont analyses changed in all mining businesses.

On the basis of DuPont's analysis, the report suggests enhancing asset management because it provides operating profit for the business. Nataraja et al. (2018) analyzed the financial performance of a selection of commercial banks in India using multiple regression. Financial performance analysis in the study was determined by return on assets, return on equity, bank size, operational efficiency, credit risk, debt ratio, and asset management. All these indicators had a considerable impact on the financial performance of banks, according to this study.

Using financial parameters, Srinivasan and Britto (2017) conduct a comparative examination of the financial performance of private and public sector banks in India. Using panel data regression analysis, this study evaluates the effects of liquidity, solvency, and efficiency on the profitability performance of banks. The examination of panel data indicates that liquidity, solvency, and efficiency have a favorable impact on the profitability of banks. The analysis finds that private banks are in a stronger condition than public banks in terms of solvency and capital adequacy measures. The paper argues that public-sector banks should take considerable measures to strengthen their solvency and liquidity situation in order to boost their profitability, while private-sector banks could enhance their operating efficiency and liquidity in order to grow their profit margins.

Megaladevi (2015) evaluated the financial performance of a particular paper company over a period of ten years. Through ratio analysis, the study assesses financial performance in terms of liquidity, solvency, financial efficiency, and profitability. In this investigation, linear multiple regression, the t-test, and descriptive statistics were utilized. The findings indicate that the company's liquidity position was robust, but its financial stability trended lower during the study period. Hawaldar, Lokesha, Kumar, Pinto, and Sison (2017) analyze the financial performance of commercial banks in the Kingdom of Bahrain from 2001 to 2015 based on capital adequacy, profitability, leverage, liquidity, and operating efficiency. According to the findings of the study, profitability was connected with operating efficiency as well as capital adequacy.

Mustafa and Taqi (2017) explain that an organization's performance is dependent on a number of elements, including management effectiveness, operational efficiency, customer satisfaction, service quality, and profitability. Using regression analysis, this study evaluates the performance of Punjab national banks. The study demonstrates that the bank's advances and deposits had a significant and negative effect on its profitability. During the study period,

the empirical findings indicate that the bank's financial efficiency and growth rate were strong, but its profitability performance was weak. The article emphasized that banks are the primary actors in the financial sector and make a significant contribution to an economy's financial system.

Widyastuti (2019) evaluates the influence of liquidity, activity, and leverage on the financial performance and market value of food and beverage companies listed on the Indonesian stock exchange. The study demonstrates that activity and leverage have no meaningful effect on the company's financial performance and value. According to the study's findings, liquidity has a strong and favorable effect on financial performance, and financial performance is significantly related to business value, according to the study's findings. Nugraha, Sulastri, Nugraha, Puspitasari, and Putra (2020) conclude that leverage and liquidity have no impact on the financial success of a corporation. The study suggests that corporations may make greater profits if they can effectively manage their long-term debt.

1.3 Objectives of the Study:

The purpose of this study is to conduct an objective evaluation of the financial performance of organizations utilizing DUPONT MODEL for the purposes of this study. The study has the following major objectives:

- To analyze the financial performance of select automobile companies using the Dupont model.
- To evaluate the profitability of vehicle manufacturers Using ROE and ROA from the Dupont model.
- To examine the influence of Return on assets and Equity Multiplier on Return on Equity and analyze the influence of Net profit margin and total Asset turnover ratio on Return on Asset.

1.4 Study Hypothesis

H_{01}: There is no significant difference between the financial performance of selected companies with Return on equity.

H_{02}: There is no significant difference between the financial performance of selected companies with Return on Assets.

1.5 Research Methodology

This study utilized basic random sampling to choose 9 sample automobile firms. Between 2018 and 2022, data was collected over a five-year period. Annual financial accounts were surveyed for secondary data. The data was collected, edited, and coded before being input into Excel and imported into SPSS for analysis. Mean, standard deviation, frequency, and percentages were applied to describe descriptive statistics. The impact of ROA and EM on ROE was investigated using simple linear regression. Regression was utilized to determine the effect of the independent variable on the firm's dependent variable. Net Profit Margin, Total Asset Turnover Ratio and Equity Multiplier were considered as Independent variable and whereas Equity Multiplier and Return on Asset were considered as Dependent variable.

