

# WORKING CAPITAL ANALYSIS OF TATA MOTORS LIMITED

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## ABSTRACT

*The automobile industry comprises a wide range of companies that are involved in processes of design, development, manufacturing, marketing and selling of motor vehicles. Working capital is the money available to meet a company's short-term obligations. Working capital is inevitable for an automobile industry as like other industries. This is a study of working capital of a selected automobile company to find out the sufficiency of working capital. By analyzing the working capital of "Tata Motors Limited" for a time period of 5 years from 2017-2018 to 2021-2022, it can be inferred that the company needs to improve substantially in terms of their working capital since the current performance of their working capital is insignificant.*

*Keywords: Automobile Industry, Working Capital, Excel, R programming, Regression, Correlation, Z-score Analysis, Time Series Analysis.*

## 1.1 Introduction to Automobile Industry

The automobile industry comprises a wide range of companies that are involved in processes of design, development, manufacturing, marketing and selling of motor vehicles. Each year 79.1 million vehicles are produced world-wide. India's automobile industry is the 3<sup>rd</sup> largest globally. India's automobile industry contributes to 2.3% of nation's GDP. India's few notable automobile companies are Tata Motors, Maruti Suzuki, Hindusthan Motors, etc.

## 1.2 Working Capital

Working capital is the amount of an entity's current assets minus its current liabilities. Working capital is the money available to meet a company's short-term

obligations. Working Capital Analysis is an analysis used to determine the liquidity and sufficiency of current assets in comparison to current liabilities of a firm. This project is to analyse the working capital of selected automobile company and to suggest ways and means to enhance the Working Capital Sufficiency of the company.

### **1.3 Statement of Problem**

Working capital is inevitable for an automobile industry as like other industries. This is a study of working capital of a selected automobile company to find out the sufficiency of working capital. The need for this study has now raised since there has been only limited study on working capital of selected company for the period from 2017-2018 to 2021-2022.

### **1.4 Objectives**

- To find the relationship between Working Capital and Profitability.
- To analyse the Sufficiency of Working Capital during the study period.
- To analyse the Financial Health of the company.

### **1.5 Need and Scope of study**

The study is descriptive and diagnostic in nature. The scope of the project is limited to finding the relation between Working Capital and Profitability of the selected company, to analyse the sufficiency of working capital of the company. This study covers a period of five years from 2017-2018 to 2021-2022. This study was confined.

### **1.6 Research Methodology**

**1.6.1 Sources of data:** For this study the annual financial reports of the selected automobile company have been used.

**1.6.2 Period of study:** Period of study covers 5 financial years from 2017-2018 to 2021-2022.

### **1.7 Techniques used in the study**

Excel and R programming were used for applying the Analytical Techniques:

- Descriptive Analytics – Mean, Median, Standard Deviation
- Diagnostic Analytics – Correlation, Regression, Time Series Analysis
- Z-score model for private firms

## 1.8 Limitations

- The study is limited to five financial years of the selected automobile companies.
- Due to time constraint, only few analytical tools and techniques were used.
- The study has relied only on the officially published annual financial reports.

## 1.9 Review of Literature

- **Dr. T. Priyadharshini & Ms. A. Menaka** (2021) discusses “A Study On Working Capital Management On Maruti Suzuki and Hyundai Motor Limited in India” It narrates the impact of working capital management of selected automobile industries in India. It found that Maruti Suzuki Ltd. and Hyundai Motor Ltd. average current ratio is less than the standard norm 2:1 The working capital turnover of Maruti Suzuki Ltd is lower than Hyundai Motor Company.
- **M. Jothi muthu**, (2019) discusses “Working capital management of selected private airline companies in India”. The researcher concludes that Jet airways have higher profitable performance than Indigo private airlines in India. The working capital efficiency of Jet airways and Indigo private airline companies is satisfactory over the period of study.
- **Arpita Naskar** (2016) States that “Working Capital Management and Firm Profitability: A Study of Listed Companies in India” the study has concluded that RD and ID have negative correlation with the profitability. Cash conversion cycle (CCC) is negatively related with profitability, Firm size is also linked with working capital. If firm size increases, the need of working capital will be more. It has been found that the firm size has also significant impact on EBIT but insignificant impact on ROA and ROE.
- **Sri Ayan Chakraborty**, (2017) discussed “Working Capital Management of Indian Cement Companies” has says that the Indian Cement Industry Has the Second Largest Market in The World after China. By The End of 2016, It had a Total Manufacturing Capacity of About 384 Million Tonnes (MT). Cement is a Cyclical Commodity with A High Correlation with GDP. Cement Demand Is Expected to Reach 550 To 600 Million Tonnes Per Annum (MTPA) By 2025. The ACC Has the Highest Mean in Terms of Working Capital Turnover.

