



## RESEARCH ARTICLE

### AN EMPIRICAL STUDY ON FINANCIAL HEALTH OF ASHOK LEYLAND

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#### ABSTRACT

Liquidity is playing major role to meet the short term obligations on time for the business. Automobile industry required large amount of investment. For getting this requirement creditworthiness and profitability of the company plays a crucial role in the process of decision making of the shareholders. This paper is making attempt to examine the liquidity, profitability of Ashok Leyland and financial health using Altman's Z-score test. The study based on secondary data collected from annual report of Ashok Leyland during the period 2011-12 to 2015-16. The study reveals that the liquidity position of Ashok Leyland was below the traditional standard and profitability ratio shows a positive sign, but it varies frequently during the study period. There is a positive correlation between liquidity ratios and some profitability ratios, but NPR, EPS and RONW shows a negative sign. The calculated z – score values are showing healthy zone during the study period, but company must take proper measure to increase the performance using available resources.

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## INTRODUCTION

Transportation industry plays an important role in the development of infrastructure and connectivity through minimizing the distance between the destinations and the whole world will feel like a small village. The automobile industry in India is the world's second largest two-wheeler manufacturer. An annual production of 23.37 million vehicles in FY 2014-15, a growth of 8.68 per cent over the last year & it contribute 7.1 per cent of the country's gross domestic product (GDP). Two-wheeler production is projected to rise from 18.5 million in FY15 to 34 million by FY20. Furthermore, passenger vehicle production is expected to increase to 10 million in FY20 from 3.2 million in FY15. The Indian automobile industry is growing year-on-year. The sales of Two Wheelers, Three Wheelers, Passenger Carriers, and Goods Carriers registered a growth of 8.09 per cent, 10.80 per cent, 12.16 per cent and 5.27 per cent respectively in FY 2014-15, over the same period last year. The sales of Passenger Vehicles grew 3.9 per cent in FY 2014-15 over the same period last year. Within the Passenger Vehicles segment, Passenger Cars and Utility Vehicles registered a growth of 4.99 per cent and 5.30 per cent respectively. The Indian Auto industry produced a total 7.8 million vehicles in April-July 2015 as against 7.7 million in April-July 2014, thereby indicating a growth of 1.8 per cent year-on-year. Domestic Sales of Passenger Vehicles

increased 7.46 per cent in April-July 2015 year-on-year. Among Passenger Vehicles, cars grew 10.7 per cent while Utility Vehicles and Vans declined by 0.32 per cent and 1.43 per cent respectively. Overall Commercial Vehicles segment registered 5.63 per cent growth. Medium & Heavy Commercial Vehicles (M&HCVs) reported strong growth of 24.9 per cent while Light Commercial Vehicles declined by 5.24 percent. Three Wheelers sales fell by 8.41 percent, while sales of Passenger Carriers and Goods Carriers fell by 9.25 per cent and 4.5 per cent respectively during the 4-month period. Profitability and liquidity is a crucial factor contributing to the survival of the company. The borrowing capacity of the company depends on the profitability and liquidity position of the company. It is also playing crucial role in determining the capital structure of the company. Profitability consists of two words, profit and ability. The term ability indicates the power of a company to earning power or operating performance. To measure the productivity of capital employed and operating efficiency, profitability and liquidity analysis is considered as one of the best techniques. The ability of the company to manage the liquidity, profitability which leads to the good financial performance and health of the company, the study made an attempt to check the liquidity, profitability and financial health of Ashok Leyland Company.

#### Statement of problem

Liquidity is playing major role to meet the short term obligations on time for the business. Automobile industry required large amount of investment. For getting this

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requirement creditworthiness and profitability of the company plays a crucial role in the process of decision making of the shareholders. This paper is making attempt to focus on examine the liquidity, profitability of Ashok Leyland and financial health using Altman's Z-score test.

### Literature review

Dr. M. Thyigarajan and Mr. J. Uday Kumar (2015) studied "Profitability analysis of select aluminum companies in India" The evaluation consist of tools like Mean, Standard deviation, co-efficient of variation and compound annual growth. The study reveals satisfactory performance in concern with profitability.

