

A Comprehensive Analysis of Factors Influencing Investment Decisions in the Automobile Industry

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Abstract: Introduction: The automobile sector is one of the fastest-growing industries in India, contributing 7.1% to GDP (2016–17). Rising middle-class income, favorable policies, and a youthful population have driven demand. However, events like demonetization and GST implementation temporarily slowed sales and investments. Literature Review: Studies by Amima Shoeb (2017), Bureau (2018), and Chandrashekhar (2017) highlight India's automotive evolution through liberalization, FDI inflows, and growth of major firms such as Maruti Suzuki, Hyundai, Tata Motors, and Mahindra. Despite policy shocks, the sector remains a strong investment avenue due to domestic demand and structural reforms. Methodology: An analytical research design was used with secondary data from annual reports and journals. A sample of five firms-Tata Motors, Ashok Leyland, Eicher Motors, Force Motors, and SML Isuzu-was selected using systematic random sampling. Techniques included equity, technical, and regression analysis. Findings: Equity analysis showed strong performance by Ashok Leyland and Eicher Motors in the LCV/HCV segment. Sales for all companies declined in 2016–17 due to demonetization and GST. Technically, Tata Motors, Force Motors, and SML Isuzu trended downward, while Ashok Leyland and Eicher Motors moved upward. EPS fell sharply for Tata Motors (₹21.95) but increased for peers. Regression results revealed that infrastructure significantly affects investment ($p = 0.012$), while raw material prices, GDP, petrol prices, and interest rate showed no significant link. Overall, these factors explained 50.9% of investment variation (Adjusted $R^2 = 0.509$). Conclusion: The automobile sector continues to offer strong long-term potential supported by infrastructure growth and policy reforms, despite short-term shocks. Strategic investments in efficient and adaptive firms can yield sustainable returns.

Keywords: Automobile Industry; Investment; Infrastructure; GDP; FDI; EPS; India; Regression Analysis.

1. Introduction

Automobile sector one of the most booming sector in India since 1952. The automotive industry in India is the fourth-largest in the world as per 2021 statistics. As the middle class income is raising in India and the major population is youth so there are high chances of increase in the demand which will have a positive impact on the revenues of automobile companies. This may result in to more job creation in the country.

(Amima Shoeb, 2017)The automobile industry plays a significant role as it has employed 9 million people and includes approximately 5% of world's total employment in manufacturing unit. Production of world's automobile industry has spread across three major regions that include North America, Europe and Asia. World's automobile Industry has undergone major restructuring and India has become a leading player along with nations like China, South Korea, beside the giant Japan. Post-Independence, India espoused a central economic system, a partial liberalization was implemented in 1980. The central government formed a venture with Maruti Udyog in 1981. The cars produced by Maruti was affordable for Indians, small in size and suitable for Indian roads.[2] The passenger car market in India is dominated by Suzuki, Hyundai Motors and Tata Motors where Suzuki has dominated with more than 50% of the passenger car market share and has covered more than 90% of both brand and price competitiveness [3]. Indian automobile industry has its origin in 40's and has considered growing due to economic liberalization including 100% FDI in the sector.

(Bureau, 2018) Indian automobile companies have robust growth in sale of April in new fiscal year. The trend is likely to continue. Maruti Suzuki reported growth of 13.4% in April.

The only adverse impact on growth is of increase in fuel prices. Hyundai Motors posted 4.4 percent and Tata Motors and Mahindra and Mahindra posted 13 percent and 324 percent growth respectively in April. The new fiscal year for passenger vehicle has started on positive note. Sale of commercial vehicle has strong growth in April, but low growth because of Supreme Court ruling banning sale and registration of BS III compliant vehicles beyond March 2017. In commercial vehicle Mahindra has growth of 26 percent and in two-wheeler sector TVS motor registered growth of 21.7% in April.

(Chandrashekhar, 2017) Our top pick in the auto space is Mahindra & Mahindra though we continue to like Maruti Suzuki. Mahindra offers a higher delta and the stock is yet to play out -those looking to enter the automobile space will be able to get higher returns from Mahindra, "said Daljeet Singh Kohli, head of research. Mahindra & Mahindra utility vehicles (UVs) segment volumes took a hit due to demonetization and its sales slowed down -both in passenger UVs and pick-up vehicles.

Research Objective:

To study factor's affecting investment in Automobile Sector.

Research Design

Our research design is **Analytical Research design**.