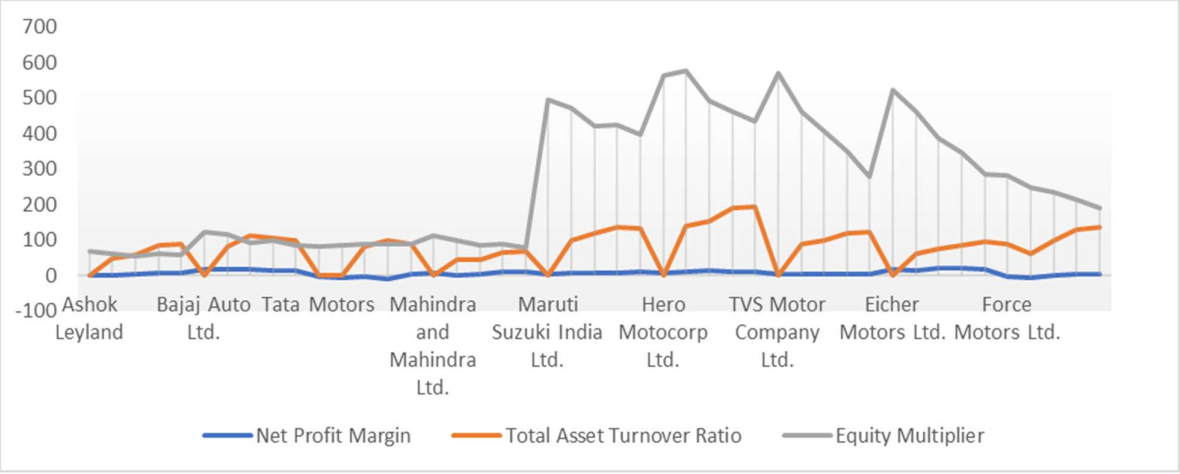
Table 1: Descriptive Statistics

	Net Profit Margin	Total Asset Turnover Ratio	Equity Multiplier	Return on equity	Return on Asset	ROCE
Mean	6.67	79.82	260.14	10.27	7.46	15.90
Median	6.1	88.3	235.70	14.37	5.83	15.46
Standard Deviation	7.33	51.34	179.12	15.83	7.90	11.66
Minimum	-9.58	0.16	55.83	-47.9	-9.38	-7.18
Maximum	20.02	192.54	578.12	31.41	22.08	40.82
Count	45	45	45	45	45	45

Source: Authors Compilation.

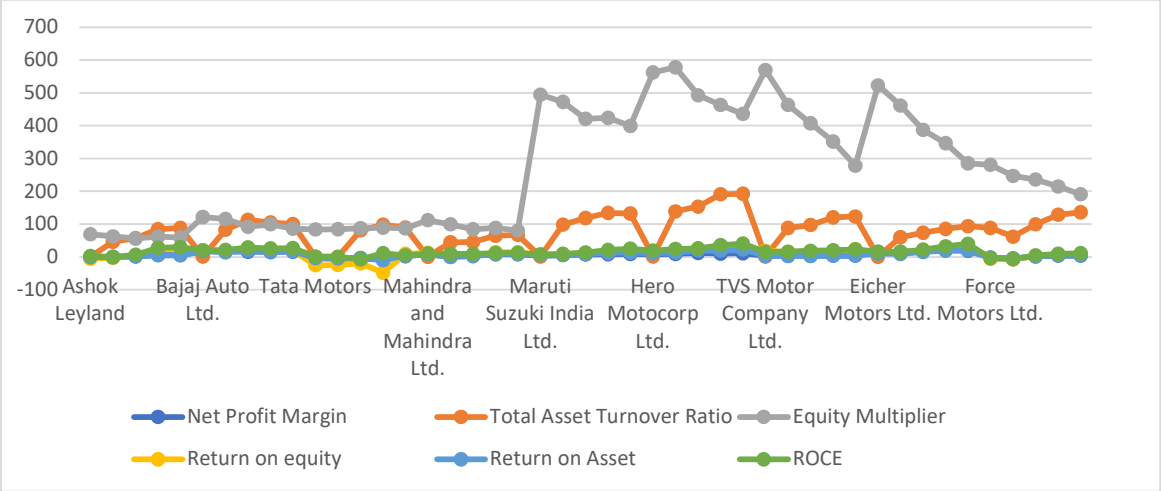
Table 1 describes that automobile companies have an average mean return on equity of 10.27, indicating that equity shareholders get better returns. This can contribute to the wealth creation and growth in business. The maximum ROE is 31.41 percent and the smallest ROE is -47.9 percent for specified year in the research. The average NPM is 6.67, while the highest is 20.02 and the minimum is -9.58. The average ATR is 79.82 percent, with a maximum of 192.54 percent and a minimum of 0.16 percent. The mean of EM is 260.14 the maximum EM is 578.12, and the smallest EM is 55.83. The average ROA is 7.46, while the highest is 22.08 and the minimum is -9.38. The average ROCE is 15.90, maximum ROE is 40.82, and minimum ROE is -7.18.