Dr. Vijay H. Vyas (2015) studied A Study of Financial Health of Oil and Gas Industry in India, the study has been made through using different ratios, mean, standard deviation and Altman's Z-score approach to study the financial health of selected oil and gas companies. The study reveals that all the sampled companies are capable in all the study period.

Dr. Muthusamy & Muthumeena (2015) studied Financial Performance of Selected Private Airlines in India. The study has been examined using various financial ratios and statistical tools like mean, standard deviation, co-variance, ANOVA, simple correlation co-efficient and t-test. The study concluded that Jet Airways and Spice Jet have higher profitability performance as compare to other selected private Airline companies in India.

Ms. Hetalgaglani & Dr. Smita Rao (2015) studied a study on the liquidity, profitability and financial health of Sun pharmaceutical Industry Ltd. The study focus on company's liquidity, profitability, trade-off between liquidity, profitability and risk and financial health using Altman's Z-score test, the reveals that there is moderate correlation between liquidity and risk and profitability & risk and also company is in a healthy zone.

Mohan Kumar et al. (2016) in their study titled "A Study On Financial Health Of Steel Authority Of India Ltd" examining the liquidity, profitability position of SAIL using the ratios like CR, QR, ROTA, ROCE, RONW, GPR, NPR, OPR & EPS. The financial health of the company is examined using Altman's Z score model. The reveals that a positive correlation between liquidity and profitability ratios except ROCE and the calculated Z score values indicates company is in health zone.

### Objectives

- To analyze the short term financial position of the Ashok Leyland
- To examine the profitability position of the Ashok Leyland
- To analyze the long term financial performance of the Ashok Leyland
- To examine the financial health of the Ashok Leyland

### Hypothesis

- H<sub>0</sub>: There is no correlation between Liquidity and profitability  
 H<sub>1</sub>: There is a correlation between liquidity and profitability

### Research methodology

**Research Design:** Exploratory research design was adopted for present study to analyze and interpret the available information

**Source of Data:** The financial data for the study are drawn purely from the secondary data and the data has been collected from money control.com and annual reports of the company.

**Period of the study:** The study is covering 5 year during the period from 2011-2012 to 2015-2016

**Tools of data analysis:** The study uses different financial ratios and statistical tools like Mean, Standard Deviation, co-efficient of variance, correlation analysis and Altman's Z-score to verify the financial health of Ashok Leyland Company.

### Data analysis and interpretation

**Table 1. Liquidity ratios of ashok leyland**

Year	CR		QR	
	Ratio	Rank	Ratio	Rank
2011-12	0.91	3	0.51	5
2012-13	0.73	5	0.56	4
2013-14	0.78	4	0.67	3
2014-15	0.94	2	0.69	2
2015-16	1.08	1	0.78	1
Avg	0.89		0.64	
SD	0.14		0.11	
CV	15.59		16.75	

(Source: calculated values from annual reports of the company)

Table 01 shows the liquidity ratios like current ratio and quick ratio during the year 2011-12 to 2015-16 and ranked individually on the basis of higher the ratio and greater the liquidity. Further the ultimate rank has been calculated from the total of the rank ratios. The ultimate ranking based on the principles that lower the aggregate rank of the year more profitability is the liquidity position and vice versa. The average current ratio was 0.89 and standard deviation is 0.14 and it varies 15.59% during the last five years. The lowest current ratio is 0.73 during the year 2012-13, and highest ratio is 1.08 during the year 2015-16. It shows that the company failed to maintaining current ratio the ideal standards of 2:1. The average quick ratio was 0.64 and standard deviation is 0.11 and it varies 16.75% during the last five years. The lowest quick ratio is 0.51 during the year 2011-12 and highest ratio is 0.78 during the year 2015-16. It shows that the company is maintaining average quick ratio and is almost near to the ideal ratio of 1:1

**Table 2. Profitability ratios of ashok leyland**

Year	GPR		OPR		NPR		EPS	
	Ratio	Rank	Ratio	Rank	Ratio	Rank	Rs	Rank
2011-12	7.03	2	9.78	2	4.40	1	2.13	2
2012-13	3.97	4	7.02	4	3.47	3	1.63	3
2013-14	-2.11	5	1.67	5	0.29	5	0.11	5
2014-15	4.49	3	7.56	3	2.46	4	1.18	4
2015-16	9.15	1	11.50	1	3.83	2	2.54	1
Avg	4.51		7.51		2.89		1.52	
SD	4.24		3.72		1.62		0.94	
CV	94.15		49.59		55.91		61.87	

