**Czech University of Life Sciences**

**Faculty of Economics and Management**

**Department of Economics**


# Diploma Thesis

# Financial Analysis of TATA Motors

**Author: Yash Jagdishkumar Soni**

# CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

# DIPLOMA THESIS ASSIGNMENT

Bc. Yash Jagdishkumar Soni

Economics and Management

Thesis title

**Financial Analysis of TATA Motors**

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**Objectives of thesis**

The main objective is perform complete financial analysis of Tata Motors by using different provided financial tools such as financial ratios, cash flow statement, income statement and balance sheet. The study also aims towards the extracting more information about the financial management practices of the organisation that had to lead the business in performing their activities more successful. The study will also focus on the analysis of the values obtained from the annual reports of Tata Motors from 2014 to 2018.

The sub objective of the current thesis is to understand the financial position of the company, factors affecting growth of the company in automobiles industry.

**Methodology**

The study of research will be quantitative and qualitative in nature. The review will be based on secondary data method. The data will be collected from TATA Motors annual reports, financial statements, general meetings, magazines and publications. Furthermore, additional information will be collected from the literature already published to highlight significance of financial analysis of this company. The researcher has focused on past trends to perform the analysis to understand the financial position of the company including the period from 2014 to 2018.

The data is collected from TATA Motors, Bombay Stock Exchange, Fortune 500 companies and automobile industries of India. The data will be used in the research to evaluate financial position of the company including ratio analysis, cash flow statement, income statement and balance sheet. Using these methods, the company's financial performance will be evaluated and it will also help the investors to determine for investment possibilities.

The various methods approach will be used for the current study for financial analysis of TATA Motors are as below:

- Ratio analysis
- Cash Flow Statement:
- Income Statement
- Balance Sheet

**The proposed extent of the thesis**

60-80

**Keywords**

Financial analysis, Balance sheet, income statement, ROE, vertical and horizontal analysis, TATA Motors

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**Recommended information sources**

BELLI, Pedro. Economic analysis of investment operations: analytical tools and practical applications. Washington, D.C.: World Bank, c2001, xxviii, 264 p. ISBN 08-213-4850-7. BHATTACHARYYA, Debarshi. Management accounting. Delhi: Pearson, 2011. ISBN 978-813-1731-789

HELFERT, E. A., Financial Analysis Tools and Techniques: A Guide for Managers. Publisher: McGraw-Hill Education, 2001 ISBN 978-0071378345

PANDEY, I.M. Financial management [with CD copy]. 9th ed. New Delhi: Vikas Publishing House, 2009. 779 p. ISBN 978-812-5916-581

SARNGADHARAN, M. Rajitha S. Financial analysis for management decisions. 2011. ISBN 978-812-0342-477

SUTHERLAND, Jonathan a Diane CANWELL. Key concepts in accounting and finance: text, problems and cases. 5th ed. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 2004, ix, 262 p. ISBN 14-039-1532-6

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**The Diploma Thesis Supervisor**

Ing. Karel Malec, Ph.D.

**Supervising department**

Department of Economics

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**prof. Ing. Miroslav Svatoš, CSc.**

Head of department

Electronic approval: 7. 11. 2019

**Ing. Martin Pelikán, Ph.D.**

Dean

Prague on 24. 11. 2019

## Declaration

I declare that I have worked on my diploma thesis on topic “Financial analysis of TATA Motors.” by myself I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any third person.

In Prague_____ _____

Signature

## Acknowledgement

I would like to acknowledge the efforts of my supervisor **Ing. Karel Malec, Ph.D**, for his assistance, recommendations and comments. Which contributed to improve my diploma thesis.

# Abstract

Tata Motors is India's biggest multinational automotive manufacturing company. The Tata Motors Group has become the $45 billion car-manufacturing group. Tata Motors is listed on the Bombay Stock Exchange, where it is part of the BSE SENSEX index, the National Stock Exchange of India and the New York Stock Exchange. Tata Motors ranks 314 in the 2012 Fortune Global 500 ranking of the world's largest corporations. The developed dissertation is conducted to perform the financial analysis of Tata Motors that can help the investors and other shareholders in making their decision about investing in the organization. The data for the current research will be collected through secondary sources. In particular, we have tried to follow the path of the expansion of TATA Motor's international operations in the recent past, as well as in future plans. The main objective is perform complete financial analysis of Tata Motors by using different provided financial tools such as financial ratios, cash flow statement, income statement and balance sheet. The study will also focus on the analysis of the values obtained from the annual reports of Tata Motors from the past 5 years. The sub objective of the current thesis is to understand the financial position of the company, factors affecting growth of the company in automobiles industry. The data is collected from TATA Motors, Bombay Stock Exchange, Fortune 500 companies and automobile industries of India. The data will be used in the research to evaluate financial position of the company including ratio analysis, cash flow statement, income statement and balance sheet. In the end, the study will help evaluate financial analysis of Tata Motors that can help to the stockholders and investors to know financial position of the company.



**Keywords**: Financial analysis, Balance sheet, income statement, ROE, vertical and horizontal analysis, TATA Motors.

# Abstrakt

Tata Motors je největší indická nadnárodní společnost vyrábějící automobilový průmysl. Skupina Tata Motors se stala skupinou na výrobu automobilů ve výši 45 miliard dolarů. Tata Motors je kótována na Bombay Stock Exchange, kde je součástí indexu BSE SENSEX, Národní burzy Indie a New York Stock Exchange. V žebříčku Fortune Global 500 v žebříčku největších světových společností na světě v roce 2012 se společnost Tata Motors umístila na 314. místě. Vypracovaná disertační práce se provádí za účelem finanční analýzy společnosti Tata Motors, která může investorům a dalším akcionářům pomoci při rozhodování o investování do organizace. Údaje pro současný výzkum budou shromažďovány prostřednictvím sekundárních zdrojů. Zejména jsme se pokusili sledovat cestu expanze mezinárodních operací TATA Motor v nedávné minulosti i v budoucích plánech. Hlavním cílem je provést kompletní finanční analýzu společnosti Tata Motors pomocí různých poskytovaných finančních nástrojů, jako jsou finanční ukazatele, přehled peněžních toků, výkaz zisku a ztráty a rozvaha. Studie se rovněž zaměří na analýzu hodnot získaných z výročních zpráv společnosti Tata Motors za posledních 5 let. Dílčím cílem této práce je porozumět finanční situaci společnosti, faktorům ovlivňujícím růst společnosti v automobilovém průmyslu. Data jsou shromažďována od TATA Motors, Bombay Stock Exchange, Fortune 500 společností a automobilového průmyslu v Indii. Data budou použita při výzkumu k vyhodnocení finanční situace společnosti, včetně poměrové analýzy, výkazu peněžních toků, výkazu zisku a ztráty a rozvahy. Na konci studie pomůže zhodnotit finanční analýzu společnosti Tata Motors, která může akcionářům a investorům pomoci znát finanční situaci společnosti.



Klíčová slova: Finanční analýza, rozvaha, výkaz zisku a ztráty, ROE, vertikální a horizontální analýza, TATA Motors.

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**List of Abbreviation**

ROA - Return on Assets

ROE – Return on Equity

ROI - Return on Investment

EPS - Earnings per Share

DPS Dividends per Share

GAE - General and Administrative Expense

RDE – Research & Development Expenses

D/E Debt to Equity Ratio

D/C Debt to Capital

# 1 - Introduction

Tata Motors Limited was established as the engineering and locomotive manufacturing company of India that had manufactured many locomotive engines and had performed other engineering works during the rule of Great Britain. Now, Tata Motors has become India's biggest multinational automotive manufacturing company. The headquarters of the Tata Motors is located in Mumbai, Maharashtra, India. The vehicles that are manufactured by Tata Motors include military vehicles, trucks, buses, passenger cars, coaches, and other construction vehicles. The Tata Motors Group has become the $45 billion car-manufacturing group that had to provide its manufactured vehicles all around India. The Tata Motors had produced many fuel-efficient vehicles that had helped the business in expanding their business portfolio in a most effective manner (Mishra, Agnihotri, and Mahindru, 2014). My motivation to write thesis on the TATA Motors because it is only strong and stable car manufacturing industry in India.

### 1.1, About Tata Motors

TATA Motors headquarters is located in Mumbai, Maharashtra, India and a subsidiary of the Tata Group. The TATA Motors products includes passenger cars, trucks, vans, coaches, buses and military vehicles. It is the sixteenth largest automotive production company in the world, the fourth largest truck manufacturer and the second largest bus manufacturer in volume.

Tata Motors has manufacturing plants for automobiles in Jamshedpur, Pantnagar, Lucknow, Sanand, Dharwad and Pune in India, and also in Argentina, South Africa, Thailand and the United Kingdom. TATA Motors has research and development centres are in Pune, Jamshedpur, Lucknow and Dharwad, India, South Korea, Spain and the United Kingdom. The main subsidiaries of Tata Motors include the British manufacturer of premium cars Jaguar Land Rover (the car manufacturer Jaguar, Land Rover and Range Rover) and the commercial vehicle manufacturer of South Korea, Tata Daewoo. Tata Motors has also bus manufacturing company with Marco polo S.A. (Tata Marcopolo), and joint venture manufacturing company with Hitachi (Tata Hitachi Construction Machinery) and a joint venture with Fiat that

manufactures automotive components and Fiat and Tata brand vehicles. (Connelly, L.M., 2014)

Founded in 1945 as a locomotive manufacturer, the company manufactured its first commercial vehicle in 1954 in collaboration with Daimler-Benz AG, which ended in 1969. Tata Motors entered the passenger vehicle market in 1991 with the launch of the Tata Sierra, becoming the first Indian manufacturer to achieve the capacity to develop a competitive indigenous automobile. In 1998, Tata launched the first fully indigenous Indian passenger car, India, and in 2008 launched the Tata Nano, the cheapest car in the world. Tata Motors acquired the South Korean truck manufacturer Daewoo Commercial Vehicles Company in 2004 and bought Ford's Jaguar Land Rover in 2008.

Tata Motors is listed on the Bombay Stock Exchange, where it is part of the BSE SENSEX index, the National Stock Exchange of India and the New York Stock Exchange. Tata Motors ranks 314 in the 2012 Fortune Global 500 ranking of the world's largest corporations.

Tata Motors is a leading car brand. It is best known for its commercial vehicles, such as buses and trucks. TATA engines have also started with an excellent expansion in cars and are rapidly gaining market share.

Tata Motors has grown significantly in the last 60 years since its establishment in 1945. The company serves three main segments of the market worldwide: passenger cars, utility vehicles and commercial vehicles. A significant advance for the company was the development and commercialization of truly Indian cars: Tata Indica and Tata Indigo. The company produced the first mini truck, the first light vehicle and the first, and many more developments in India, being an innovator in its industry. It has followed a strategy of acquisitions and joint ventures in its intermediate stage and has launched new products at a rapid pace in different market segments. Today, Tata Motors enjoys the position of being the leading car manufacturer in India with a growing presence in Europe, Southeast Asia, Africa, Australia and the Middle East, with a total income of US $ 4 billion in 2004-2005. The company focuses on providing customers with the best value for their money and complies with European standards and environmental regulations through its advanced technologies.

## 1.2, Background of the study

The business progress is usually measured to evaluate the business position in the competitive market. The current study is developed for analysing different financial practices that are followed by Tata Motors management for determining their financial position in the global market of car manufacturing. It is discussed by different researchers that the vehicle manufacturing industry of India along with Tata Motors was expanding the operations after 1990. Before that, the car manufacturing and its purchasing were considered as the luxury product. Moreover, the automotive industry in India had been the reason for boosting the Indian economy. The current study will conduct the financial analysis of the Tata motors and will understand the major business financials that had to lead the selected organisation towards such success (Sekar, Gowri, and Ramya, 2014).

## 1.3, Problem statement

The automotive industry around the globe had contributed to the respective growth of their economy. The automotive manufacturing sector can be said as the leading sector of the many economies around the world. The automobile sector in India and around the world can be discussed as the factors that are working effectively, but still, they are facing problems in performing their business activities. From many of the problems faced by the automotive sector, one problem can be identified as the fact that the automotive industry has to perform effectively in the market if they have the desire to be competitive in the market. Secondly, the problem experienced by the automotive industry in India is that that they had to produce low-cost cars that can be bought by most of the target (Panday., 2009)

## 1.4, Significance of the study

Every business has the motive of making profits and having a survival instinct that can help them in surviving the business. The profitability of business can be only attained now when the financials of the business are effectively analysed. Therefore, the performance of financial analysis becomes important for many businesses. The current study, therefore, had a point of significance that the research will be conducted for analysing the financial figures of Tata Motors. The developed financial analysis can help the Tata motors in identifying their exact market position and can help them in understanding the market opportunities that can be helpful for Tata Motors prosperity (Jagathy Raj, and Balakrishnan, 2012).

## 1.5, Limitation of the study

Certain limitations are connected to the current topic of research. These limitations are discussed below (Goel, 2014).

- The only a single organisation of the car manufacturing industry has been selected.
- The conducted financial analysis of the organisation is based on the annual reports of the previous five years that does not represent them
- The financial statements of the many manufacturing organisation are discussing the specific performance factors rather than providing a complete picture of organisational achievement.

The developed financial analysis of the organisation fails to answer the definite solution to the problems faced by business. That is, the figures only depict the profits and losses rather than providing a clear picture of what had happened behind the figures.

# 2 – Objectives and Methodology

The current study is aimed at the development of complete financial analysis of Tata Motors by using different provided financial tools such as financial ratios. The study also aims towards the extracting more information about the financial management practices of the organisation that had to lead the business in performing their activities in more successful.

## 2.1, Research objectives

With the above-developed aim of the research, the current researchers had developed certain research objectives. The main research objective is to conduct and analyse the results obtained from performing the financial analysis of the values obtained from the annual reports of Tata Motors from the past 10 years. The other related research objectives are discussed below:

Objective 1: Developing trend analysis which can explain financial position of Tata Motors
Objective 2: Developing reasons impacting the financial growth and interpreting the growth of Tata Motors.

## 2.2, Research questions

The developed research questions for the current research are discussed below:

Question 1: What is the financial performance trend of TATA Motors?

Question 2: Why investors should invest their money in TATA Motors for long term?

## 2.3, Methodology

The study of research will be quantitative and qualitative in nature. The review will be based on secondary data method. The data will be collected from TATA Motors annual reports, financial statements, general meetings, magazines and publications. Furthermore, additional information will be collected from the literature already published to highlight significance of financial analysis of this company. The researcher has focused on past trends to perform the

analysis to understand the financial position of the company including the period from 2014 to 2018.

The data is collected from several websites including annual report of TATA Motors. The data will be used in the research to evaluate financial position of the company including ratio analysis, cash flow statement, income statement and balance sheet.