### 1.10 Introduction to Tata Motors Ltd.

Tata Motors Limited is an Indian worldwide automotive manufacturing company, headquartered in Mumbai, India, which is part of the Tata Group. The company manufactures automobiles like motorcars buses, exchanges, vans, coaches. Tata Motors subsidiaries include Jaguar Land Rover and Tata Daewoo. Its joint ventures include Hitachi, Fiat Chrysler, etc.

### Analysis and Interpretations

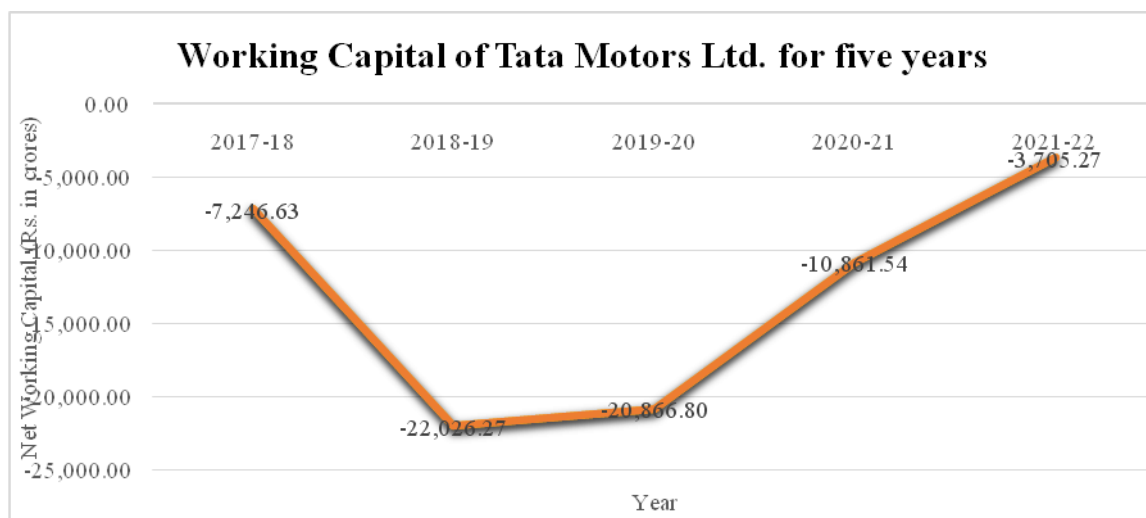
**Table showing Mean, Median and Standard Deviation**

	Rs. In crores				
	2017-18	2018-19	2019-20	2020-21	2021-22
Working capital	-7,246.63	-22,026.27	-20,866.80	-10,861.54	-3,705.27
Minimum	-22026				
1 <sup>st</sup> quarter	-20867				
Mean	<b>-10862</b>				
Median	<b>-12941</b>				
3 <sup>rd</sup> quarter	-7247				
Maximum	-3705				
Standard deviation	<b>8176.325</b>				

#### Interpretation:

The mean and median of five years taken is Rs. -10862 and Rs. -12941. The standard deviation is Rs. 8176.325. It implies that working capital have not been consistent and stable.



**Chart showing Working Capital of Tata Motors Ltd for five years**



### 1.11.1 To find the relationship between Working Capital and Profitability.

- **Correlation**

**Table (1) Correlation between Profitability and Working capital**

	Rs. In crores					
	2017-18	2018-19	2019-20	2020-21	2021-22	Sparkline
Profit	9,091.36	-28,724.20	-11,975.23	-13,395.10	-11308.8	
Working capital	-7,246.63	-22,026.27	-20,866.80	-10,861.54	-3,705.27	
<b>Correlation</b>	<b>0.6256442</b>	<b>(Moderate positive relationship)</b>				

**Interpretation:**

From the table (1), it is evident that there is positive relationship between Profitability and Working Capital of Tata Motors Ltd. Typically, a correlation of 0.6 is deemed to be a moderate positive relationship between the concerned variables.