(Source: calculated values from annual reports of the company)

Table 02 shows that the different profitability ratios during the year during the year 2011-12 to 2015-16. The average GPR is 4.51%, it varies 94.15% during the study period and the lowest GPR is -2.11% during the year 2013-14 and the highest GPR is 9.15% during the year 2015-16. The average OPR is 7.51%, it varies 49.59% during the study period and the lowest OPR is 1.67% during the year 2013-14 and the highest OPR is 11.50% in the year 2015-16.

**Table 3. Long term solvency ratios of ashok leyland**

Year	ROA		ROCE		RONW	
	Ratio	Rank	Ratio	Rank	Ratio	Rank
2011-12	10.88	5	17.83	2	19.55	1
2012-13	11.87	4	8.37	4	13.73	3
2013-14	12.30	3	-2.01	5	0.89	5
2014-15	14.40	2	10.98	3	8.17	4
2015-16	15.79	1	28.28	1	16.06	2
Avg	13.05		12.69		11.68	
SD	2.00		11.26		7.32	
CV	15.33		88.73		62.63	

(Source: calculated values from annual reports of the company)

**Table 4. Correlation matrix**

	CR	QR	GPR	OPR	NPR	EPS	ROA	ROCE	RONW
CR	1								
QR	0.605	1							
GPR	0.743	0.091	1						
OPR	0.741	0.081	1.000	1					
NPR	0.425	-0.303	0.914	0.917	1				
EPS	0.628	-0.011	0.976	0.974	0.948	1			
ROA	0.737	0.936	0.378	0.371	-0.001	0.258	1		
ROCE	0.848	0.275	0.968	0.965	0.809	0.943	0.504	1	
RONW	0.413	-0.341	0.890	0.892	0.989	0.942	-0.071	0.803	1

(Source: calculated values from annual reports of the company)

The average NPR is 2.89% and it varies 55.91% during the study period and the lowest NPR is 0.29% during the year 2013-14 and the highest NPR is 4.40% in the year 2011-12. The average EPS is Rs 1.52 and it varies 61.87% in the study period. The highest EPS is Rs 2.54 in the year 2015-16, and lowest is Rs 0.11 in the year 2013-14. It shows that the overall profitability of the Ashok Leyland was positive during the study period and the average ratio in between 2.89% to 7.51%. Table 03 reveals that long term solvency ratio of Ashok Leyland during the year 2011-12 to 2015-16. The average ROA is 13.05% and varies 15.33% during the study period. The lowest ROA was 10.88% noticed in the year 2011-12 and the highest ROA was 15.79% noticed in the year 2015-16. It shows that the company's efficiency in using their assets to earn revenue. The average ROCE is 12.69% and it varies 88.73% during the study period and the highest ROCE of 28.28% was noticed in the year 2015-16 and the lowest of -2.01% was noticed in the year 2013-14, the resulting ratio represent the efficiency with which capital being utilized to generate revenue by which satisfy the owners that their money is profitably utilized. The average RONW is 11.68 % and varies 62.63%, the highest RONW of 19.55% was noticed in the year 2011-12 and lowest of 0.89% was noticed in the year 2013-14. It shows that the company is giving more importance towards profit maximization. The table 04 shows that there is a positive correlation between the GPR, OPR, ROCE, ROA and Current ratio & Quick ratio, but have a negative correlation between NPR, EPS, RONW and Quick ratio. A positive correlation between ROA, ROCE, RONW and EPS, It shows that liquidity Ratio of the company and profitability ratios & long term solvency ratio has a positive correlation except NPR, EPS & RONW.