Using these methods, the company's financial performance will be evaluated and it will also help the investors to determine for investment possibilities. (Christensen, L.B., 2011)

### 2.3.1, Methodological Approach

The various methods approach will be used for the current study for financial analysis of TATA Motors are as below:

- Ratio analysis

  - Cash ratio $= \frac{Cash+short\ term\ investment}{current\ liabilities}$ (1)

  - Quick ratio $= \frac{(account\ recevables+cash+marketable\ securities)}{(current\ liabilities)}$ (2)

  - Current ratio $= \frac{(current\ assets)}{(Current\ liabilities)}$ (3)

Cash ratio indicates the liquidity of company this ratio is used to cover short term depts. Cash ratio can be calculated by dividing cash and short term investment divided by current liabilities. The cash ratio formula no (1) was mentioned above. The quick ratio formula belong to liquidity ratio which is known as the quick or acid test

ratio. The quick or acid test ratio includes the only the relative assets that can be liquated. These are termed as cash, account receivable, and marketable securities. The quick ratio formula no (2) was mentioned above. Current Ratio is a liquidity ratio that measures a company's short-term liabilities or ability to pay in one year. It tells investors and analysts how a company can maximize its current assets on its balance sheet to meet its current debt and other payments. The current ratio formula no (3) was mentioned above.

- Inventory turnover $= \frac{Cost\ of\ Goods\ Sold}{Average\ Inventory}$ (4)

- Receivables turnover $= \frac{Sales}{(Average\ Trade\ Receivables)}$ (5)

- Payable turnover $= \frac{Purchases}{Average\ Accounts\ Paybles}$ (6)

- Total Assets Turnover $= \frac{Sales}{Average\ Total\ Assets}$ (7)

The inventory turnover ratio helps the manufacturing businesses in determining the flow of the inventory regarding their costs of productions or the costs of goods sold. The inventory turnover ratio formula no (4) mentioned above. The receivable turnover is the ratio that determines the efficiency of the credit policies of the organisations for supporting their sales. Further, the inventory turnover also measures the level of transactions that are done on credit (Paradi, Rouatt, and Zhu, 2011). The receivable turnover ratio formula no (5) was above. The payable turnover ratio is another operations efficiency ratio that displays the ability of the purchases that are recoverable in the reference of the developed accounts payable. The payable turnover ratio formula no (6) was mentioned above. (Wynn, and William, 2012). The total asset turnover ratio evaluate the sales of the company to its assets base. The ratio evaluate the ability of an organization to effectively produce sales, and is

generally used by third parties to check the operations of the business. The total asset turnover ratio formula no (7) mentioned above. (Bunse, et al., 2011)

- Return on Assets (ROA) = $\frac{EBIT}{Average\ Total\ Assets}$ (8)

- Return on Equity = $\frac{Net\ Income}{Average\ Stock\ Holder\ Equity}$ (9)

- Operating Margin = $\frac{Operating\ Income}{Sales}$ (10)

The return on assets (ROA) is the ratio that has been developed by comparing the earnings before income tax (EBIT) with the actual assets used to generate such type of EBIT (Malik, 2011). The return of assets (ROA) formulas no (8) was mentioned in previous chapter. The return on equity is another profitability ratio that described the usefulness of the capital owned by the company in generating the income. The return on equity (ROE) formula no (9) was mentioned above. (Mitra, R., 2011) The operating margin ratio that describes the relationship between the actual operating expenses been performed and what is the level of profit for the organisation. If the gross and operating margin of the profit is lower than the market rate then the organisation like Tata Motors had to improve the management practices of the business (Ravisankar, Ravi, Rao, and Bose, 2011). The operating margin ratio formula no (10) mentioned above.

- Net Profit Margin = $\frac{Net\ Income}{Sales}$ (11)

- Gross Margin = $\frac{Gross\ Profit}{Sales}$ (12)

$$\text{Return on Investment} = \frac{(Gain\ From\ Investment) - (Cost\ of\ Investment)}{(Cost\ of\ Investment)} \quad (13)$$

This calculated operating margin defines the base for the net profit margin. This is because the net profit is obtained by subtracting the complete expenses of business from the operating income and the net sales is also part of the equation is gross sales minus all sales deduction. (Rosman, Wahab, and Zainol, 2014). The net profit margin formula no (11) was mentioned above. The profitability ratio that is calculated for analysing the earning capacity of the manufacturing organisation is said as the gross profit margin or the gross margin. The gross margin can be described as the comparison of gross profit earning and the number of sales (Campello, Graham, and Harvey, 2010). The gross margin ratio formula no (12) mentioned above. The level of investment made by the shareholders for improving the market practices of the organisation can be calculated by discussing the return on investment (ROI). The retrun on investment (ROI) formula no (13) was mentioned above. (Kabajeh, Al Nuaimat, and Dahmash, 2012)

- Debt to Equity ratio = $\frac{Total\ Dept}{Total\ Equity}$ (14)

- Debt to Capital ratio = $\frac{Total\ Dept}{Total\ Dept + Total\ Equity}$ (15)

- Interest Coverage = $\frac{EBIT\ (Earnings\ before\ interest\ and\ taxes)}{Interest\ Expenses}$ (16)

The financial activities that are related to business performance are concerned with the calculation of the ratio between total debt and total equity. The debt to equity ratio formula no (14) was mentioned above. (Pandey, 2009) The developed debt to equity helps the business managers in designing their capital structure in such a manner that can be supportive of the activities that are performed for obtaining the debt. The obtained debt will be increasing the interest expense of the business (Halpin, Senior, 2009).The debt to capital formula no (15) was

mentioned above. The interest coverage ratio formulas used to evaluate how a company can pay their interest expenses on outstanding debt. The ratio is calculated through dividing a company's earnings before interest and taxes (EBIT) through the company's interest expense for the same year. The interest coverage ratio formula no (16) was mentioned above.

- Earnings Per Share = $\frac{Net\ income\ to\ common\ stockholders}{weighted\ Avareges\ shares\ outstanding}$ (17)

- Dividend Per Yields = $\frac{Dividend\ per\ share}{Stock\ price} * 100$ (18)

- Book Value = $\frac{Equity}{Number\ of\ ordinary\ shares}$ (19)

Earnings per share: Earnings per share (EPS) important analysis for the organization because it measure that is used that provide real profit of organisation. It will help investors in making a decision to buy or sell company shares. When the earnings per share (EPS) is higher than one it helpful for investors in making investment in the company. The earnings per share (EPS) formula no (17) was mentioned above. Dividend Yield or Dividend-Price Ratio of a stock is the dividend per share that is divided by the price per share. Dividend Yield is used to calculate the return on investment (share), taking into account only the total dividend confirmed by the company during the year. The dividend yields formula no (18) was above. Book value represents the calculation of the company physical assets which includes land, buildings etc. and it is also removing intangible assets which is liabilities it includes account payable, stock and debt. The book value formula no (19) was mentioned above.

- Cash Flow Statement:
- Income Statement
- Balance Sheet
    - Vertical Analysis of Balance Sheet
    - Horizontal Analysis of Balance Sheet

## 2.4, Data sources and collection

The selected data source for the current research paper was the annual financial statements of TATA Motors from the years 2014 to 2018. Further, the data of ratio analysis will also be gathered that will be helpful for making the analysis of the financial position of the business in a more clear manner. The selected time frame will be beneficial for collecting and comparing the collected data. The collected data will be more supportive of performing the research more clear manner (Smith, and Katz, 2013).

## 2.5, Data analysis

The collected data values for making financial analysis will be catered through the analysis of financial ratios. The software that can be helpful in conducting financial analysis is Microsoft Excel. The developed analysis of the financial ratios of Tata Motors can help the current researchers in performing the financial analysis of Tata Motors. The results of the ratio analysis and other important related information will be presented in the form of a table and other regulated charts that will help the researchers in explaining their findings in a more detailed manner (Penny, *et al*., 2011).

In order to carry on with the selected methods of research, their inquiry is taken on account of data being exploratory, explanatory or descriptive (Caccioli, and Moore, 2014). The exploratory investigation is based on the secondary data methods of researched theories. An explanatory investigation is based upon the primary (quantitative/qualitative) sources of data collection and their comparison of variables present. Descriptive studies deals with the broader aspect of the study topic and no numerical data are present in such an investigation.

For the study topic proposed, the method of investigation will be explanatory based on the fact that it is using both quantitative and qualitative data collection methods being primary sources.

## 2.6, Data collection techniques

According to Nasser, et al. (2014) there are two types of data collection techniques (i) Primary & (ii) Secondary. Primary sources are based on interviews, surveys, public opinion polls and others. Secondary data collection is based upon the already researched topics and studies based on the topic which gives a researcher about what those researches have concluded and what they will be able to conclude based on those researches. To perform the research on the topic of Strategic Sustainability Development, the primary data collection source was used as the whole investigation will be based upon survey questionnaires, interviews and case studies. This primary data collection offered the use of a mixed system of research design (qualitative and quantitative).

# 3 - Theoretical part

Every organisation around the globe develops its financial statements that provide an excellent business opportunity for different financial analysts, creditors and business investors in determining the actual performance level of the organisations. Further, different researchers had explained the fact that the economic analysis can be helpful for the various organisations in understanding their exact market position along with varying strengths of market and weaknesses. The financial analysis of the organisations also helps them in identifying the actual growth of the business. The future growth of the industry is directly dependent on the expansion practice (Sharma, *et al.*, 2012). The current chapter is developed for understanding the importance and the methods of financial analysis that are performed in the renowned automobile manufacturing company of India, name Tata Motors.

## 3.1, Financial analysis Concepts and Principles

Financial analysis is known as the language of business. Various accounting principles, conventions, assumptions and concepts are used while writing accounts and preparing financial statements. These principles conventions, assumptions and concepts provided theoretical and logical base to accounting. Accounting signs is based on these concepts, conventions and principles. Such rules, principles or concepts should be generally acceptable. These theoretical form of financial analysis gives accounting a status of being a social science (Vyas, Bhatt, 2004)

Financial analysis concepts or principles are man-made. Since these principles are generally accepted by all in practice, they do not require to be proved like physical sciences, financial principles are based on practice and observations. These principles are developed with a view to making users of financial information to understand the same uniformly. There is no rigidity in these principles they can become generally accepted to all only if they are understood by those who writes the accounts and users of financial information in the same way and are also practical and objective. (Hales, 2005)

**3.2, Methods of financial analysis:**

To analyze the financial report and statement requires basic knowledge of where the figures come from, how they are organized, how they are presented, what they mean, what they derive and how they are used.

- To measure financial performance
- As a management tool

- **To measure financial performance**

Figures provide a way to determine how business is performing. Measuring financial performance derives results by using actual numbers from the business operations. It looks back through the rearview mirror at operations. There are three tools through which we can measure financial performance.

1. The profit and loss statement or the income statement shows the revenues, expenses and profit or loss for a given financial year. The income statement records the figures of the entire operating activities taking place in one financial year. At the end, the income statement tells whether the business revenues and profits are improving, decreasing or are the same. (Sarngadharan, Rajitha., 2011)

2. The balance sheet or the statement of financial position. It comprises of assets, liabilities and equity. The numbers from the balance sheet tells us whether the business is getting financial stronger by increasing assets or equity or if it is struggling by increasing liabilities.

3. The statement of cash flow how much cash a business generates and how this cash is distributed in various operating activities of business. Cash is the most liquid assets in business so, it is very important to keep a track of cash flow in business. Thus, cash flow statement represents where in the business cash is utilized.

- **As a management tool:**

The numbers provides managers to plan for different level of business volume. It can be foresting revenues, defining wages, implementation of cost controls, expanding business operations, preparing the budget. The feature of using numbers is very valuable to business because it is the process of collecting the information numbers provided and applying them back to operating the business.

**3.3, Users of financial analysis:**

There are two type of users. They are internal users and external users. Internal users are directly connected to the activities of business while the external users are not directly connected to the business but relies on financial statement to achieve economic benefits.

**Table 1: Users of Financial Analysis**

| Users of Financial Analysis |
|---|
| Investors |
| Creditors |
| Management |
| Employees |
| Competitors |
| Government |

Source: Sarngadharan, Rajitha., 2011

- Investors:

  Potential investors are interested in financial statement that enables them to analyze the company before making decision of investment in the company. The main goal of their investment decision is to maintain balance between return and risk.

- Creditors:

  Creditors are individual or organizations that gives credit to the business. They want know whether their money is safe with the company they invested in. So, financial statement helps them in assuring the safety of their investment.

- Management:

  The management depends on the financial statement so as to formulate corporate policies, define company's objective, evaluating the effectiveness of the company and its employees. The management also need financial statement so as the plan their future decision.

- Employees:

  Employees are interested in profitability of the company so as to ensure safety of their work, pension plans and employ benefits. Financial statement helps them to see company's position and to make worthy decision for themselves.

- Competitors:

  Competitors need financial statements of their rivalry companies so as to know their market value. It helps them to compare their products and services and make necessary changes to succeed in market.

- Government:

  Government is interested in paying attention whether the company abides by the law and they are paying the right amount of taxes. Also they uses data from

the financial statement in doing statistical surveys. Information from the financial statement helps the government in distribution of grants and subsidies.

### 3.4, Financial Statement:

The general financial statements that are developed by the different organisations for displaying their actual business performance on the annual or any other specified period. The primary purpose of improving the financial statements for business is primarily to describe the exact financial position of the company in comparison of previous year's practices and developing any future improvement plans for the organisation. The financial statements that are designed for conducting the useful economic analysis of the organisation are balance sheet; cash flow statement; and income statement. All of the three mentioned financial statements helps the investors and other creditors in developing a useful quantitative analysis of the chosen organisations (Ray, 2011).

#### 3.4.1, Cash flow statement

The developed cash flow statement of the organisations displays information about the two main aspects. The first aspect is cash inflow that is in connection of the amount of cash that is earned by the organisations through organisational operations and other investments made-in by the investors in the organisation. The second aspect is the cash-outflow that records the cash expense done in other expenditures and corporate costs (Ravisankar, Ravi, Rao, and Bose, 2011). The cash flow statement represents show that an organization generates cash and where its cash is spent (Cash Flow), over a certain period of time (usually quarterly and yearly). It is important to analyze the liquidity and long term solubility of the organization. The cash flow statement uses cash-based accounting instead of base-based accounting that most companies use on balance sheets and income statements. This is important because a company can collect accounting revenue but does not actually receive cash. It can pay profits and taxes but does not provide resources to remain solvent. (Belli, 2001).

### 3.4.2, Income statement

The businesses like Tata Motors develops the income statements for measuring the actual performance of the organisation for the selected period. The income statement of the company comprises of three main factors. The first factor is the amount of overall cash collected by the operations performed by the chosen organisation in the given period. The revenue or the amount of money generated from the activities performed also helps the organisation in maximising their inventory turnover. The second important factor of the income statement is the financial expenses that cover the initial cost of goods sold and other critical financial expenditures that are incurred by the organisation while performing its business activities. The third and last important factor in the income statement is the gross profit, earnings before income tax (EBIT); and the net income obtained by the organisation (Sinha, Kaushik, and Chaudhary, 2010). Income statement represents revenue, expenses, gains, losses but it does not show cash receipts not distribution of cash. The income statement is used to help and determine the past financial performance of the organization, Based on the income statement we can predict the future of the organization and also assets the capability of generate future cash flows. It is also called profit and loss statement. (Recker, J., 2012)

### 3.4.3, Balance sheets

The balance sheet of the business can be discussed as such instrument that explains the exact financial position of the organisation for the selected period. The developed balance sheet helps its readers in understanding the fact about what is owned by the organisation and what are the techniques used in financing the actual business operations. The following equation can describe the actual working of the balance sheet (Curdia, and Woodford, 2011).