### 1.11.2 To analyse the current Sufficiency of Working Capital

- **Regression**

**Table (2) Regression**

	Rs. In crores				
<b>Particulars</b>	<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>
Average Inventory ConversionPeriod (in days) (X)	52.06	47.16	52.51	52.75	46.20
Working capital (Y)	-7,246.63	-22,026.27	-20,866.80	-10,861.54	-3,705.27

**Table (2.1) Regression Analysis Summary output**

<i>Regression Statistics</i>	
Multiple R	0.112767481
<b>R Square</b>	<b>0.012716505</b>
Adjusted R Square	-1.666666667
Standard Error	9380.985
Observations	1

**Table (3) Regression**

	Rs. In crores				
<b>Particulars</b>	<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>
Average Collection Period (in days) (X)	34.96	36.94	175.96	44.63	45.29
Working capital (Y)	-7,246.63	-22,026.27	-20,866.80	-10,861.54	-3,705.27

**Table (3.1) Regression analysis summary output**

<i>Regression Statistics</i>	
Multiple R	0.513177494
<b>R Square</b>	<b>0.26335114</b>
Adjusted R Square	-1.666666667
Standard Error	8103.222492
Observations	1

**Table (4) Regression**

<b>Particulars</b>	Rs. In crores				
	<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>
Average PaymentPeriod (in days) (X)	1738.10	2027.78	2033.33	2281.25	1403.85
Working capital (Y)	-7,246.63	-22,026.27	-20,866.80	-10,861.54	-3,705.27

**Table (4.1) Regression analysis summary output**

<i>Regression Statistics</i>	
Multiple R	0.62744376
<b>R Square</b>	<b>0.39368567</b>
Adjusted R Square	-1.6666667
Standard Error	7351.50774
Observations	1

**Interpretation:**

It can be inferred from the tables above that there is no correlation between working capital and average inventory conversion period, average collection period & average payment period since the R Square (regression) stands at just 1.27%, 26.33% and 39.36% for the five years figures of Tata Motors Ltd. taken.

- **Time Series Analysis**

**Table (5) Time Series Analysis**

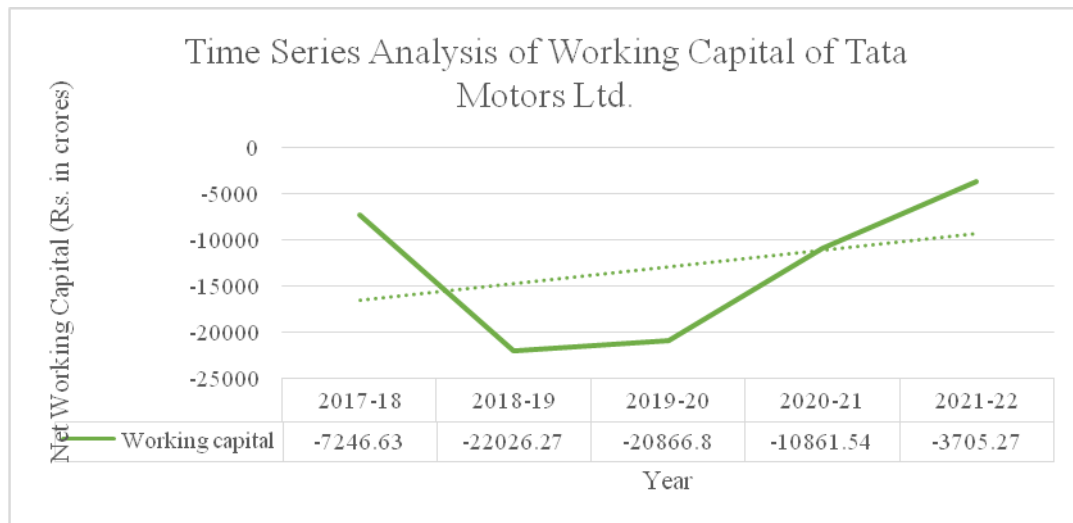
<b>Particulars</b>	Rs. In crores				
	<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>
Working Capital	-7,246.63	-22,026.27	-20,866.80	-10,861.54	-3,705.27

**Interpretation:**

From the time series analysis, it can be interpreted that the working capital of Tata Motors Ltd. is highest for the immediately preceding financial year 2021-22 (Rs. -3,705) and lowest for the financial year 2018-2019 (Rs. -22,026). It can be inferred that Tata Motor's

working capital is reviving gradually. It is also precise that the actual working capital has deviated extensively from the estimated working capital (expected trend) for these five years.