#### Altman's financial health prediction model

The most famous failure prediction model is Altman's Z score model. This model was developed in 1968. It is based on multiple discriminate analyses (MDA) the model predicts a company's financial health based on discriminate function of the firm. The data collected were first analyzed with the help

of five accounting ratios. These different ratios are combined into a single measure Z score analysis with the help of MDA. The formula used to evaluate the Z score analysis as established by Altman is as follows;

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.99X_5$$

Where

$X_1$  = Working capital / Total assets

It is the measure of net liquid assets of a concern to the total capitalization

$X_2$  = Retained earnings / Total assets

It is a measure for re-investment earnings of a concern to the total assets

$X_3$  = Earnings before interest and taxes / Total assets

It is a measure of profitability of the concern to the total assets

$X_4$  = Market value of equity / book value of total debts

It is a measure of leverage of a concern

$X_5$  = Sales / Total assets

It indicates the efficiency of management in manufacturing, sales, ministration and other activities

#### Altman's Guidelines for Healthy Zone

Situation	Z score	Zones
I	Below 1.8	Bankruptcy Zone (Certain to fall)
II	1.8 to 2.99	Healthy Zone (Uncertain to predict)
III	2.99 and above	Too healthy Zone (Not to fall)

**Table 5. Ratio of working capital and total assets of ashok leyland**

Year	Working capital	Total assets	Ratio
2011-12	-392.92	5289.92	-0.07
2012-13	-348.52	6663.28	-0.05
2013-14	-299.29	7157.87	-0.04
2014-15	-314.5	6688.23	-0.05
2015-16	451.29	6476.71	0.07

(Source: calculated values from annual reports of the company)

The Table 5 reveals the ratio of working capital and total assets during the year 2011-12 to 2015-16. The ratio is considered as

an indicator of the liquid assets of the company to the capitalization. The maximum level of ratio was 0.07 during the year 2015-16 and minimum of - 0.07 was found in the year 2011-12.

**Table 6. Ratio of retained earning and total assets of ashok leyland**

Year	Retained earnings	Total assets	Ratio
2011-12	2628.75	5289.92	0.50
2012-13	2892.39	6663.28	0.43
2013-14	3007.89	7157.87	0.42
2014-15	3812.3	6688.23	0.57
2015-16	4207.74	6476.71	0.65

(Source: calculated values from annual reports of the company)

The table 06 reveals the ratio of retained earnings and total assets during the year 2011-12 to 2015-16. It is a measure for re-investment earnings of a concern to the total assets, the maximum level of ratio was 0.65 during the year 2015-16 and the minimum level of ratio was 0.42 during the year 2013-14.

**Table 7. Ratio of ebit and total assets of ashok leyland**

Year	EBIT	TOTAL ASSETS	RATIO
2011-12	945.23	5289.92	0.18
2012-13	847.6	6663.28	0.13
2013-14	361.71	7157.87	0.05
2014-15	835.7	6688.23	0.12
2015-16	1442.74	6476.71	0.22

(Source: calculated values from annual reports of the company)

The table 07 reveals the ratio of EBIT and total assets during the year 2011-12 to 2015-16. The ratio is considered as an indicator of how efficiently the company is using its assets to generate the return. The maximum ratio of 0.22 was found in the year 2015-16 and the minimum ratio of 0.05 was found in the year 2013-14.

**Table 8. Ratio of market value of equity and total liability of ashok leyland**

Year	Market Value Of Equity	Total Liability	RATIO
2011-12	6800.75	11915.75	0.57
2012-13	7069.21	13096.7	0.54
2013-14	863.40	12808	0.07
2014-15	3492.49	13311.49	0.26
2015-16	16625.75	13385.52	1.24

(Source: calculated values from annual reports of the company)

The table 08 reveals the ratio of market value of equity and total liability during the year 2011-12 to 2015-16. It is a measure of leverage of a concern and also shows the market reaction regarding total liability of companies during the financial year. The maximum ratio 1.24 was noticed during the year 2015- 16 and the minimum ratio of 0.07 was found in the year 2013 -14.