The above-developed equation of the balance sheet had been used by the organisations around the world irrespective of the either following generally accepted accounting principles (GAAP) or international financial reporting standards (IFRS). From the above-developed equation of the balance sheet, it can be discussed that the whole balance sheet is divided into three significant heads of assets, liabilities, and total equities (or capital). The head of assets in the balance sheet is further divided into two main parts of current assets and non-current assets. The current assets can be described as those organisational assets that can easily convertible to

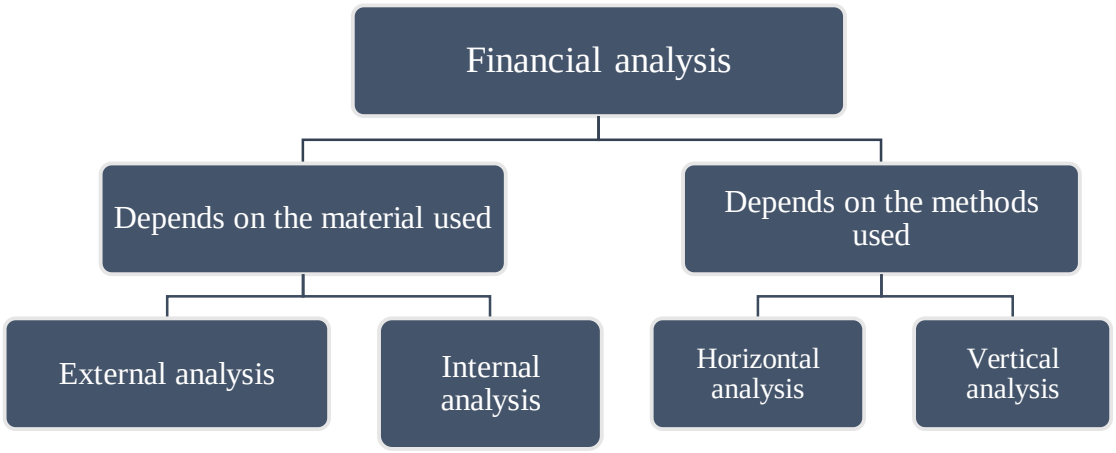
cash in the short period. Non-current assets are those type of assets that cannot be converted into cash like the current assets (Curdia, and Woodfood, 2011).

The liabilities section in the balance sheet is also divided among two parts of short-term and long-term liabilities. The short-term obligations are described as the liabilities that can be paid by the organisation in the time of one year. The long-term liabilities are defined as those liabilities that are paid by the organisation in more than a year time. Moreover, the total equity of the business can be divided into two main parts of common stock and retained earnings. The retained earnings can be described as the part of the net profit that organisation kept for making future investments. The standard stock part in the total equity describes the shares that are held by the shareholders and other preferred stock that is not traded in the market (Flick, U., 2015)

**3.5, Techniques of financial statement analysis**

The described financial statements help the researchers in making the assessment of the past and current performance of the organisation that can help organisations like Tata Motors in predicting their prospects for profits and losses. The developed financial analysis of Tata Motors can assist them financial managers of the organisation in simplifying the business efficiency. The developed financial statements can help Tata Motors in making the useful economic analysis. The researchers had also discussed that specific techniques are performed with the information provided in the financial statements of the chosen business (Chandra, 2011). These different techniques of economic analysis are horizontal analysis; ratio analysis; trend analysis; and vertical scan.

**Figure 1: Types of financial analysis**




Source: Sarngadharan, Rajitha., 2011

### 3.5.1, Horizontal analysis

The analysis of the corresponding values of the same financial statement heads regarding percentage is the standard practice of the organisation. The values that are calculated in the horizontal study are based on the amount of current year divided by the benefits of the base year for the same account head. The result is obtained regarding percentages that display the changes in the corresponding values. The gathered portions can be harmful or they can be positive. (Fisher Jr, W.P., and Stenner, A.J., 2011)

### 3.5.2, Vertical analysis

The vertical analysis can help the business in analysing the organisational performance for a year. The vertical study starts with the establishment of a single complete figure in the financial statement as 100%. Then, other values are calculated in reference of such that value which had been considered as the 100%. This selected head can be the sales value in the income statement; or it can be the total liability or total assets value in the balance sheet (Vacha, and Barunik, 2012).

### 3.5.3, Ratio analysis

The ratio analysis performed on the values of the financial statements is also said as the critical economic analysis tool that develops the results from many numerical values. The

established financial ratios describe the business position so that it can be compared with the own previous values, and with other competitive organisations. Ratio analysis compares the relationship between financial statement accounts. Managers and investors use many different tools and comparison methods to find out if a company is doing well and is well worth the investment. The most common methods of analysis to determine the performance of a company are horizontal analysis, vertical analysis and ratio analysis. Horizontal and vertical pricing analysis compares the performance period of a company and a set of standard performance numbers. This relationship between financial statement accounts will not only give managers or investors an understanding of how good a business is, and it will give them a complete understanding of business operations. (Vogel, 2014)

### 3.5.4, Trend analysis

The trend analysis is calculated for understanding the trend of change in the financial values of one year with is the straight successive second year. This method of analysing the financial statement values is very much different from the other analysis because it helps the investors in making market trend for the selective accounting head. The trend analysis of the financial statement also determines the trend taking place in the accounting head in the relation of the previous year performance (Liu et al., 2012).

**Table 2: Advantages and disadvantages of using financial analysis**

| Advantages | Disadvantages |
|---|---|
| Helps in making business decisions. | Accurate comparison is not possible. |
| Develops the basis for controlling costs and for making tax calculations. | Information can mislead the readers. |
| Helps in evaluating business performance. | Qualitative aspects of a business are ignored. |
| Helps the investors in investment related decisions. | Solutions to the problems are not supported. |

Source: Nottrott, Kleissl, and Washom, 2013

With the above-developed advantages and disadvantages, it has been discussed by different researchers that the primary purpose of using financial analysis in the automobile manufacturing company like Tata Motors, or any other manufacturing organisation, is to help the organisational managers in making effective business decision making. Therefore, it is essential for Tata Motors and its investors in understanding the decision made by the financial information. It is also discussed that the critical important qualitative characteristic of the economic analysis can be described as its reliability and relevance to the financial situation (Yalcin, Bayrakdaroglu, and Kahraman, 2012)

Performing a valid financial analysis within the manufacturing organisations can help them in attaining the desired level of market success. The logical economic analysis can assist the organisations in defining and understanding the organisational strength and its growing business. Financial researchers had revealed the utilisation of the neural system in the different proof of the business activities that were delivering losses to the organisations. This neutral system of doing financial analysis is said to be the use of ratio analysis. This is because most of the financial analysts in the world are using the financial ratios for making a useful economic analysis. The financial researchers use the proportions for preparing the financial report because vast numerical data is explored in the financial statements (Delen, Kuzey, and Uyar, 2013). The use of ratios can help the business like Tata Motors in evaluating their financial practices most adequately. The economic analysis that starts with the ratio analysis includes the study of liquidity preferences of the organisation. In respect of Tata Motors, the calculation of the liquidity ratios can help them in analysing and fulfilling the future business demands for successful performance.

Financial performance was mentioned to refer to the concept with which the established financial objectives of an organization were achieved and is an important aspect of effective decision making. More importantly, financial performance measures the results of operations and policies in monetary terms. It is used to quantify the overall financial health of a company during a certain period of time. Users of financial information can use this information to develop policies to advance the organization (Silva, 2016). The analysis of financial performance includes the interpretation and analysis of financial data in such a way that a full analysis of the financial health and productivity of a company is initiated. (Pandey, 2009)

The financial performance analysis includes studying and evaluating the relationships between the annual accounts and maximizing the value of a company. Financial analysis has a great influence on the decision-making process. This is because it helps to identify the strengths and weaknesses of a company and makes suggestions of actions that can be taken to correct the weaknesses and take advantage of the strengths (Bergold, 2012). There are several parts in the organization that can use the financial performance analysis information for the collective benefit of the organization. It is imperative that business managers use financial analysis information to make investments and financial decisions to maximize the value of the organization.

Since the analysis of the financial performance refers to the study of the relationships between the profit and loss account and the balance sheet accounts, this information, when used with the correct evaluation and care, can provide useful information about the commercial activities. Financial analysis helps to identify the monetary performance of a company in various key management capacities. Because it can be used to represent the comparison between commercial and commercial averages, users of financial information can make decisions about changing business activities to meet industry standards (Al-Nasser, 2014). In addition, the financial analysis indexes can be used to reflect a trend of commercial activities. This can be especially important in identifying areas where performance has deteriorated or improved to make the right decisions.

With the financial analysis information, it is also possible for the business to identify whether there is enough cash to meet its obligations. Right decisions eventually lead to increasing the earnings of the firm, but these decisions depend on proper and useful financial analysis information. The financial ratios that are derived through financial analysis can provide proper and useful financial information that helps management in decision making. Recently, the most business fails due to improper financial information (Warfield, Weygandt & Kieso, 2005). The financial ratios act as a statistical pillar that managers can effectively use as a judgment tool to identify and evaluate the effectiveness of business operations.

With the financial ratios, managers can also identify weaknesses to use enough resources and responsiveness to these hitches and lastly taking the accurate and most appropriate resolutions to capitalize on the value and prosperity of the organization (Kieso,

Weygandt & Warfield, 2010). Financial analysis information is significantly important as it helps in understanding the financial performance and position of the organisation. Although financial analysis information can be used to scrutinize the preceding fiscal performance, they can also be applied in establishing effective management grounds that help in establishing future organization management and operation trends of business performance management (Miller and Tsang, 2011)

Organization management can be able to make predictions of the company performance over time and overcoming years' and this translates to making sound investment and operation decisions. Generally, managers use financial analysis to make an analysis of the collective organizational performance (Brigham & Houston, 2012). As financial ratios present in financial performance management reveal how an organization is being financed, how its resources are being utilized, the ability to meet obligations and pay outstanding debts and the ability to generate profits, this information can be helpful in structuring decisions that have a positive outcome for the organization (Rosenblatt, H.J., 2013). Financial analysis in the form of efficiency ratios helps to identify how long the company takes to sell and replace its inventory and making such an assessment is important as it enables management to know where they are supposed to improve their buying practices as well as inventory management. (Sutherland, Canwell, 2004)

In present business environments, the financial breakdown of an organization has become one of the focal fundamentals for a prosperous organization of its incomes and conferring to a number of financial analysts, it has become a significant element of organizational performance. Companies are engaging in benchmarking activities in order to compare their performance with that of similar companies in the industry (Harness et al., 2008). The information they collect is important in making the right decisions to change business operations to meet industry standards. Financial ratios are particularly important as they help in determining health and business stability. These ratios help to show the ability of a company to generate cash and meet the financial obligation and measures the ability to access cash to support immediate needs.

Research by Goel (2014) confirms that organizations typically use the financial analysis information to make a determination of whether the operating strategies that the

management has been devising are working. This is done by making comparisons with the past financial performance information and matching this with current financial information. The management can be in a position to detect any errors and make adjustments to its present-period financial performance information based on current economic conditions (Goldkuhl, G., 2012) This implies that, with effective financial statement analysis, the management can typically be able to realize the gaps and loopholes that are delaying the realization of financial objectives. It is important for companies to realize that making an interpretation of their financial ratios is necessary to keep up with the needs of investors, the shareholders and even the competition.

To an organization, the financial analysis reveals more than just the earnings and profitability. This is because, it provides management with effective intuitions into how effectually the administration is able to control expenditures, the volume of interest revenue, taxes and business expenses (Carraher & Van Auken, 2013). Management can use income statement analysis to make a calculation of the financial ratios that will make a revelation to the frequency of yield that the company is netting on its assets and shareholder retained earnings. Management can also be able to compare the organization's profits to its competitors, and this effectively accomplished by making comparisons of different profit precincts such as operating profit margin and net profit margin.

As financial statements such as the balance sheet provide management with a summary of business enterprise summary, the business liabilities and assets at a certain date, this helps the organization in planning on how to maximize the assets and returns on investment while minimizing the identified liabilities and expenses. As the financial statements make a reflection of the financial performance of a company at a given time, the information they collect helps to make sure that management decisions have been scheduled to meet the business financial objectives and making sure that operations are handled in the most competitive manner (Chandra, 2011). The results of the balance sheet help management to establish a motion to maintain the equity above a certain percentage of the debt.

### 3.6, Ratio analysis for conducting financial analysis:

The financial analysis includes ratio's analysis which is very important, which are mathematical indicators calculated by comparing the key financial information that appears in the financial statements of a company and analyzing them to discover the reasons behind the current financial position of the company. Company and its recent financial performance, and develop the expectation about its future outlook. For example, the net profit margin is a financial relationship that compares the net income of a business with its net income to find out the profit dollars that the business earned for each $100 of sales. The net profit margin index helps to discover if a company is more profitable than its peers or, for example, if its profitability has increased in different periods.

The analysis of the financial relationship is a very useful tool because it simplifies the financial comparison process of two or more companies. The direct comparison of the financial statements is not efficient because of the difference in the size of the relevant companies. The analysis of the financial relationship makes the annual accounts comparable between different companies and in different periods of a single company. (Helfert, 2001)

There are various financial ratios to analyze different aspects of a company's financial position, performance and cash flows. The financial indices that are calculated and analyzed in a given situation depend on the user of the financial statements. For example, a shareholder is mainly concerned with the profitability and solvency of a company; the debtor is concerned about its solvency, liquidity and profitability in decreasing order of importance; a creditor/supplier is mainly concerned with the liquidity of the company, etc. Financial ratios can be broadly classified as liquidity ratios, solvency ratios, profitability ratios and efficiency ratios (also called ratios or occupancy rates). Other categories include cash flow indices, market valuation indices, coverage indexes, etc.

#### 3.6.1, Liquidity Ratios

Many of the financial researchers around the globe had implemented the use of ratio analysis for measuring the liquidity of the chosen business for performing the business activities. The financial researchers had identified the three different ratios that include the

determination of the liquidity of any business like Tata Motors. These ratios are the cash ratio, current ratio, and quick ratio. The concept working behind the current ratio is to compare the current assets with the current liabilities of the organisation so that the degree of liquidity of the firm like Tata Motors (Garcia-Appendini, and Montoriol-Garriga, 2013). The provided explanation of the current ration explains the formula of the ratio by itself.

- **Cash Ratio:**

Cash ratio indicates the liquidity of company this ratio is used to cover short term depts. Cash ratio can be calculated by dividing cash and short term investment divided by current liabilities. The cash ratio formula no (1) was mentioned in previous chapter.

- **Quick Ratio:**

Still, certain financial researchers had raised the question about these of current ratio in determining the liquidity of the business. They had their reasons, such as organisational inventories, property, manufacturing plant and another sort of current assets are not easily liquated. Therefore they had developed another ratio of liquidity calculations which is known as the quick or acid test ratio. The quick or acid test ratio includes the only the relative assets that can be liquated. These are termed as cash, account receivable, and marketable securities (Acharya, Shin, and Yorulmazer, 2010). The quick ratio formula no (2) was mentioned in previous chapter.