Data Collection Methods

Secondary Method: From websites, journals, Annual Reports

Sampling Plan

Sample Size: 5 Companies

Sampling Method: Probability Systematic Random Sampling

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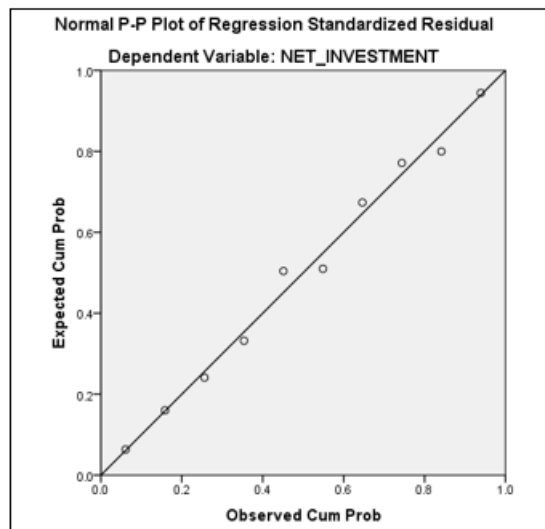
Determinants of Investment in Automobile Sector:

1) Descriptive Analysis

Table 1: Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Net Investment	2817335965	14113354207	8748130054.90	3339310324.167
Raw material prices (Aluminum)	88.21	115.59	105.5157	7.68654
GDP Growth Rate	3.89	10.26	7.0936	1.71967
Petrol Price	43.02	69.57	60.4960	9.51306
Interest Rate	9.85	12.00	11.0200	.82839
Infrastructure (Road)	10667.00	55000.00	25828.5000	13689.35195

2) Normality:



3) Correlations:

H0: There is no significant relationship between Net Investment and Raw material prices, GDP growth rate, Petrol prices, Interest rate and Infrastructure.

H1: There is a significant relationship between Net Investment and Raw material prices, GDP growth rate, Petrol prices, Interest rate and Infrastructure.

Table 2: Correlations

		Net Investment	Raw Material Prices (Aluminum)	GDP Growth Rate	Petrol Price	Interest Rate	Infrastructure (Road)
Net Investment	Pearson Correlation	1	.020	.006	.266	-.624	.751*
	Sig. (2-tailed)		.957	.986	.457	.054	.012
	N	10	10	10	10	10	10
Raw Material Prices (Aluminum)	Pearson Correlation	.020	1	-.509	.516	-.377	.477
	Sig. (2-tailed)	.957		.133	.127	.283	.163
	N	10	10	10	10	10	10
GDP Growth Rate	Pearson Correlation	.006	-.509	1	-.036	-.166	.062
	Sig. (2-tailed)	.986	.133		.922	.646	.864
	N	10	10	10	10	10	10
Petrol Price	Pearson Correlation	.266	.516	-.036	1	-.554	.554
	Sig. (2-tailed)	.457	.127	.922		.097	.097
	N	10	10	10	10	10	10
Interest Rate	Pearson Correlation	-.624	-.377	-.166	-.554	1	-.843
	Sig. (2-tailed)	.054	.283	.646	.097		.002
	N	10	10	10	10	10	10
Infrastructure (Road)	Pearson Correlation	.751	.477	.062	.554	-.843	1
	Sig. (2-tailed)	.012	.163	.864	.097	.002	
	N	10	10	10	10	10	10

Table no. 2 show that sig. value for raw material prices, GDP rate, petrol prices and Interest rate is not less than 0.05, we accept null hypothesis, hence there is no relationship between Net Investment and raw material prices, GDP rate, petrol

prices and Interest rate. Sig. value for Infrastructure is less than 0.05, we fail to accept null hypothesis, and hence there is relationship between Net Investment and Petrol prices and Infrastructure.

4) Regression:

H0: There is no significant impact of Raw material prices, GDP growth rate, Petrol prices, Interest rate and Infrastructure on Net Investment.

H1: There is a significant impact of Raw material prices, GDP growth rate, Petrol prices, Interest rate and Infrastructure on Net Investment.

Equation:

$$\text{Net Investment} = a + b(\text{Raw Material Price} + b(\text{GDP Growth Rate}) + b(\text{Petrol Price}) + b(\text{Interest Rate}) + b(\text{Infrastructure}))$$

Descriptive Statistics			
	Mean	Std. Deviation	N
Net Investment	8748130054.90	3339310324.167	10
Raw Material (Aluminium)	105.5157	7.68654	10
GDP Growth Rate	7.0936	1.71967	10
Petrol Price	60.4960	9.51306	10
Interest Rate	11.0200	.82839	10
Infrastructure (Road)	25828.5000	13689.35195	10