Chart 1: Select Automobile companies financial variables for dupont analysis.



The graph 1 specifies that the net profit margin for Eicher motors is 20.02 in 2019 and 16.85 in 2022 of Bajaj auto limited. They describe how the net interest rate shows the relationship between net sales and profit revenue, and that it is dependent on sales revenue and total cost. Eicher motors and Bajaj motors are capable of making higher sales whilst retaining a reducing the cost of goods, as evidenced by their high profit margins.

Chart 2: ROE, ROA and ROCE of select automobile companies for dupont analysis.



From the graph 2 specifies that ROE of Hero MotoCorp, Eicher motors and TVS company are high compared to other auto companies. Returns to shareholders maximizes the wealth and leads to growth of the organization. Whereas TATA motors returns were less compared to other auto companies. ROA of Hero MotoCorp, Eicher motors and BAJAJ company stipulates the better utilization of assets resulting in generating better returns. Further, Hero MotoCorp, Eicher motors and BAJAJ company have better ROCE which indicates profitability and efficiency of the company's capital investment. It facilitates in determining efficiently handling of owner's investment.

Table 2: Correlations of financial variables in Dupont analysis

		Net Profit Margin	Total Asset Turnover Ratio	Equity Multiplier	Return on equity	Return on Asset	ROCE
Net Profit Margin	Pearson Correlation	1	.204	.277	.791**	.927**	.746**
	Sig. (2-tailed)		.179	.066	.000	.000	.000
Total Asset Turnover Ratio	Pearson Correlation	.204	1	.220	.378*	.407**	.506**
	Sig. (2-tailed)	.179		.147	.010	.006	.000
Equity Multiplier	Pearson Correlation	.277	.220	1	.378*	.332*	.314*
	Sig. (2-tailed)	.066	.147		.010	.026	.036
Return on equity	Pearson Correlation	.791**	.378*	.378*	1	.818**	.768**
	Sig. (2-tailed)	.000	.010	.010		.000	.000
Return on Asset	Pearson Correlation	.927**	.407**	.332*	.818**	1	.831**

	Sig. (2-tailed)	.000	.006	.026	.000		.000
ROCE	Pearson Correlation	.746**	.506**	.314*	.768**	.831**	1
	Sig. (2-tailed)	.000	.000	.036	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Authors Compilation.

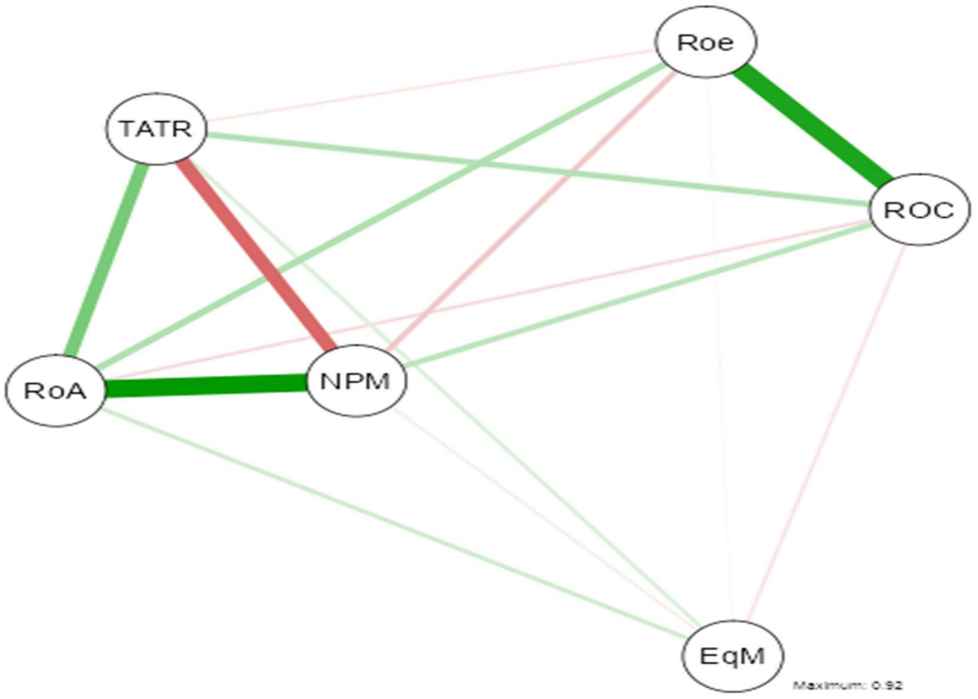


Table 2 depicts that Pearson correlation of coefficient between ROA and NPM, ROE and ROCE have significant positive correlation among variables. Further, ROE and NPM, ROC and ROCE have negative correlation. Positive correlation among variable states that optimum utilization of funds and investors can get more returns comparatively.