- **Current Ratio:**

Current Ratio is a liquidity ratio that measures a company's short-term liabilities or ability to pay in one year. It tells investors and analysts how a company can maximize its current assets on its balance sheet to meet its current debt and other payments. The current ratio formula no (3) was mentioned in previous chapter. (Bhattacharyya, 2011)

### 3.6.2, Activity ratios

The operations efficiency ratios in the ratio analysis help the business in determining the actual efficiency of the operations performed. The capabilities of the operations can be determined through receivable turnover, payable turnover, inventory turnover, fixed assets turnover, and total assets turn over. The receivable turnover is the ratio that determines the efficiency of the credit policies of the organisations for supporting their sales. Further, the inventory turnover also measures the level of transactions that are done on credit (Paradi, Rouatt, and Zhu, 2011). The receivable turnover ratio formula no (5) was mentioned in previous chapter.

The payable turnover ratio is another operations efficiency ratio that displays the ability of the purchases that are recoverable in the reference of the developed accounts payable. The payable turnover ratio formula no (6) was mentioned in previous chapter (Tracy, 2012)

It had been discussed by different researchers that the account payable and the accounts receivable of the organisation like Tata Motors are the primary sources of finance generation for the delivery of the operational activities. This is because the factor of time plays an essential role in the processes of the receivable and payable turnover. The large inventory balances are then generally maintained by the receivable and payable ratios as they determine what is received from the customers so the suppliers of the business raw material can be paid. The researchers had also described that the level of inventory in the manufacturing organisations like Tata Motors, also plays an important role in describing the business efficiency of operations (Fiordelisi, Marques-Ibanez, and Molyneux, 2011). The inventory turnover ratio helps the manufacturing businesses in determining the flow of the inventory regarding their costs of productions or the costs of goods sold. The inventory turnover ratio formula no (4) mentioned in previous chapter.

The total asset turnover ratio evaluate the sales of the company to its assets base. The ratio evaluate the ability of an organization to effectively produce sales, and is generally used by third parties to check the operations of the business. Through the total assets turnover ratio,

the manufacturing business can quickly know the sales amount of the business in reference of competing assets that had been used in the performance of business. The total asset turnover ratio formula no (7) mentioned in previous chapter. (Bunse, et al., 2011)

### 3.6.3, Profitability ratios:

The profitability ratios of the ratio analysis of any business help the management of the business in understanding different facts about the revenue generation of the manufacturing organisations like Tata Motors. The very first profitability ratio that is calculated for analysing the earning capacity of the manufacturing organisation is said as the gross profit margin or the gross margin. The gross margin can be described as the comparison of gross profit earning and the number of sales (Rist, M. and Pizzica, A.J., 2014) The gross margin ratio formula no (12) mentioned in previous chapter.

The formulas helps the businesses in determining the actual gross profiting percentage that can help them in future for determining the amount of gross profit earned from their subjected sales. Moreover, the next level of profitability ratio of business can be explained as the operational ratio that describes the relationship between the actual operating expenses been performed and what is the level of profit for the organisation. If the gross and operating margin of the profit is lower than the market rate then the organisation like Tata Motors had to improve the management practices of the business (Ravisankar, Ravi, Rao, and Bose, 2011). The operating margin ratio formula no (10) mentioned in previous chapter.

This calculated operating margin defines the base for the net profit margin. This is because the net profit is obtained by subtracting the complete expenses of business from the operating income and the net sales is also part of the equation is gross sales minus all sales deduction. (Rosman, Wahab, and Zainol, 2014). The net profit margin formula no (11) was mentioned in previous chapter.

The calculated net profit value can help the organisation like Tata Motors in determining the actual net income that can help the organisation in performing its business activities in a successful manner. Profitability ratios also include the profits obtained on the investment (return on investment); profits on the assets described by the organisation (return

on assets); and profits obtained from equity activities (return on equities). The return on assets (ROA) is the ratio that has been developed by comparing the earnings before income tax (EBIT) with the actual assets used to generate such type of EBIT (Malik, 2011). The return of assets (ROA) formulas no (8) was mentioned in previous chapter.

The return on equity is another profitability ratio that described the usefulness of the capital owned by the company in generating the income. That is, the company can easily compare the net income with the level of equity generated by the shareholders and other related investors of the organisation (Kabajeh, Al Nuaimat, and Dahmash, 2012). The return on equity (ROE) formula no (9) was mentioned in previous chapter.

The level of investment made by the shareholders for improving the market practices of the organisation can be calculated by discussing the return on investment (ROI). The retrun on investment (ROI) formula no (13) was mentioned in previous chapter. (Vinodh, et al., 2014)

### 3.6.4, Long-term debt and capital ratios

When the long-term debt and different capital ratios of the manufacturing business, like Tata Motors, are developed and analysed, the financial management team of the organisation can easily identify the sources that can help them in understanding the process of financial activities. The financial activities that are related to business performance are concerned with the calculation of the ratio between total debt and total equity. The debt to equity ratio formula no (14) was mentioned in previous chapter. (Pandey, 2009)

The developed debt to equity helps the business managers in designing their capital structure in such a manner that can be supportive of the activities that are performed for obtaining the debt. The obtained debt will be increasing the interest expense of the business (Halpin, Senior, 2009).The debt to capital formula no (15) was mentioned in previous chapter.

The interest coverage ratio formulas used to evaluate how a company can pay their interest expenses on outstanding debt. The ratio is calculated through dividing a company's earnings before interest and taxes (EBIT) through the company's interest expense for the same year. The interest coverage ratio formula no (16) was mentioned in previous chapter. (Leitch and Harrison, R.T., 2010)

I have considered three main ratios during the research to determine market value of the TATA Motors. Overview of market value ratios is explained below.

- **Earnings per share (EPS)**

  Earnings per share: Earnings per share (EPS) important analysis for the organization because it measure that is used that provide real profit of organisation. It will help investors in making a decision to buy or sell company shares. When the earnings per share (EPS) is higher than one it helpful for investors in making investment in the company. The earnings per share (EPS) formula no (17) was mentioned in previous chapter.

- **Dividend yields**

  Dividend Yield or Dividend-Price Ratio of a stock is the dividend per share that is divided by the price per share. Dividend Yield is used to calculate the return on investment (share), taking into account only the total dividend confirmed by the company during the year. The dividend yields formula no (18) was mentioned in previous chapter.

- **Book Value**

  Book value represents the calculation of the company physical assets which includes land, buildings etc. and it is also removing intangible assets which is liabilities it includes account payable, stock and debt. The book value formula no (19) was mentioned in previous chapter.

# 4 - Practical part

## 4.1, Beginning of Tata motors

Tata Motors Limited is India's biggest multinational automotive manufacturing company, founded by Jamsetji Tata in 1868. It was established originally as the engineering and locomotive manufacturing company, during the rule of Great Britain with the name of Tata Group, later established Tata Motors in 1945. It's headquarter located in Mumbai, India. The TATA Motors is leading passenger and commercial vehicles manufacturer in India. TATA Motors have been making global impact in auto industry. TATA Motors had acquired Jaguar and Land Rover from ford in 2008 after that these two British iconic brands allows TATA to step into the luxury car market without researching the market.

## 4.2, Product portfolio

Tata Motor's portfolio include military vehicles, trucks, buses, passenger cars, coaches, and other construction vehicles. The Tata Motors Group is $45 billion car-manufacturing group that it's manufactured vehicles all around India. The Tata Motors had produced many fuel-efficient vehicles that had helped the business in expanding their business portfolio in a most effective manner.

## 4.3, Main plants and offices

Tata Motors has manufacturing and assembly plants for automobiles in Jamshedpur, Pantnagar, Lucknow, Sanand, Dharwad and Pune in India, as well as in Argentina, South Africa, Thailand and the United Kingdom. TATA Motors ha reseach and development centers (Dharwad, Lucknow, Jamshedpur, Pune) in India, Spain, South Korea and United Kingdom.

### 4.4, Balance Sheet

During the chosen period, the Company had a significant share of the total assets in the current assets. Tata Motors, mainly consisting of intangible fixed assets. Intangible real estate mainly comprises instruments. Goods are what build up the largest portion of inventory, which is more or less continuous throughout the period of analysis. Short-term gains can occur when their share of total assets decreases. These receivables consist primarily of short-term trading. In the last observed years, short-term financial assets have increased especially in the investments section. With short-term receivables being lower, it is believed that most recipients were before the end of the year. In the Appendix to the financial statement, it is also clear that from 2014, the company increased significantly compared to previous years.

### 4.4.1, Vertical Analysis of Balance sheet – Assets

Below mention explains vertical analysis of balance sheet assets from year 2014 to 2018. The analysis include comparison of changes from 2014 to 2018. Which will help the investors to understand assets stability of TATA Motors.

**Table 3: Vertical Analysis of Balance sheet – Assets**

| Years | 2018 (%) | 2017 (%) | 2016 (%) | 2015 (%) | 2014 (%) |
|---|---|---|---|---|---|
| Tangible Assets | 30.72% | 30.40% | 31.01% | 24.55% | 24.40% |
| Intangible Assets | 5.76% | 4.88% | 6.18% | 7.05% | 6.25% |
| Capital Work-In-Progress | 2.32% | 3.23% | 2.75% | 2.70% | 3.45% |
| Intangible Assets under development | 6.46% | 9.12% | 7.28% | 9.39% | 9.33% |
| Fixed Assets | 45.26% | 47.63% | 47.22% | 43.70% | 43.42% |
| Non-Current Investments | 24.08% | 25.24% | 26.85% | 33.97% | 36.91% |
| Long Term Loans And Advances | 0.24% | 0.66% | 0.45% | 4.81% | 5.87% |
| Other Non-Current Assets | 5.13% | 4.80% | 4.55% | 0.35% | 0.25% |
| Total Non-Current Assets | 74.72% | 78.33% | 79.07% | 82.83% | 86.45% |
| Current Investments | 3.08% | 4.14% | 3.08% | 0.04% | 0.20% |
| Inventories | 10.73% | 9.43% | 9.03% | 9.62% | 7.77% |
| Trade Receivables | 5.88% | 3.61% | 3.61% | 2.23% | 2.45% |
| Cash Equivalents | 1.34% | 0.55% | 1.39% | 1.89% | 0.45% |
| Short Term Loans | 0.24% | 0.37% | 0.85% | 3.15% | 2.46% |
| Other Current Assets | 4.02% | 3.56% | 2.96% | 0.23% | 0.22% |
| Total Current Assets | 25.28% | 21.67% | 20.93% | 17.17% | 13.55% |
| Total Assets | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Source: https://ycharts.com, TATA Motors, 2014-2018

The vertical analysis of balance sheet – Assets represent, with the absolute (In percentage) changes. I have done calculated during the selected years of analysis from 2014 – 2018 of TATA Motors. Tangible assets was 24.40% in 2014 while intangible assets was only 6.25%. The most significant changes in tangible assets was increased by 31.01% in 2016 while intangible assets was decreased by 6.18. In 2018, tangible assets was decreased by 30.72% while intangible assets was also decreased by 5.76%. Fixed assets was 43.42% while inventories was only 7.77%. The most significant changes in fixed assets was increased by 47.63% in 2017 while inventories was increased by 9.43%. In 2018, fixed assets was decreased

by 45.26% while inventories was increased by 10.73% during the observed years from 2014 to 2018.

The total non-current assets was 86.45% in 2014 while total current assets was 13.55% then it was silently decreased by 82.83% while total current assets was silently increased by 17.17% in 2015. The most significant changes were in total non-current assets was decreased by 74.72% while total current assets was increased by 25.28% in 2018.

### 4.4.2, Horizontal Analysis of balance sheet – Assets

Below mention table explains horizontal analysis of balance sheet assets from year 2014 to 2018. The analysis include comparison of changes from 2014 to 2018. Which will help the investors to understand assets stability of TATA Motors.

**Table 4: Horizontal analysis of balance sheet – Assets**

| Assets | Years | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|---|
| Cash and Equivalents | In Bill $ | 0.103 | -0.426 | -0.574 | 0.485 | 0.523 |
| | In % | 4.78% | -16.49% | -18.18% | 18.15% | 24.34% |
| Short Term Investments | In Bill $ | -0.392 | 0.874 | 0.901 | 0.236 | 1.035 |
| | In % | -6.88% | 18.13% | 22.98% | 6.41% | 39.07% |
| Raw Materials Inventory | In Bill $ | 0.16 | 0 | 0.07 | -0.02 | -0.01 |
| | In % | 30.19% | 0.00% | 15.22% | -4.17% | -2.04% |
| Inventories | In Bill $ | 1.074 | 0.528 | 0.321 | 0.037 | 0.688 |
| | In % | 19.73% | 10.74% | 6.99% | 0.81% | 17.78% |
| Other Current Assets | In Bill $ | 0.01 | -0.04 | -0.03 | -0.01 | -0.01 |
| | In % | 50.00% | -66.67% | -33.33% | -33.33% | -33.33% |
| Total Current Assets | In Bill $ | 2.99 | 1.38 | 0.67 | -0.05 | 2.49 |
| | In % | 16.67% | 8.33% | 4.22% | -0.31% | 18.51% |
| Properties | In Bill $ | 0.753 | -0.027 | 0.307 | 0.289 | 0.312 |
| | In % | 33.35% | -1.18% | 15.52% | 17.11% | 22.66% |
| Machine, Furniture & Equipment | In Bill $ | 3.12 | 0.32 | 1.66 | 1.409 | 1.34 |
| | In % | 24.51% | 2.58% | 15.44% | 15.08% | 16.75% |
| Other Properties | In Bill $ | -0.02 | -0.01 | 0.01 | 0.07 | 0 |
| | In % | -28.57% | -12.50% | 14.29% | 0.00% | 0.00% |
| Goodwill | In Bill $ | -0.09 | -0.01 | 0 | -0.01 | -0.02 |
| | In % | -81.82% | -8.33% | 0.00% | -7.69% | 18.18% |
| Long Term Investments | In Bill $ | -0.02 | 0.2 | 0.06 | 0.16 | -0.07 |
| | In % | -2.15% | 27.40% | 8.96% | 31.37% | -12.07% |
| Other Long Term Assets | In Bill $ | 0.01 | -0.03 | -0.01 | -0.02 | 0 |
| | In % | 20.00% | -37.50% | -11.11% | -18.18% | 0.00% |
| Total Assets | In Bill $ | 8.58 | 1.66 | 1.95 | 1 | 5.5 |
| | In % | 20.87% | 4.21% | 5.20% | 2.74% | 17.74% |

Source: https://ycharts.com, TATA Motors, 2014-2018

The horizontal analysis of balance sheet – Assets represent, with the absolute (in USD) and related (In percentage) changes. The first of part of the balance sheet data is compared between from 2014 to 2018. The most significant changes were in cash and Equivalents and short term investment in comparison with 2014 when it was increase by 24.34%, In 2016 cash and equivalents has changed and decreasing by -18.18% then the situation become a little bit better by increasing 4.78% in year 2018. The short term investment was very high in 2014 which is 39.07% while in 2015 growth was only 6.41% but in 2016 situation become better which was increased by 22.98%.