**Table 9. Ratio of net sales and total assets of ashok leyland**

Year	Net sales	Total assets	Rota
2011-12	12841.99	5289.92	2.43
2012-13	12481.2	6663.28	1.87
2013-14	9943.43	7157.87	1.39
2014-15	13562.18	6688.23	2.03
2015-16	18821.58	6476.71	2.91

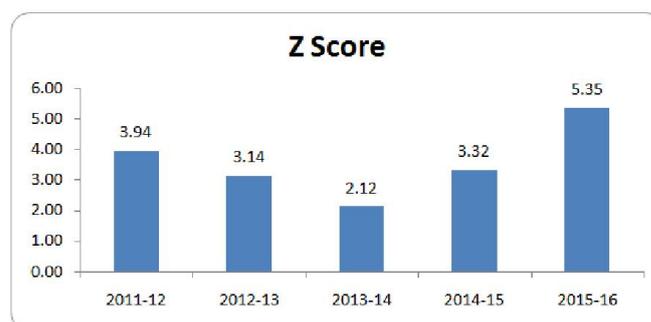
(Source: calculated values from annual reports of the company)

The table 09 reveals the ratio of net sales and total assets during the year 2011-12 to 2015-16. It indicates the efficiency of management in manufacturing, sales, administration and other activities to generate revenue. The maximum ratio of 2.91 was found in the year 2015-16 and the minimum of 1.39 was found in the year 2013-14.

**Table 10. Altman's Z score value**

YEAR	X <sub>1</sub> *1.2	X <sub>2</sub> *1.4	X <sub>3</sub> *3.3	X <sub>4</sub> *0.6	X <sub>5</sub> *0.99	Z Score
2011-12	-0.09	0.70	0.59	0.34	2.40	3.94
2012-13	-0.06	0.61	0.42	0.32	1.85	3.14
2013-14	-0.05	0.59	0.17	0.04	1.38	2.12
2014-15	-0.06	0.80	0.41	0.16	2.01	3.32
2015-16	0.08	0.91	0.74	0.75	2.88	5.35

(Source: calculated values from annual reports of the company)



**Graph 1. Altman's Z score Value**

The graph no 01 reveals that the Z score values of Ashok Leyland Company during the year 2011-12 to 2015-16. The maximum score of 5.35 can be seen in the year 2015-16 and the minimum score of 2.12 can be seen in the year 2013 - 14. The study shows that the Ashok Leyland was having a status of uncertainty to predict the existence during the year 2013-14. But the company is now enjoying a healthy zone over the entire study period provided the trend of Z score value is increasing during the study period.

## Findings

- The current ratio is showing an average of 0.89 during the study period which is below the standard norms and showing variation of 15.59% during the study period.
- The quick ratio is also showing an average of 0.64 and it varies 16.75% during the study period.
- The gross profit ratio is lowest in the year 2013-14, i.e. -2.11% and it varies 94.15% during the study period.
- The operating profit ratio is highest, i.e. 11.50% and it varies 49.59% during the study period.
- The average net profit ratio is showing as 2.89% and it varies 55.91% during the study period.
- The EPS is lowest in the year 2013-14, i.e. Rs 0.11 and highest in the year 2015-16, i.e. Rs 2.54. It varies 61.87% during the study period.
- The average ROA is shown as 13.05% and it varies 15.33% during the study period.
- The ROCE is shown highest in the year 2015-16, i.e. 28.28% and it varies 88.73% during the study period.
- The lowest RONW is shown during the year 2013-14, i.e. 0.89% and it varies 62.63% during the study period.
- The liquidity ratios of the company shows positive correlation between profitability ratios and long term solvency ratios except NPR, EPS and RONW.

- The calculated z- score value during the period of study is less than 3 in one out of five years, but in all other years, the company is in a healthy zone. It indicates that the performance is in increasing trend during the study period.

### Abbreviations

CRCurrent Ratio

QRQuick Ratio

OPROperating Profit Ratio

NPRNet Profit Ratio

GPRGross Profit Ratio

ROAReturn on Assets

ROCEReturn on Capital Employed

RONWReturn on Net Worth

EPSEarnings per Share

### Conclusion

The liquidity and profitability position of the company are the important tools to predict the survival of the company in the competitive world. The liquidity position of Ashok Leyland was below the traditional standards. The profitability ratios shows a positive sign, but it varies frequently during the study period. There is a positive correlation between liquidity ratios and some profitability ratios, but NPR, EPS and RONW shows a negative sign. The calculated z – score values are showing healthy zone during the study period, but company must take proper measure to increase the performance using available resources.

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