Correlations							
		Net Investment	Raw Material (Aluminium)	GDP Growth Rate	Petrol Price	Interest Rate	Infrastructure Road
Pearson Correlation	Net Investment	1.000	.020	.006	.266	-.624	.751
	Raw Material (Aluminium)	.020	1.000	-.509	.516	-.377	.477
	GDP Growth Rate	.006	-.509	1.000	-.036	-.166	.062
	Petrol Price	.266	.516	-.036	1.000	-.554	.554
	Interest Rate	-.624	-.377	-.166	-.554	1.000	-.843
Sig. (1-Tailed)	Infrastructure (Road)	.751	.477	.062	.554	-.843	1.000
	Net Investment	.	.478	.493	.228	.027	.006
	Raw Material (Aluminium)	.478	.	.067	.063	.141	.081
	GDP Growth Rate	.493	.067	.	.461	.323	.432
	Petrol Price	.228	.063	.461	.	.048	.048
N	Interest Rate	.027	.141	.323	.048	.	.001
	Infrastructure (Road)	.006	.081	.432	.048	.001	.
	Net Investment	10	10	10	10	10	10
	Raw Material (Aluminium)	10	10	10	10	10	10
	GDP Growth Rate	10	10	10	10	10	10
Petrol Price	10	10	10	10	10	10	
Interest Rate	10	10	10	10	10	10	
Infrastructure (Road)	10	10	10	10	10	10	

Summary											
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson	
					R Square Change	F Change	df1	df2	Sig. F Change		
1	.751 ^a	.563	.509	2340392639.906	.563	10.322	1	8	.012	2.593	

Table shows there is 50.9 % impact of Raw material prices, GDP growth rate, Petrol prices, Interest rate and Infrastructure on Net Investment. As significant value is .012 which is less than .05.so, we fail to accept null hypothesis and

we can say that there is a significant impact of Raw material prices, GDP growth rate, Petrol prices, Interest rate and Infrastructure on Net Investment.

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.65394E+19	1	5.65394E+19	10.322	.012 ^b
	Residual	4.38195E+19	8	5.47744E+18		
	Total	1.00359E+20	9			

a. Dependent Variable: NET INVESTMENT
b. Predictors: (Constant), INFRASTRUCTURE ROAD

Coefficients												
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics		
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	4.02E+09	1.65E+09		2.44	0.041						
	Infrastructure Road	183092.9	56988.15	0.751	3.213	0.012	0.751	0.751	0.751	1	1	

Coefficient Correlations			
Model		Infrastructure Road	
1	Correlations	Infrastructure (Road)	1.000
	Co variances	Infrastructure (Road)	3247649555
A. Dependent Variable: Net Investment			

Residuals Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	5972166656.00	14089226240.00	8748130054.90	2506423731.543	10
Residual	-3575761152.000	3724886784.000	.000	2206543341.756	10
Std. Predicted Value	-1.108	2.131	.000	1.000	10
Std. Residual	-1.528	1.592	.000	.943	10
A. Dependent Variable: Net Investment					

2. Findings

- Automobile Sector is one of the fastest growing sectors in Indian economy. It contributed 7.1% to GDP of country in 2016-17.
- From Equity Research, we found out that the result of Ashok Leyland and Eicher Motors are good in Lcv/Hcv sector of Automobile Sector, as sales of Ashok Leyland had increased majorly over 10 years.
- In 2016-17 Sales of all five company has reduced compare to 2015-16 because of demonetisation and GST. It had greatly impact on sales of company.
- From Technical analysis of 1 year found that there is downward trend in script of Tata Motors, Force Motors and SML Isuzu Ltd. Ashok Leyland and Eicher Motors, has upward trend.
- In 2016-17 EPS of Tata motors has reduced by almost 50 % to 21.95, whereas EPS of Eicher Motors, Ashok Leyland, Force Motors and SML Isuzu have increase to 573.33, 4.30, 136.55 and 43.40 respectively.
- Factors such as Raw material prices, Infrastructure, Interest rate, Petrol Prices and GDP growth rate impact investment in automobile sector.
- Sig. value for raw material prices, GDP rate, Petrol prices and Interest rate is not less than 0.05, i.e. 0.957, 0.986, 0.457 and 0.054 respectively, and hence there is no relationship between Net Investment and raw material prices, Petrol prices GDP rate and Interest rate. Sig. value for Infrastructure is less than 0.05, i.e. 0.012. Hence there is relationship between Net Investment and Infrastructure.
- From statistical analysis, we found out factors such as Petrol prices, Interest rate, Infrastructure (Road), GDP rate and Raw material prices have 50.9% impact on Investment in auto mobile sector as adjusted r square is 0.509.

3. Conclusion

The main aim of this research is to study factors affecting investment in automobile sector and conducting fundamental and technical analysis of automobile industry. Equity research is important for investment in stock market.

From Equity Research, it is concluded that Ashok Leyland is performing very good both fundamentally and technically, in comparison to other companies. From fundamental analysis it is also concluded that in future demand for Eco friendly (Electronic/Hybrid Vehicle) will increase because of

spreading awareness about environment and government norms.

From statistical analysis it is concluded that factors like Raw material prices, Interest rate, Petrol prices, GDP rate and Infrastructure impact investment in automobile sector. From research it is concluded that share of LCV/HCV sector in Automobile Industry is increasing as better infrastructure facility, affordable interest rate are available.

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