We can see in the table that cash and equivalents was better in 2014 and then it became worse in 2016 which was -18.18% but in 2018 situation was at least good which is 4.78% was. In 2014, total assets was 17.74% then situation become worse and reach at 2.74 in 2015. It was greatly increased .87% in 2018

**Table 5: Vertical analysis of Equity and Liabilities**

| Years | 2018 (%) | 2017 (%) | 2016 (%) | 2015 (%) | 2014 (%) |
|---|---|---|---|---|---|
| Equity share capital | 1.15% | 0.12% | 1.19% | 1.29% | 1.29% |
| Total Share Capital | 1.15% | 0.12% | 1.19% | 1.29% | 1.29% |
| Revaluation Reserves | 0.00% | 0.00% | 0.00% | 0.05% | 0.05% |
| Reserves and Surplus | 32.92% | 34.79% | 39.85% | 28.42% | 37.22% |
| Total Reserves and Surplus | 32.92% | 34.79% | 39.85% | 28.47% | 37.26% |
| Total Share Holders Funds | 34.07% | 35.94% | 41.04% | 29.76% | 38.26% |
| Long Term Borrowing | 22.22% | 23.24% | 18.70% | 24.67% | 19.6% |
| Deferred Tax Liabilities(NET) | 0.26% | 0.25% | 0.13% | 0.00% | 0.09% |
| Other Long Term Provision | 0.85% | 2.47% | 5.80% | 0.57% | 2.32% |
| Long Term Provision | 1.7% | 1.52% | 1.32% | 4.21% | 1.64% |
| Total Non-Current Liabilities | 25.03% | 27.48% | 25.96% | 29.45% | 23.65% |
| Short Term Borrowing | 5.24% | 8.76% | 6.45% | 15.54% | 9.59% |
| Trade Payables | 15.89% | 12.03% | 9.07% | 17.73% | 19.45% |
| Other Current Liabilities | 18.32% | 14.98% | 16.68% | 6.29% | 4.95% |
| Short Term Provision | 1.46% | 0.81% | 0.79% | 1.23% | 3.81% |
| Total Current Liabilities | 40.90% | 36.58% | 33.01% | 40.79% | 37.80% |
| Total Capital and Liabilities | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Source: https://ycharts.com, TATA Motors, 2014-2018

The table 5 represents vertical analysis of Equity and Liabilities of TATA Motors. During the analysing period the total current liabilities was fluctuating highest was recorded 40.90% in 2018 but at the same time total shareholder funds decreased to 1.87% compared to 2017. However lowest was recorded 33% in 2016 but at the same time total shareholders' funds was recorded highest which is 41.04%

We can see that reserves and surplus was also fluctuating during these selected period. Reserves and surplus highest was recorded 39.85% in 2016 at the same time equity share capital was recorded 1.20%. Reserves and surplus lowest was recorded 28.42% in 2014 and 2015 while equity share capital was the highest 1.29%

**Table 6: Horizontal analysis of Equity and Liabilities**

| Liabilities | Years | **2018** | **2017** | **2016** | **2015** | **2014** |
|---|---|---|---|---|---|---|
| Accounts Payable | In Bill $ | 2.95 | 0.17 | 0.13 | 0.01 | 1.42 |
| | In % | 31.36% | 1.86% | 1.46% | 0.11% | 18.57% |
| Current Tax Payable | In Bill $ | 0.11 | 0.14 | 0.06 | -0.12 | -0.34 |
| | In % | 17.74% | 29.17% | 14.29% | -22.22% | -38.64% |
| Accrued Expenses | In Bill $ | 0.02 | 0 | -0.01 | 0.02 | 0.06 |
| | In % | 13.33% | 0.00% | -6.25% | 14.29% | 75% |
| Commercial Paper Liability | In Bill $ | 0.36 | 0.55 | -0.08 | 0.47 | -0.19 |
| | In % | 28.87% | 77.61% | -10.13% | 146.88% | -37.25% |
| Current Deferred Revenue | In Bill $ | 0.1 | -0.01 | 0 | -0.1 | 0.18 |
| | In % | 20.83% | -2.04% | 0.00% | -16.95% | 43.90% |
| Total Current Liabilities | In Bill $ | 4.15 | 1.7 | 0.21 | 0.65 | -0.2 |
| | In % | 23.34% | 10.57% | 1.32% | 4.27% | -1.3% |
| Non-Current Deferred Revenue | In Bill $ | 0.17 | 0.15 | 0.13 | 0.07 | 0.07 |
| | In % | 36.96% | 48.39% | 72.22% | 63.64% | 175% |
| Non-Current Deferred Liabilities | In Bill $ | 0.93 | -0.32 | 0.39 | -0.16 | 0.36 |
| | In % | 145.63% | -33.33% | 68.42% | -21.92% | 97.3% |
| Other Long Term Liabilities | In Bill $ | 0 | 0.03 | 0 | -0.02 | 0.01 |
| | In % | 0.00% | 100% | 0.00% | -40% | 25% |
| Total Liabilities | In Bill $ | 2.86 | 4.92 | -0.99 | 2.93 | 1.81 |
| | In % | 8.72% | 17.64% | -3.43% | 11.29% | 7.5% |
| Total Capital Stock | In Bill $ | 0 | 0 | 0.01 | 0 | -0.02 |
| | In % | 0.00% | 0.00% | 10% | 0.00% | -16.67% |
| Additional Paid In Capital | In Bill $ | -0.02 | 0.09 | 0.94 | -0.14 | -0.16 |
| | In % | -0.37% | 2.39% | 31.39% | -4.31% | -4.83% |
| Share-holders Equity | In Bill $ | 5.71 | -3.26 | 2.95 | -1.94 | 3.68 |
| | In % | 69.36% | -28.37% | 34.44% | -18.46% | 54.13% |

Source: https://ycharts.com, TATA Motors, 2014-2018

The table 6 represents us horizontal analysis of Equity and Liabilities of TATA Motors. During the selected period accrued expenses was highest 75% in 2014 while current deferred revenue was 43.90%. Accrued expenses was lowest -6.25% in 2016 while current deferred revenue 0%. In 2018 accrued expense was 13.33% while current deferred revenue was 20.83% which was increased because -2.04% was in 2017.

We can see that total liabilities 7.5% was in 2014 while shareholder equity was 54.13% then total liabilities increased to 11.29% compared to 2014 while shareholder equity decreased to -18.46%. In 2016, total liabilities was decreased to -3.43% while shareholder equity was increased to 34.44%. In 2018, shareholder equity was the highest 69.36% during the selected period while total liabilities was 8.72%.

**Table 7: Vertical Analysis of Income Statement**

| **Years** | **2018** | **2017** | **2016** | **2015** | **2014** |
|---|---|---|---|---|---|
| Revenue | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |
| Cost of Goods Sold | 64.85% | 62.90% | 60.94% | 61.48% | 62.20% |
| Gross Profit | 35.15% | 37.10% | 39.06% | 38.54% | 37.83% |
| General and Administrative Expense | 10.61% | 10.83% | 10.79% | 9.56% | 9.26% |
| Operating Interest Expense | 1.63% | 1.59% | 1.77% | 1.96% | 2.26% |
| Operating Interest Income | 0.25% | 0.20% | 0.26% | 0.25% | 0.28% |
| Total Operating Expenses | 39.15% | 39.50% | 38.69% | 34.73% | 34.66% |
| Provision for Income Taxes | 1.30% | 1.31% | 1.02% | 2.61% | 2.06% |
| Net Income | 2.26% | 2.20% | 3.55% | 4.84% | 5.58% |

Source: https://ycharts.com, TATA Motors, 2014-2018

The table 7 represents us vertical analysis of Income Statement of TATA Motors. The cost of goods sold is the largest share of the company revenue during the observed period. In 2014, the share of cost of goods sold was the 62.20% while in 2015 it was 61.48% which is less result than previous year. In 2016, it was decreased by 60.94% which is lowest amount of percentage during the observed period but highest share of cost of goods sold was recorded in 2018. Which was 64.85%. General and administrative expenses was almost similar during the 2014 and 2015. Which are 9.26% and 9.56% means company spent almost same amount money to maintain company's daily operation. In 2016, it was increased by 10.79% and the highest was spent in 2017 which was 10.83% during the observed period. Operating interest income was 0.28% in 2014. Which was the highest income during the observed period then it was decreased by 0.25% in 2015. The lowest operating interest income was recorded 0.20% in 2017. In 2014, provision of income taxes was 2.06% while net income was more than double which is 5.58%. The net income was 4.84% in 2015 while provision for income taxes was 2.61%. Unfortunately, net income was less than previous year and provision for income taxes was 0.60% higher than previous year. In 2018, the net income was only 2.26% which was less than half than 2014.

**Table 8: Horizontal Analysis of Income Statement**

| Years | | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|---|
| Revenue | In Bill $ | 44.72 | 39.62 | 41.35 | 43.33 | 38.86 |
| | In % | 12.87% | -4.18% | -4.57% | 10.32% | 11.57% |
| Cost of goods | In Bill $ | 29 | 24.92 | 25.2 | 26.64 | 24.17 |
| | In % | 16.37% | -1.11% | -5.41% | 9.27% | 8.39% |
| Gross Profit | In Bill $ | 15.72 | 14.7 | 16.15 | 16.7 | 17.7 |
| | In % | 6.94% | -8.98% | -3.29% | 11.98% | 17.32% |
| General & Admi. Exp. | In Bill $ | 4.74 | 4.29 | 4.46 | 4.14 | 3.6 |
| | In % | 10.63% | -3.85% | 7.67% | 13.20% | 15.36% |
| Research & Dev. Exp. | In Bill $ | 0.55 | 0.51 | 0.53 | 0.47 | 0.43 |
| | In % | 7.84% | -3.77% | 12.77% | 8.51% | 16.22% |
| Operating Income | In Bill $ | -1.8 | -0.95 | 0.15 | 1.7 | 1.2 |
| | In % | 88.95% | -73.33% | -90.93% | 26.06% | 3.03% |
| Other Income & Expenses | In Bill $ | 4.02 | 2.9 | 2.4 | 2.3 | 2.5 |
| | In % | 38.05% | 22.82% | 1.63% | -8.23% | 39.89% |
| Net Interest Income | In Bill $ | -0.62 | -0.55 | -0.62 | -0.74 | -0.77 |
| | In % | 12.73% | -11.29% | -16.22% | -4.05% | 24.19% |
| Provision for Income Taxes | In Bill $ | 0.58 | 0.52 | 0.42 | 1.2 | 0.8 |
| | In % | 11.54% | 23.81% | -62.86% | 29.27% | 11.11% |
| Net Income | In Bill $ | 1.2 | 0.87 | 1.5 | 2.1 | 2.2 |
| | In % | 15.98% | -40.65% | -30.16% | -3.33% | 32.99% |

Source: https://ycharts.com, TATA Motors, 2014-2018

The table 8 represents the horizontal analysis of income statement of TATA Motors. We can see that income of TATA Motors was significantly fluctuating it was 32.99% in 2014 and at the same year TATA Motors spent highest amount of percentage for research and development which was 16.22% during the selected period of years and then income was decreased by -3.33% in 2015. In 2016, There was negative income was recorded which was significantly decreased by -30.16% while revenue was decreased by -4.57% and cost of goods sold was significantly decreased by -5.41% than previous year but during these negative indicator income and cost of goods sold in the business at the same year TATA Motors spent 12.77% for research and development in 2016. Which was the 2nd highest

amount of percentage during these selected period of years. In 2018 company spent less amount on research and development which was only 7.84% while income was 88.95% which was highest income during the selected years of analysis. In 2014 gross profit was 17.32% while provision for income taxes was 11.11% and gross profit was decreased by 11.98% while provision for income taxes was increased by 29.27% in 2015. In 2017, gross profit was recorded negative which was -8.98% while provision for income taxes was 23.81% after that company was progressing and gross profit was 6.94% in 2018 while provision for income taxes was decreased by 11.54% in 2018.

### 4.5, Ratio indicators:

The following ratios will focusing on calculation and evaluation of the TATA Motors liquidity ratios, profitability ratios, activity ratios and debt ratios.

### 4.5.1, Liquidity ratios

The following table 9 which is represents liquidity ratios. Which are cash ratio, quick ratio and current ratio of the TATA Motors from 2014 to 2018. I have mention these three ratios differences in theoretical part of diploma thesis. Cash ratio includes cash and Equivalents, quick ratio includes cash, marketable securities and accounts receivables and current ratio includes all current assets.

**Table 9: Liquidity ratios of TATA Motors., 2014-2018**

| Years | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| Cash Ratio | 1.22 | 0.8 | 1.85 | 2.34 | 3.25 |
| Quick Ratio | 1.64 | 0.81 | 1.47 | 1.55 | 2.74 |
| Current Ratio | 0.16 | 0.11 | 0.41 | 0.55 | 0.39 |

Source: Own calculation, data from annual report 2014-2018

- **Cash ratio:**

The cash ratio calculate the company ability to pay its current liabilities with cash and cash equivalents. We can see in the table that from the year 2014, TATA Motors has more cash than current liabilities and it's decreasing every year because it was 3.25 in 2014 than it decreased by 2.34 in 2015. The lowest cash ratio during the observed period it was in 2017 which was 0.8 after it was silently increased by 1.22. Only in the year of 2017 TATA Motors was shortage with cash during the observed period because it was less than 1.

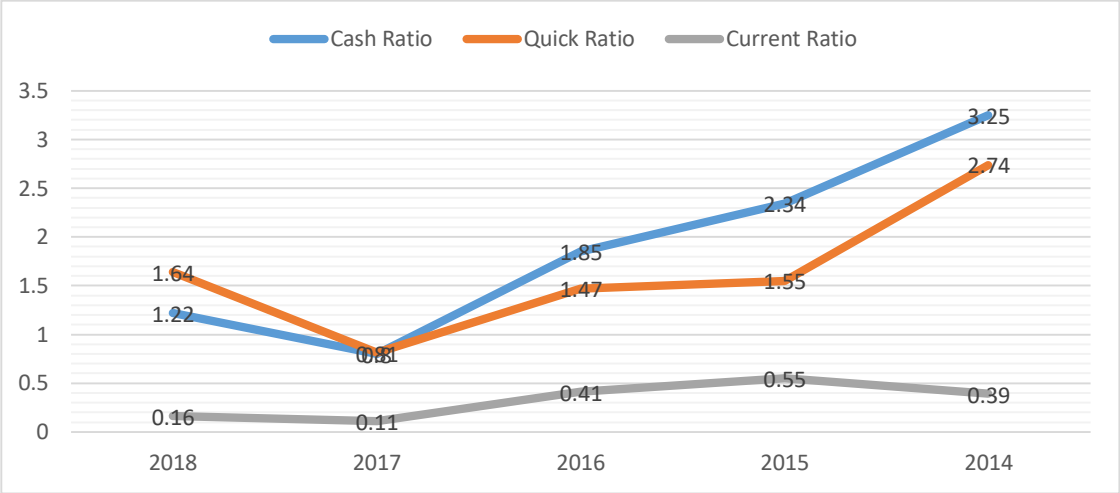
- **Quick ratio:**

The quick ratio evaluate the company ability to reach its short term debt with it liquid assets. TATA Motors has sufficient liquid assets beginning of the observed period because it was 2.74 in 2014 then silently decreased by 1.55 in 2015. There was also little drop down 1.47 in 2016. There was the only one year TATA Motors was struggling during the observed period it was 2017 because quick ratio was 0.81. Which is less than 1 mean company hasn't sufficient amount to pay its all current liabilities and it was increased by 1.64 in 2018

- **Current ratio:**

The current ratio evaluate the company ability to pay short term debt and others which are going to due within one year. In 2014 current ratio was 0.39 and then it increased by 0.55 in 2015. In 2016, it was silently decreased by 0.41 than previous year but the lowest current ratio was recorded 0.11 in 2017 during the observed period then it was silently increased by 0.16 in 2018 means TATA Motors hasn't sufficient amount of liquidity assets to pay short term debts which are going to due within one year.