**Chart (i) Time Series Analysis**



**1.11.3 Z-score analysis (by using Z-score model for private firms)**

$$Z = 0.717x_1 + 0.847x_2 + 3.107x_3 + 0.420x_4 + 0.998x_5$$

If:

- Z < 1.21            Bankruptcy predicted within one year
- 1.23 < Z < 2.90    Financial distress, possible bankruptcy
- Z > 2.90            No financial distress predicted

**Table (6) Z-score analysis**

	(Rs. In crores)				
<b>Particulars</b>	<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>
Total assets	3,31,350.51	3,07,194.53	3,22,121.26	3,43,125.80	3,30,619.93
Net Working Capital	-7,246.63	-22,026.27	-20,866.80	-10,861.54	-3,705.27
Retained earnings	-0.78	-4.93	0	-4.36	0
Earnings before tax	11,155.03	-31,371.15	-10,579.98	10,474.28	7,003.41
Interest	4,987.93	1,743.47	7,680.29	8,405.10	8,987.39
EBIT	16142.96	-29627.68	-2899.69	18879.38	15990.8
Book value of all equity	95,952.97	60,702.62	63,892.09	56,820.21	48,832.30
book value of all liabilities	1,43,219.47	1,45,457.43	1,40,454.05	1,57,749.18	1,50,682.81
Sales	2,95,409.34	3,01,938.40	2,61,067.97	2,49,794.75	2,78,453.62
Net Working Capital/ total assets (x1)	-0.022	-0.071	-0.065	-0.032	-0.011
Retained earnings/ total assets (x2)	0.00	0.00	0.00	0.00	0.00
EBIT/total assets (x3)	0.05	-0.10	-0.01	0.06	0.05
Book value of all equity/book value of all liabilities (x4)	0.65	0.42	0.45	0.36	0.32
sales/total assets (x5)	0.89	0.98	0.81	0.73	0.84
<b>Z</b>	<b>1.31</b>	<b>0.80</b>	<b>0.92</b>	<b>1.03</b>	<b>1.12</b>

**Interpretation:**

The possibility of financial distress and bankruptcy can be predicted by inferring to the value of “Z” as computed in the table 4.2.(11). For the financial year 2017-18, the value of “Z” is greater than 1.21 and lesser than 2.90 and hence financial distress and possible bankruptcy predicted. Further, for the subsequent four financial years the value of “Z” is lesser than 1.21 and thus bankruptcy predicted within one year.



## 1.12 Findings, Suggestions and Conclusion

### 1.12.1 Findings

- From the mean, it is evident that the range of working capital over the past five years have been extensive.
- Standard deviation of working capital stands at Rs. 8176.325 which is quite a lot of deviation. It can be inferred that the working capital have not been consistent and stable.
- With correlation as 0.6256442, the profit of the company is moderately, directly proportional to the working capital of the company.
- The regression analysis implies that, there is no correlation between working capital and average inventory conversion period, average collection period & average payment period.
- The time series analysis says that the actual working capital has deviated extensively from the estimated working capital (expected trend) for these five years.
- In Z-score analysis, “Z” is lesser than 1.21 for the immediately preceding four years which means bankruptcy predicted within one year.

### 1.12.2 Suggestions

- The company should increase its current assets and decrease its current liabilities.
- The company should keep its working capital in a level such that it can maintain the same level consistently or increase the level gradually without much deviations and hence ensure that it does not fall easily. This can be one of the crucial points for saving the company from bankruptcy.
- Under current assets, the liquid and absolute liquid assets should be mainly focused and their amounts should gradually be increased.

### 1.12.3 Conclusion

By analyzing the working capital of “Tata Motors Limited” for a time period of 5 years from 2017-18 to 2021-22, it can be inferred that the company needs to improve substantially in terms of their working capital since the current performance of their working capital is insignificant. It should keep up the current pace or an even better pace at improving its working capital to ensure working capital sufficiency.

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