Table 3: Multiple Regressions Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.832[a]	.692	.670	9.09687

a. Predictors: (Constant), Equity Multiplier, Total Asset Turnover Ratio, Net Profit Margin

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7628.367	3	2542.789	30.727	.000[b]
	Residual	3392.876	41	82.753		
	Total	11021.244	44			

a. Dependent Variable: Return on equity

b. Predictors: (Constant), Equity Multiplier, Total Asset Turnover Ratio, Net Profit Margin

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-8.121	3.007		-2.701	.010
	Net Profit Margin	1.538	.197	.712	7.806	.000
	Total Asset Turnover Ratio	.063	.028	.203	2.260	.029
	Equity Multiplier	.012	.008	.136	1.490	.144

a. Dependent Variable: Return on equity

Source: Authors Compilation.

Table 3 depicts multiple regression analysis, significant value (0.00) is less than the P-Value (0.05) in ANOVA table, which specifies that model applied among select automobile company's financial variable and ROE are stationary. Regression analysis describes that R-Square is 0.692, further 69.2 percent of the observed variability in ROE is explained by the independent variable of EM, ATR, NPM. Further regression specifies that F statistic for ROE is 30.727 NPM, ATR and EM are found to have a strong favorable impact on profitability as measured by ROE. The coefficient value of NPM is 1.538, ATR is 0.063 and EM is 0.012. p=0.00 which is less than (0.05) so, null hypothesis is reject and accepted alternative hypothesis.

Table 4: Multiple Regressions Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.954[a]	.910	.903	2.45924

a. Predictors: (Constant), Equity Multiplier, Total Asset Turnover Ratio, Net Profit Margin

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2500.821	3	833.607	137.835	.000[b]

Residual	247.962	41	6.048		
Total	2748.782	44			

a. Dependent Variable: Return on Asset

b. Predictors: (Constant), Equity Multiplier, Total Asset Turnover Ratio, Net Profit Margin

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.996	.813		-2.456	.018
	Net Profit Margin	.938	.053	.870	17.609	.000
	Total Asset Turnover Ratio	.034	.007	.220	4.516	.000
	Equity Multiplier	.002	.002	.044	.879	.385

a. Dependent Variable: Return on Asset

Source: Authors Compilation.

Table 4 specifies the multiple regression analysis, where significant value (0.00) is less than the P-Value (0.05) in ANOVA table, which specifies that model applied among select automobile company's financial variable and ROE are stationary. Regression analysis describes that R-Square is 0.910, further 91.0 percent of the observed variability in ROE is explained by the independent variable of EM, ATR, NPM. Further regression specifies that F statistic for ROE is 137.835 NPM, ATR and EM are found to have a strong favorable impact on profitability as measured by ROE. The coefficient value of NPM is 0.938, ATR is 0.034 and EM is 0.002. p=0.00 which is less than (0.05) so, null hypothesis is reject and accepted alternative hypothesis.

Conclusion:

The purpose of this article would be to examine the measurement of business performance utilizing Dupont analyses using profitability measures such as ROE, ROA, and ROCE. According to DuPont's analysis, ROE has been declining in all three of its parts: NPM, TAT, and EM. From the study, it was determined that there is a significant link among three independent variables, namely NPM, ROA, ROE, and ROCE, indicating that even high levels of management effectiveness and efficiency of investor funds can predict a greater level of profit margin. Furthermore, it was determined that there is a negative correlation between EM and ROA, ROE, and ROCE. Automobile companies that used DuPont analysis had a higher return on equity, owing to higher asset turnover ratios and demonstrating higher operating efficiency with less debt. Using a multi-regression model, the relationship between both return on equity and net profit margin, asset turnover ratio, and equity multiplier was ascertained. It was calculated that there is a substantial difference in the financial performance of certain companies when it comes to returns on equity. To improve the accuracy of future profitability predictions, analysts and investors following the automobile industry must focus on shifts in profitability rather than variations in asset turnover, ROE, and ROA.

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