**Figure 2: Liquidity ratio of TATA Motors., 2014 – 2018**




Source: Own calculation, data from annual report 2014-2018

Liquidity ratio chart: Above mentioned Liquidity ration chart consist of three main ratios Cash Ratio, Quick Ratio and Current Ratio. Both Cash and Quick ratios have been reduced from 2014 to 2017. The average decrease in both ratios was 80% approx. during this period due to market completion and decrease in average sale in India Automobile Industry. However, current ratio was mostly stable during this period as TATA Motor was able to pay short term obligations to its creditor or vendors.

### 4.5.2, Activity ratios:

The following table 10 which is represents activity ratios. Which are includes inventory turnover, payable turnover, receivables turnover and total assets turnover of the TATA Motors from 2014 to 2018. It evaluate the company ability to change different accounts within its balance sheet into cash or sales.

**Table 10: Activity ratios of TATA Motors., 2014-2018**

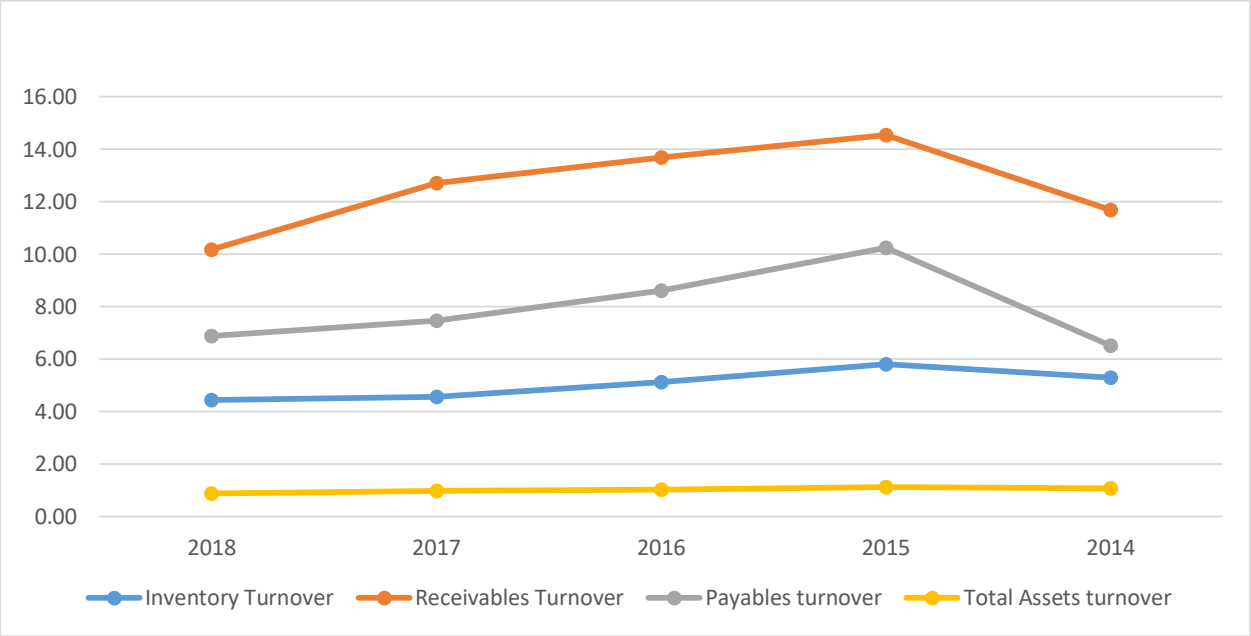
| Years | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| Inventory Turnover | 4.45 | 4.58 | 5.13 | 5.80 | 5.30 |
| Receivables Turnover | 10.19 | 12.72 | 13.70 | 14.54 | 11.68 |
| Payables turnover | 6.88 | 7.48 | 8.61 | 10.25 | 6.53 |
| Total Assets turnover | 0.89 | 0.99 | 1.03 | 1.12 | 1.07 |

Source: Own calculation, data from annual report 2014-2018

We can see that in the table 10. Inventory turnover was 5.30 in 2014 than it silently increased by 5.80 in 2015. It was the highest inventory turnover during the observed period of years. Usually it should be between 4 to 6 means than it always depends on the business. In 2017, it was decreased by 4.58 then situation become weak so, in 2018 it was decreased by 4.45. In 2014, receivables turnover was 11.68 while payables turnover was only 6.53 then it was increased by 14.54 in 2015. Which was the highest amount during the observed period while payables turnover was 10.25 in 2015. It was decreased by 13.70 while payables turnover was also decreased by 8.61 in 2016. In 2018 receivables turnover was 10.19 means company wasn't collecting their debts more than previous year and payables turnover was 6.88 which quite good then previous year.

During the observed period of years total assets turnover highest was 1.12 in 2015 than it silently decreased 1.03 in 2016. It was also decreased again 0.99 in 2017 than previous year. In 2018 it was silently decreased by 0.89.

**Figure 3: Activity ratio of TATA Motors., 2014 – 2018**




Source: Own calculation, data from annual report 2014-2018

### 4.5.3, Profitability ratios:

The following table 11 which is represents profitability ratios. Which are include return on assets, return on equity, Operating margin, net profit margin, gross profit margin and return on investment of the TATA Motors from 2014 – 2018. Profitability ratio evaluate business capacity to generate earning absolute to its revenue.

**Table 11: Profitability ratios of TATA Motors., 2014-2018**

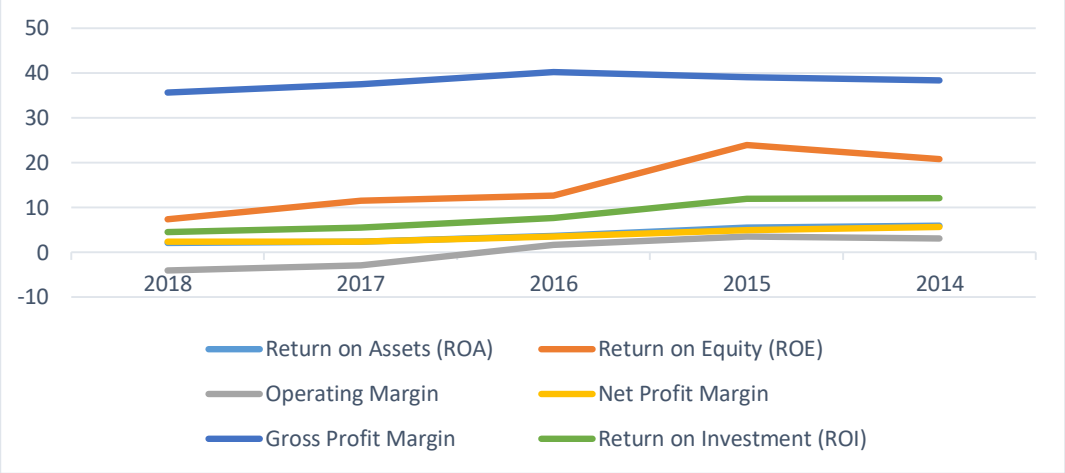
| Years | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| Return on Assets (ROA) | 2.09 | 2.33 | 3.69 | 5.5 | 6 |
| Return on Equity (ROE) | 7.41 | 11.55 | 12.61 | 23.93 | 20.77 |
| Operating Margin | -4.02 | -2.91 | 1.64 | 3.56 | 3.15 |
| Net Profit Margin | 2.31 | 2.3 | 3.56 | 4.89 | 5.58 |
| Gross Profit Margin | 35.6 | 37.54 | 40.25 | 39.01 | 38.29 |
| Return on Investment (ROI) | 4.44 | 5.44 | 7.61 | 11.91 | 12.08 |

Source: Own calculation, data from annual report 2014-2018

The profitability ratio was completed through analysing return on assets (ROA), return on equity (ROE), operating margin, net profit margin, gross profit margin and return on investment (ROI). The return on assets (ROA) was 6 while return on equity was 20.77 then return on assets (ROA) was decreased by 5.5 in 2015 while return on equity was increased by 23.93 and it was highest amount was recorded during the observed period of years. So, return on equity (ROE) was higher than return on assets (ROA) by taking over on debt of the TATA Motors while TATA Motors was increasing its assets because cash were coming in. In 2018, return on assets (ROA) was decreased by 2.09 while Return on Equity (ROE) was also decreased by 7.41 than previous year because the TATA Motors debt was started increasing that's why Return on Equity (ROE) was decreased but in turn its get better.

During the observed period of the years, Gross profit margin highest was recorded 40.25 in 2016 while net profit margin was 3.56 and operating profit margin was 1.56. Increasing gross profit margin is good for it because company can use money to expand the business. Company can spend more amount on marketing to increase their sales and they can also build new place for production increase their facilities in order to increase their production of the business. In 2017, it was silently decreased by 37.54 while net profit margin was also decreased by 2.3 and operating margin was in negative -2.91 and situation become weaker because gross profit margin was decreased by 35.6 while net profit margin was 2.31 and operating profit margin was -4.02. Means, TATA Motors was experiencing negative operating profit margin, it will survive as long as they have cash reserves. If TATA Motors run out of cash on hand. They should sell some assets in order to cover their expenses.

**Figure 4: Profitability ratio of TATA Motors., 2014 – 2018**




*Source: Own calculation, data from annual report 2014-2018*

Profitability ratio: Above mentioned profitability ratio explains company's performance within in the same automobile industry market. It helps to the investor to compare past and current performance of the company with its competitors. Based on the chart above, we can see stable performance of the company during 2014 to 2018 except return of equity (ROE) and Operating ratio.

- **Debt ratios:**

The following table 12 which is represents debt ratios. Which are includes debt to equity, debt to capital and interest coverage of the TATA Motors from 2014 – 2018. Debt ration shows that ratio of total debt to total assets mention as percentage or decimal. If the company has more liabilities than assets.

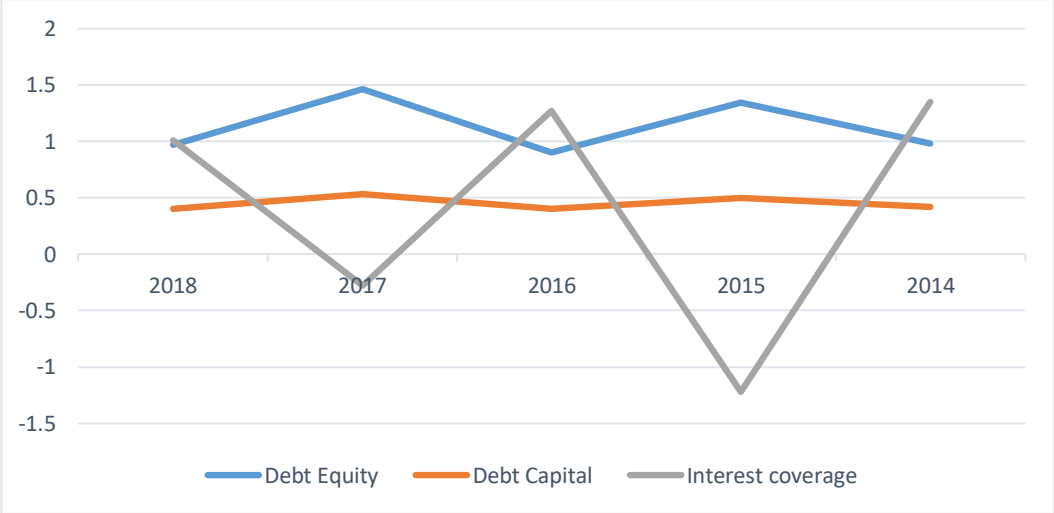
**Table 12: Debt ratios of TATA Motors., 2014-2018**

| Years | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| Debt to Equity | 0.97 | 1.46 | 0.9 | 1.34 | 0.98 |
| Debt to Capital | 0.4 | 0.53 | 0.4 | 0.5 | 0.42 |
| Interest Coverage | 1.01 | -0.28 | 1.27 | -1.22 | 1.35 |

Source: Own calculation, data from annual report 2014-2018

Debt to equity was 0.98 while debt to capital was 0.42 in 2014 than it was increased by 1.34 while debt to capital was also increased by 0.5 in 2015. Debt to equity ratio was 0.9 while debt to capital was 0.4 in 2016 than it was increased by 1.46 while debt to capital was also increased by 0.53 in 2017. Debt to equity ratio wasn't good in 2015 and 2017 because it exceeds more than 1 but it also depends on the business because some businesses used more debt financing than others. Interest coverage ratio was 1.35 in 2014 than it was decreased by -1.22 in 2015. Means company wasn't able to make interest payments. Interest coverage ratio was silently increased by 1.27 in 2016 and again negative amount appears -0.28 in 2017 than it was increased by 1.01 in 2018.

**Figure 5: Debt ratio of TATA Motors., 2014 – 2018**




Source: Own calculation, data from annual report 2014-2018

Debt Ratio: Debt ration explains company's leverage value based on above chart. The company has more funds received from debts if the ratio is greater than 1. Based on above chart, it is seen that Debt of the company has been fluctuating during period 2014 to 2018. However, debt capital ratio had minimal changes between this tines which shows stability of the company in terms of debts in the market.

- **Market value ratio**

The following table 13 represents market value ratio. Which are includes earning per share (EPS), dividend yields and book value of the TATA Motors from 2014 – 2018. Market value analysis evaluate the profitability of the company.

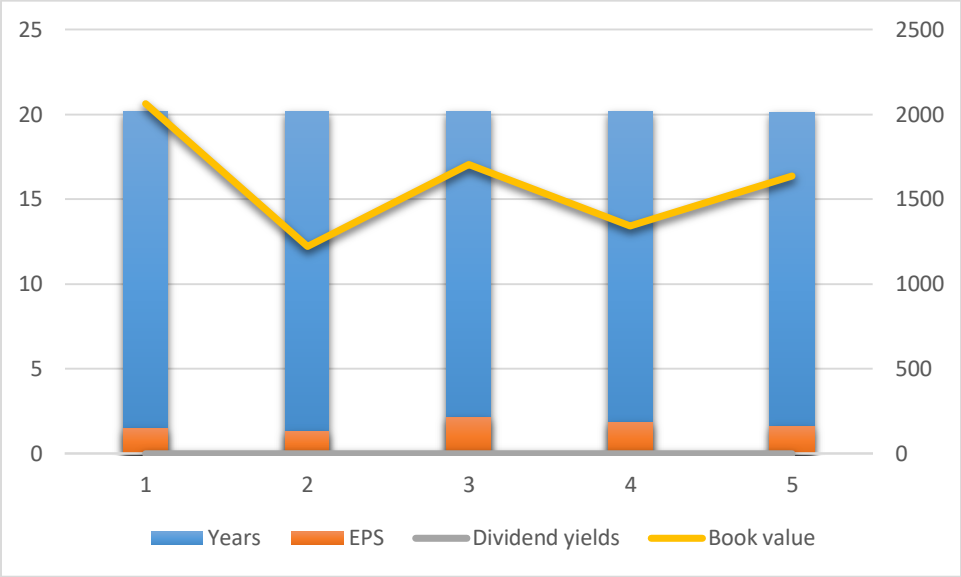
**Table 13: Market value ratios of TATA Motors., 2014-2018**

| Years | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| EPS | 1.47 | 1.31 | 2.12 | 1.84 | 1.58 |
| Dividend yields | 0 | 0 | 0.2 | 0 | 0 |
| Book value | 20.65 | 12.23 | 17.07 | 13.41 | 16.38 |

Source: Own calculation, data from annual report 2014-2018

Market value ratio are obtain from the table 13.It is easy to get a n idea that book value was 16.38 in 2014 and it decreased to 13.41 in 2015. It is good opportunity to buy a share when price are low for the shareholders. Earnings per share was 1.58 in 2014 than silently increased by 1.84 in 2015 while dividend yields was 0. Book value was increased to 17.07 while earnings per share was 2.12 and dividend yields was 0.2. This is the only year when dividend yields was 0.2 during the observed years. Earnings per share was silently decreased by 1.31 while book value was also decreased by 12.23 in 2017. In 2018, There was the highest book value was recorded which was 20.65 while earnings per share was silently increased by 1.47 during the observed period of years.

**Figure 6: Market value ratio of TATA Motors., 2014 – 2018**




Source: Own calculation, data from annual report 2014-2018

Market Value ratio: Above mentioned market value ratio consist of Earnings per share (EPS), Dividend yield and Book value of company's share. This type of ratios are used to determine current share price of the company. Book Value of the company has increased between selected period 2014 to 2018 as per above chart. Wherein, Earnings per share (EPS) and Dividend yield were seen stable. Company was able to maintain and pay stable dividend to its shareholders during this period and earnings per share (EPS) was also maintained.

# 5 - Discussion of Results

TATA Motors greatest strengths are the quality of manufactured products and original equipment manufacturer (OEM). It is providing mobility solution more than 175 countries and their portfolio includes a wide range of passenger cars, utility vehicles, trucks and buses. Jaguar land rover (JLR) is Britain's popular automobile manufacturer, housing two iconic British brands under the Tata group. It is also spending huge amount of money on the advertising every year in order to get more success for the business. Based on this analysis it will help the investors to make a decision for short, medium and long term investment in the Tata motors to invest their money to make a profit.

Based on the data from the annual report of vertical and horizontal analysis of balance sheet (Assets). Vertical analysis where every single amount on a financial statement is mentioned as a percentage of another item. It is also very useful for trend analysis to see similar changes during the observed years from 2014 to 2018. The most significant changes in tangible assets were increased by 31.01% in 2016 while intangible assets were decreased by 6.18 and other significant changes in fixed assets were increased by 47.63% in 2017 while inventories were increased by 9.43%. Horizontal analysis of balance sheet (Assets). The most significant changes were in cash and Equivalents and short term investment in comparison with 2014 when it was increase by 24.34%. Which allows investors to analysis how was the company's financial performance during the observed period from 2014 to 2018.

In additional, Vertical and horizontal analysis of equity and liabilities. This helps investors how much capital company has raised from the equity and how much money company has to pay as liabilities. The equity share capital was 1.29% in 2014 and It was maintained same in 2015 while total current liabilities was 37.80% in 2014 and then it was silently increased by 40.79 in 2015. The lowest equity share capital was 0.12% in 2017 while a total current liability was silently decreased by 36.58% in 2017. TATA Motors started getting better in the beginning of 2018. So, Equity share capital was increased by 1.15% in 2018 while total current liabilities were also increased by 40.90%. Based on this data, Investors will have an over view of the company that what kind of investment would be better to invest their money in the company.

Based on vertical and horizontal analysis of income statement. Income statement represents data on revenue, cost of goods sold, employee's expenses, operational expenses, research and development expenses and general and administrative expenses etc data gathered from the annual report of TATA Motors from the years 2014 to 2018. The revenue was 11.57% in 2014 while general and administrative expenses were 15.36%. There was also critical situation during 2016 and 2017 because revenue was recorded in negative which was -4.57% and -4.18% while general expenses was significantly decreased by 7.67% in 2016 but It was recorded negative in 2017 which was -3.85% than It was significantly increased by 12.87% in 2018 while general and administrative expenses were also increased by 10.63% because TATA Motors Jaguar land rover (JLR) sales volume was significantly increased due to demand in the market. Which helps the researcher to find exact financial situation of TATA Motors and as well as investors to get an ideas for long term investments.

As per the data presented in the liquidity ratio, the cash ratio analysis of TATA Motors shows that the company has sufficient liquid cash and cash equivalents than current liabilities and it's decreasing every year because it was 3.25 in 2014 than it decreased by 2.34 in 2015. The lowest cash ratio during the observed period it was in 2017 which was 0.8 after it was silently increased by 1.22. The quick ration analysis of TATA Motors has sufficient liquid assets beginning of the observed period because it was 2.74 in 2014 then silently decreased by 1.55 in 2015. There was also little drop down 1.47 in 2016. There was the only one year TATA Motors was struggling during the observed period it was 2017 because quick ratio was 0.81. The overall analysis of quick ratio of TATA Motors was 2.74 in 2014 which was significantly decreased by 1.93 in 2018. This indicates the company may not full payback its current liabilities. The current ratio is a liquidity ratio. Current ratio evaluates the company ability to pay short terms liabilities. In 2014 current ratio was 0.39 and then it increased by 0.55 in 2015. In 2016, it was silently decreased by 0.41 than previous year but the lowest current ratio was recorded 0.11 in 2017 during the observed period then it was silently increased by 0.16 in 2018. The overall analysis for the current ratio of TATA Motors was 0.39 in 2014 which is significantly decreased to 0.16 which indicates that company reach its current debt.

## 5.1, Recommendation

TATA Motors is strong and stable manufacturing company in India. There was an excellent result when it comes to the revenue. In the beginning it was great and then it was fluctuating but compare from 2014 to 2018. It was silently increased which is good for investors because mainly investors are looking for the profit to make money. Based on the result from ration analysis. Cash ratio analysis has very good result in the beginning of the observed period and it was silently decreasing and but results were still good because it was more than 1. In the 2018, it was 1.22 means TATA Motors has more cash than its current debt. Company should focus on the outstanding debt in order to maintain stable cash ratio because debt ratio was fluctuating very silently during the observed period.

# Conclusion

The main goal of this diploma thesis was to examine the financial situation of TATA Motors from the years 2014 to 2018. Tata Motors Limited is India's biggest multinational automotive manufacturing company. The thesis mainly focused on financial position of TATA Motors. So, based on that investors find out company's health and make a right decision to invest their money in TATA Motors.

The first part of diploma thesis about theoretical part. In the theoretical part I have mention about history of the company, explanation of formulas & ratios, users of the company, explanation of financial analysis.

First objective of the research was developing trend analysis which can explain financial position of Tata Motors. TATA Motors bought two British iconic brands Jaguar and Land Over in 2008 than they were using new marketing techniques in order to get succeed by selling those luxury cars in the market while they were also recovering outstanding dept. We can see that revenue was increased silently in 2018 than 2014 because cost of goods sold were constantly increasing every year and It was double in 2018 than 2014 while TATA Motors has decided to decreases their expenses in general and administrative expenses and research and development it was silently decreasing during the observed period of time.

Second objective of the research was developing reasons impacting the financial growth and interpreting the growth of Tata Motors. We can see that revenue of TATA Motors was fluctuating during the observed time period and every single year they were improving their strengths and making profit by selling cars. TATA Motors has significantly increased their profit in 2018 than previous years. My conclusion on assets is that tangible assets, cash & cash equivalents, fixes assets have a positive trend in the beginning of research period. This is the positive trends of TATA Motors performance in the automobiles industry.

Second part of diploma thesis is the practical part which provide information about beginning of the TATA Motors. There was the financial analysis with different methods. Which helps investors to find out the financial position of TATA Motors and also to make

right decision to invest their money in TATA Motors. I was using the annual report of the TATA Motors based on that I have done vertical and horizontal analysis (Assets), vertical and horizontal analysis (Equity and Liabilities), Vertical and horizontal analysis (Income statement), liquidity ratio, activity ratio, profitability ratio, debt ratio and market value ratio. I was comparing all these approaches which explains company's financial position in current market.

The TATA Motors is leading passenger and commercial vehicles manufacturer in India. TATA Motors have been making global impact in auto industry. TATA Motors had acquired Jaguar and Land Rover from ford in 2008 after that these two British iconic brands allows TATA to step into the luxury car market without researching the market. Furthermore, TATA Motors had announced about their process in the passenger vehicles and they launched $2500 car that could easily replace the scooters which is used in developing countries.

The TATA Motors is best example that constantly growing in different region and sales is also increasing every year The Company is also expanding their industries and production sales worldwide. It is also depends on different countries because TATA Motors is operating more than 175 countries worldwide and it has research and development centres in India, Italy, South Korea and UK. Each enterprise operates differently under the guidance of its own board of directors.

The financial health of the TATA Motors is strong and stable. TATA Motors has been growing over all since they bought Jaguar Land Rover. TATA Motors has huge impact on the Indian economy because 9 million cars are on the Indian road. It has strong position in the current market and I strongly believe that TATA Motors will continue with high quality production in commercial vehicles, passenger cars and luxury cars. TATA Motors will achieve great results in future through introducing good financial health of the company and investors will most likely to invest their money for long term.

# References


Acharya, V.V., Shin, H.S. and Yorulmazer, T., 2010. Crisis resolution and bank liquidity. The Review of Financial Studies. https://academic.oup.com/rfs/article-abstract/24/6/2166/1583798

Al-Nasser, N. M. (2014). The Impact of Financial Analysis in Maximizing the Firm's Value" A Case Study on the Jordanian Industrial Companies. International Journal of Managerial Studies and Research.

https://www.arcjournals.org/pdfs/ijmsr/v2-i6/1.pdf

Belli, Pedro. Economic analysis of investment operations: analytical tools and practical applications. Washington, D.C.: World Bank, c2001, xxviii, 264 p. ISBN 08-213-4850-7

Bhattacharyya, Debarshi. Management accounting. Delhi: Pearson, 2011. ISBN 978-813-1731-789

Bergold, J. and Thomas, S., 2012. Participatory research methods: A methodological approach in motion. Historical Social Research/Historische Sozialforschung. https://www.jstor.org/stable/41756482?seq=1#page_scan_tab_contents

Brigham, E. F., & Houston, J. F. (2012). Fundamentals of financial management. Cengage Learning.

https://www.cengage.com/c/fundamentals-of-financial-management-concise-edition-9e-brigham/9781305635937/

Caccioli, F., Shrestha, M., Moore, C. and Farmer, J.D., 2014. Stability analysis of financial contagion due to overlapping portfolios. Journal of Banking & Finance.

https://www.researchgate.net/publication/232503832_Stability_Analysis_of_Financial_Contagion_Due_to_Overlapping_Portfolios

Campello, M., Graham, J.R. and Harvey, C.R., 2010. The real effects of financial constraints: Evidence from a financial crisis. Journal of Financial Economics.

https://www.sciencedirect.com/science/article/pii/S0304405X10000413

Carraher, S., & Van Auken, H. (2013). The use of financial statements for decision making by small firms. Journal of Small Business & Entrepreneurship, 26(3), 323-336.

https://www.tandfonline.com/doi/full/10.1080/08276331.2013.803676

Christensen, L.B., Johnson, B., Turner, L.A. and Christensen, L.B., 2011. Research methods, design, and analysis.

https://www.pearson.com/us/higher-education/program/Christensen-Research-Methods-Design-and-Analysis-12th-Edition/PGM1100062.html

Connelly, L.M., 2014. Ethical considerations in research studies. Medsurg Nursing.

http://europepmc.org/abstract/MED/24707669

Curdia, V. and Woodford, M., 2011. The central-bank balance sheet as an instrument of monetary policy. Journal of Monetary Economics.

https://www.nber.org/papers/w16208

Delen, D., Kuzey, C. and Uyar, A., 2013. Measuring firm performance using financial ratios: A decision tree approach. Expert Systems with Applications.

https://www.sciencedirect.com/science/article/pii/S0957417413000158

Fiordelisi, F., Marques-Ibanez, D. and Molyneux, P., 2011. Efficiency and risk in European banking. Journal of Banking & Finance.

https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1211.pdf

Fisher Jr, W.P., and Stenner, A.J., 2011. Integrating qualitative and quantitative research approaches via the phenomenological method. International Journal of Multiple Research Approaches.

https://www.tandfonline.com/doi/abs/10.5172/mra.2011.5.1.89

Flick, U., 2015. Introducing research methodology: A beginner's guide to doing a research project. Sage.

https://uk.sagepub.com/en-gb/eur/introducing-research-methodology/book242925

Garcia-Appendini, E. and Montoriol-Garriga, J., 2013. Firms as liquidity providers: Evidence from the 2007–2008 financial crisis. Journal of financial economics.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2023583

Goel, S., 2014. The quality of reported numbers by the management: A case testing of earnings management of corporate India. Journal of Financial Crime.

https://doi.org/10.1108/JFC-02-2013-0011

Goldkuhl, G., 2012. Pragmatism vs interpretivism in qualitative information systems research. European journal of information systems.

https://doi.org/10.1057/ejis.2011.54

Halpin, Daniel W a Bolivar A SENIOR. Financial management and accounting fundamentals for construction. Second edition. Hoboken, N.J.: Wiley, c2009. ISBN 0470182717

Harness, Nathaniel J., Chatterjee, Swarn, Michael Finke, (2008). "Household Financial Ratios: A review of Literature" Journal of Personal Finance.

https://works.bepress.com/swarn_chatterjee/13/

Helfert, E. A., Financial Analysis Tools and Techniques: A Guide for Managers. Publisher: McGraw-Hill Education, 2001 ISBN 978-0071378345

Jagathy Raj, V.P. and Balakrishnan, M., 2012. Model Development and Validation for Studying Consumer Preferences of Car Owners.

http://dyuthi.cusat.ac.in/purl/4487

Kabajeh, M.A.M., Al Nuaimat, S.M.A. and Dahmash, F.N., 2012. The relationship between the ROA, ROE and ROI ratios with Jordanian insurance public companies market share prices. International Journal of Humanities and Social Science.

http://www.ijhssnet.com/journals/Vol_2_No_11_June_2012/12.pdf

https://pdfs.semanticscholar.org/ada4/2d1c9e411f8f4f53c70fcc417fc7e1397207.pdf

Kieso, D. E., Weygandt, J. J., & Warfield, T. D. (2010). Intermediate accounting: IFRS edition (Vol. 2). John Wiley & Sons. ISBN: ES8-1-118-44396-5

Leitch, C.M., Hill, F.M. and Harrison, R.T., 2010. The philosophy and practice of interpretivist research in entrepreneurship: Quality, validation, and trust. Organizational Research Methods. https://doi.org/10.1177/1094428109339839

Malik, H., 2011. Determinants of insurance companies' profitability: An analysis of insurance sector of Pakistan. Academic Research International.

http://www.savap.org.pk/journals/ARInt./Vol.1(3)/2011(1.3-32)stop.pdf

Miller, K.D. and Tsang, E.W., 2011. Testing management theories: Critical realist philosophy and research methods. Strategic Management Journal.

https://doi.org/10.1002/smj.868

Mishra, M.A., Agnihotri, M.V. and Mahindru, D.V., 2014. Application of Maynard Operation Sequence Technique (MOST) at Tata Motors and Adithya Automotive Application Pvt Ltd. Lucknow for Enhancement of Productivity-A Case Study. Global Journal of Research In Engineering. https://engineeringresearch.org/index.php/GJRE/article/view/1058

Mitra, R., 2011. Framing the corporate responsibility-reputation linkage: The case of Tata Motors in India. Public Relations Review.

https://www.sciencedirect.com/science/article/pii/S0363811111000725

Panday, I.M. Financial management [with CD copy]. 9th ed. New Delhi: Vikas Publishing House, 2009. 779 p. ISBN 978-812-5916-581.

Paradi, J.C. and Zhu, H., 2013. A survey on bank branch efficiency and performance research with data envelopment analysis. Omega.

https://www.researchgate.net/publication/257153326_A_survey_on_bank_branch_efficiency_and_performance_research_with_data_envelopment_analysis

Paradi, J.C., Rouatt, S. and Zhu, H., 2011. Two-stage evaluation of bank branch efficiency using data envelopment analysis.

https://www.researchgate.net/publication/257153326_A_survey_on_bank_branch_efficiency_and_performance_research_with_data_envelopment_analysis

Penny, W.D., Friston, K.J., Ashburner, J.T., Kiebel, S.J. and Nichols, T.E. eds., 2011. Statistical parametric mapping: the analysis of functional brain images. Elsevier. https://books.google.co.uk/books?hl=en&lr=&id=G_qdEsDlkp0C&oi=fnd&pg=PP1&dq=Statistical+parametric+mapping:+the+analysis+of+functional+brain+images.&ots=Xm0JyxR5UC&sig=x9DLOgfaDO9w4P1iWvG_AOoFeX4#v=onepage&q=Statistical%20parametric%20mapping%3A%20the%20analysis%20of%20functional%20brain%20images.&f=false

Ravisankar, P., Ravi, V., Rao, G.R. and Bose, I., 2011. Detection of financial statement fraud and feature selection using data mining techniques. Decision Support Systems.

https://www.sas.com/sas/offers/19/iia-combat-digital-fraud-financial-organizations-108080-emea.html?gclid=CjwKCAiAws7uBRAkEiwAMlbZjnRxanKxWK-JODUm9XC_CSKv5BneQ1l67RyeFXQt6N-CojxbQrwcnBoCcK8QAvD_BwE

Ray, S., 2011. Assessing corporate financial distress in automobile industry of India: An application of Altman's model. Research journal of Finance and Accounting.

https://pdfs.semanticscholar.org/9902/bd97d3f09cf44c13e955ffe0307ba8b1ccd3.pdf

Recker, J., 2012. Ethical considerations in research. In Scientific Research in Information Systems. Springer, Berlin, Heidelberg.

https://link.springer.com/book/10.1007/978-3-642-30048-6

Rist, M. and Pizzica, A.J., 2014. Financial ratios for executives: How to assess company strength, fix problems, and make better decisions. Apress. https://books.google.co.uk/books?id=g18nCgAAQBAJ&printsec=frontcover&dq=financi

al+ratios&hl=en&sa=X&ved=0ahUKEwjvmszDjq7gAhXgURUIHZlJDVUQ6AEIWTAJ#v=onepage&q=financial%20ratios&f=false

Rosenblatt, H.J., 2013. Systems analysis and design. Cengage Learning. https://books.google.co.uk/books?id=h_PUASRnDDYC&printsec=frontcover&dq=system+analysis+and+design+:+Rosenblatt&hl=en&sa=X&ved=0ahUKEwiv8PCMi67gAhVXTxUIHUCZCrwQ6AEIJzAA#v=onepage&q=system%20analysis%20and%20design%20%3A%20Rosenblatt&f=false

Rosman, R., Wahab, N.A. and Zainol, Z., 2014. Efficiency of Islamic banks during the financial crisis: An analysis of Middle Eastern and Asian countries. Pacific-Basin Finance Journal,

Sarngadharan, M. Rajitha S. Financial analysis for management decisions. 2011. ISBN 978-812-0342-477

Sekar, M., Gowri, M.M. and Ramya, M.G., 2014. A Study on Capital Structure and Leverage of Tata Motors Limited: Its Role and Future Prospects. Procedia Economics and Finance. https://doi.org/10.1016/S2212-5671(14)00211-1

Sharma, R., Manzie, C., Bessede, M., Brear, M.J. and Crawford, R.H., 2012. Conventional, hybrid and electric vehicles for Australian driving conditions–Part 1: Technical and financial analysis. Transportation Research Part C: Emerging Technologies.

https://www.researchgate.net/publication/257429680_Conventional_hybrid_and_electric_vehicles_for_Australian_driving_conditions_Part_1_Technical_and_financial_analysis

Silva, L. R. (2016, September 22). The importance of Financial Statement Analysis for Decision Makers. Retrieved July 2, 2018.

https://www.linkedin.com/pulse/importance-financial-statement-analysis-decision-makers-lucio-r-silva

Sinha, N., Kaushik, K.P. and Chaudhary, T., 2010. Measuring post-merger and acquisition performance: An investigation of select financial sector organizations in India. International journal of Economics and Finance.

http://www.ccsenet.org/journal/index.php/ijef/article/view/4917

Smith, A.B. and Katz, R.W., 2013. US billion-dollar weather and climate disasters: data sources, trends, accuracy and biases. Natural hazards.

https://link.springer.com/article/10.1007/s11069-013-0566-5

Srivastava, A.K., Negi, G., Mishra, V. and Pandey, S., 2012. Corporate social responsibility: A case study of TATA group. IOSR Journal of Business and Management.

https://www.researchgate.net/profile/Mubarak_Haider/post/What_was_the_effect_of_retention_on_Organizational_Performance/attachment/59d6385cc49f478072ea55c1/AS:273699024900113@1442266340802/download/TATA+CSR.pdf

SUTHERLAND, Jonathan a Diane CANWELL. Key concepts in accounting and finance: text, problems and cases. 5th ed. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 2004, ix, 262 p. ISBN 14-039-1532-6

Tracy, A., 2012. Ratio analysis fundamentals: how 17 financial ratios can allow you to analyse any business on the planet. RatioAnalysis. net. https://books.google.co.uk/books?id=GadRYnALi-oC&printsec=frontcover&dq=liquidity+ratios&hl=en&sa=X&ved=0ahUKEwjs2cGJjK7gAhVRzBoKHUSIArYQuwUIKjAA#v=onepage&q=liquidity%20ratios&f=false

Vacha, L. and Barunik, J., 2012. Co-movement of energy commodities revisited: Evidence from wavelet coherence analysis. Energy Economics.

https://www.sciencedirect.com/science/article/pii/S0140988311002350

Vinodh, S., Kumar, S.V. and Vimal, K.E.K., 2014. Implementing lean sigma in an Indian rotary switches manufacturing organisation. Production Planning & Control. https://doi.org/10.1080/09537287.2012.684726

Vogel, H.L., 2014. Entertainment industry economics: A guide for financial analysis. Cambridge University Press. https://books.google.co.uk/books?id=oN71LxOcdSkC&printsec=frontcover&dq=financial+analysis&hl=en&sa=X&ved=0ahUKEwiN8tmwiK7gAhUuVxUIHZr9Az8Q6AEIRjAG#v=onepage&q=financial%20analysis&f=false

Wynn Jr, D. and Williams, C.K., 2012. Principles for conducting critical realist case study research in information systems. MIS quarterly. https://www.jstor.org/stable/pdf/41703481.pdf?seq=1/subjects

Yalcin, N., Bayrakdaroglu, A. and Kahraman, C., 2012. Application of fuzzy multi-criteria decision making methods for financial performance evaluation of Turkish manufacturing industries. Expert Systems with Applications. https://www.sciencedirect.com/science/article/pii/S0957417411009869

Internet Sources:

https://www.tatamotors.com/

# Appendices

**Table 1: The balance sheet of TATA Motors (Assets) 2014 - 2018**

| Assets (Annual) | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| Cash and Equivalents | 2.260B | 2.157B | 2.583B | 3.157B | 2.672B |
| Short Term Investments | 5.303B | 5.695B | 4.821B | 3.920B | 3.684B |
| Raw Materials Inventory | 693.89M | 527.67M | 523.37M | 462.50M | 475.71M |
| Inventories | 6.517B | 5.443B | 4.915B | 4.594B | 4.557B |
| Other Current Assets | 28.14M | 20.01M | 6.116M | 9.306M | 2.413M |
| Total Current Assets | 20.93B | 17.94B | 16.56B | 15.89B | 15.94B |
| Properties | 3.011B | 2.258B | 2.285B | 1.978B | 1.689B |
| Machine, Furniture & Equipment | 15.85B | 12.73B | 12.41B | 10.75B | 9.341B |
| Other Properties | 54.48M | 65.28M | 74.97M | 77.09M | 71.94M |
| Goodwill | 17.89M | 103.83M | 114.43M | 117.04M | 124.48M |
| Long Term Investments | 896.61M | 928.71M | 730.24M | 667.68M | 505.77M |
| Other Long Term Assets | 57.85M | 50.93M | 77.86M | 90.21M | 101.31M |
| Total Assets | 49.70B | 41.12B | 39.46B | 37.51B | 36.51B |

Source: https://ycharts.com, TATA Motors, 2014-2018

**Table 2: The balance sheet of TATA Motors (Equity and Liabilities) 2014 - 2018**

| Liabilities (Annual) | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| Accounts Payable | 12.36B | 9.409B | 9.237B | 9.104B | 9.094B |
| Current Tax Payable | 727.43M | 624.74M | 477.17M | 424.48M | 537.04M |
| Accrued Expenses | 168.30M | 145.45M | 145.44M | 160.66M | 138.90M |
| Commercial Paper Liability | 1.625B | 1.261B | 700.59M | 793.53M | 316.14M |
| Current Deferred Revenue | 576.96M | 482.41M | 494.20M | 485.25M | 593.10M |
| Current Deferred Liabilities | 576.96M | 493.22M | 503.92M | 494.81M | 604.10M |
| Total Current Liabilities | 21.93B | 17.78B | 16.08B | 15.87B | 15.22B |
| Non-Current Deferred Revenue | 631.54M | 461.92M | 298.22M | 173.56M | 107.05M |
| Non-Current Deferred Liabilities | 1.572B | 643.98M | 963.00M | 569.00M | 727.16M |
| Other Long Term Liabilities | 62.84M | 58.38M | 32.72M | 29.33M | 54.06M |
| Total Liabilities | 35.67B | 32.81B | 27.89B | 28.88B | 25.95B |
| Total Capital Stock | 104.33M | 104.74M | 102.28M | 102.94M | 107.58M |
| Additional Paid In Capital | 4.014B | 4.029B | 3.935B | 2.995B | 3.130B |
| Share-holders Equity | 13.95B | 8.237B | 11.50B | 8.554B | 10.49B |

Source: https://ycharts.com, TATA Motors, 2014-2018

**Table 3: The Income statement of TATA Motors. 2014 – 2018**

| Income (Annual) | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| Operating Revenue | 44.31B | 39.25B | 41.01B | 42.96B | 38.37B |
| Revenue | 44.72B | 39.62B | 41.35B | 43.33B | 38.86B |
| Cost of Goods Sold | 29.00B | 24.92B | 25.20B | 26.64B | 24.17B |
| Gross Profit | 15.72B | 14.70B | 16.15B | 16.70B | 14.70B |
| General and Administrative Expense | 4.746B | 4.290B | 4.462B | 4.144B | 3.597B |
| SG&A Expense | 4.746B | 4.290B | 4.462B | 4.144B | 3.597B |
| Research and Development Expense | 547.83M | 509.05M | 530.26M | 466.49M | 425.71M |
| Special Income and Charges | 107.67M | -170.28M | -144.88M | -57.46M | -138.21M |
| Provision for Doubtful Accounts | 6.218M | 109.75M | 234.18M | 418.75M | 445.27M |
| Operating Interest Expense | 725.78M | 631.78M | 732.43M | 854.47M | 881.16M |
| Operating Interest Income | 110.48M | 84.12M | 109.86M | 110.65M | 110.47M |
| Other Operating Expenses | 8.957B | 8.022B | 8.202B | 7.816B | 7.173B |
| Total Operating Expenses | 17.51B | 15.65B | 16.00B | 15.05B | 13.47B |
| Operating Income | -1.795B | -953.75M | 152.95M | 1.654B | 1.223B |
| Non-Operating Interest Income | 110.48M | 84.12M | 109.86M | 110.65M | 110.47M |
| Non-Operating Interest Expense | 725.78M | 631.78M | 732.43M | 854.47M | 881.16M |
| Net Non-Operating Interest Income Expense | -615.30M | -547.66M | -622.57M | -743.82M | -770.69M |
| Other Income and Expenses | 4.020B | 2.912B | 2.371B | 2.333B | 2.525B |
| Pre-Tax Income | 1.609B | 1.411B | 1.901B | 3.243B | 2.977B |
| Provision for Income Taxes | 584.42M | 522.47M | 420.58M | 1.131B | 800.37M |
| Income from Continuing Operations | 1.025B | 888.24M | 1.481B | 2.112B | 2.177B |
| Income Attributable to Minority Interest | -15.84M | -15.27M | -15.12M | -12.94M | -7.659M |
| Net Income | 1.009B | 872.97M | 1.466B | 2.099B | 2.169B |
| Normalized Income | 955.12M | 1.033B | 1.934B | 2.375B | 2.111B |
| EBITDA | 5.589B | 4.763B | 5.203B | 6.298B | 5.692B |
| Reconciled Depreciation | 3.254B | 2.720B | 2.569B | 2.200B | 1.833B |
| EBIT | 2.335B | 2.042B | 2.634B | 4.097B | 3.859B |

Source: https://ycharts.com, TATA Motors, 2014-2018

**Table 4: The cash Flow Statement of TATA Motors 2014 – 2018**

| Cash Flow Statement | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| Net Profit Before Tax | -7.42B | -1.74B | 44.5M | -3.4B | 29.4M |
| Net Cash From Operating Activities | 29.68B | 1.04B | 1.9B | -18.39B | 2.60B |
| Net Cash (used in)/from Investing activities | 50.01M | -20.53M | -23.44M | 43.16M | 18.43M |
| Net Cash (used in)/from Financing Activities | -22.29B | 86.76M | 56.01M | 18.89B | 8.4B |
| Net Inc/Dec In Cash and Cash Equivalent | 22.76M | -14.21M | -45.88M | 47.61M | 15.72M |
| Opening Cash & Cash Equivalents | 16.44B | 30.66B | 61.89B | 14.21B | 10.32B |
| Closing Cash & Cash Equivalents | 39.21B | 16.44B | 30.66B | 61.89B | 14.21B |

Source: https://ycharts.com, TATA Motors, 2014-2018