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# Financial appraisal of automobile giants in India

## Aashi Agarwal and Prachi Gupta

**Abstract**
The automobile industry is one of India's most vibrant industries. As per the current statistics, it is the third largest in the world. Our study makes use of financial ratios to analyse the automobile industry. The ratios were grouped into four categories - solvency, liquidity, efficiency and profitability and five companies in the automobile industry were considered. The output of the analysis was used as industry benchmarks and to analyse any peculiarities in the financial trends of the companies. The study was conducted to understand the concept of Financial Analysis, to understand financial position of selected companies in the automobile sector on the basis of key ratios, to compare how different companies have been performing over a span of five years (intra- firm analysis), to compare their performance with respect to each other (inter-firm analysis).

**Keywords:** Automobile Sector, Financial Statement Analysis, Liquidity Ratios, Solvency Ratios, Efficiency Ratios, Profitability Ratios, Du-Pont Analysis

## 1. Introduction

### Objectives of the Financial Ratio Analysis

The main aim of any organisation is to maximise the wealth of its shareholders through optimal usage of resources over a long period of time. This requires managers to make sound decisions that are based on scientific and structured rationale. Such decisions reduce the possibility of risks thereby aiding the company in achieving its set targets. One of these structured and scientific basis is financial ratio analysis.

Ratio analysis is a fundamental financial tool that allows one to understand financial results and trends over time and provides key measures of organisational performance. The information provided by them helps managers pinpoint strengths and weaknesses, make and implement ongoing financial plans and take corrective action as and when required. It also allows them to compare their financial performance with competitors in the same industry.

### Key Financial Ratios

There are four categories of ratios used in the Financial Statement Analysis. These are-

1. **Liquidity Ratios**: These ratios measure the liquidity of a business, i.e., its ability to convert its
assets to cash as and when due.

2. **Debt/Solvency Ratios**: These ratios assess the long term financial viability of a business i.e., its ability to meet its long-term obligations.

3. **Activity/Efficiency Ratios**: These ratios measure the efficiency of operations of a business.
They find the liquidity of specific assets and the efficiency of managing assets.

4. **Profitability Ratios**: Measure the overall performance of a firm and its ability to earn profit for its owners.

5. **Du-Pont's Two Point Ratio**: Du-Pont's Analysis dissects a firm's financial statements to determine the Rate of Return.

**Automobile Sector in India**

India's automobile sector is the third largest in the world with the country being the world's seventh largest commercial vehicle manufacturer. As per a report by KPMG (Becker, 2013), the Indian Automobile Industry is set to begin an exciting phase of growth. This growth is further aided by the government which aims to make India a global manufacturing as well as research and development hub. National Automotive Testing and R&D Infrastructure Project (NATRiP) centres
and National Automotive Board have been established to act as facilitator between the government and the industry. The industry is dominated by two wheelers that had a 79 per cent share in the automobile production in FY17. There was a total of 25 million automobiles manufactured in FY17. Two-wheeler sales are expected to grow 8-10 per cent in FY18. Indian automobile industry has received foreign direct investments (FDI) worth US$ 17.39 billion between April 2000 and June 2017 (Society of Indian Automobile Manufacturers (SIAM)).

Given such awareness, it is essential that this sector should be subjected to the rigour and benefits of ratio analysis.

**Target Companies**

The following major players were compared:

**1**. **Hero Moto Corp Limited**: Hero Moto Corp Limited was incorporated in the year 1984 with the name Hero Honda Motors Ltd. Hero Moto Corp Limited is the World's single largest two-wheeler motorcycle company. The company offers a range of bikes. The 125 cubic centimeter segment offers Glamour, Super Splendor and Glamour F1. It also has an offering called Achiever in 135 cubic centimeter segment. In the 150 cubic centimeter and above the company offers brands like Hunk, CBZ X-treme, Karizma and the Karizma ZMR.

**2. Bajaj Auto Limited**: Bajaj Auto Ltd is one of the leading two & three wheeler manufacturers in
India. The company is well known for their R&D, product development, process engineering and low-cost manufacturing skills. The company is the largest exported of two and three-wheelers in the country with exports forming 18% of its total sales. The company has two subsidiaries, namely Bajaj Auto International Holdings BV and PT Bajaj Indonesia. The company was incorporated on April 30, 2007 as a wholly owned subsidiary of erstwhile Bajaj Auto Ltd (the holding company) with the name Bajaj Investment & Holding Ltd.

**3. Tata Motors Limited**: Tata Motors Ltd is India's largest automobile company. The company is the leader in commercial vehicles in each segment, and among the top three in passenger vehicles with winning products in the compact, midsize car and utility vehicle segments. They are the world's fourth largest truck manufacturer, and the world's second largest bus manufacturer.

**4. TVS Motor Company Limited**: TVS Motor Company Ltd, the flagship company of TVS Group is the third largest two-wheeler manufacturer in India. The company manufactures a wide range of two-wheelers from mopeds to racing inspired motorcycles. TVS Motor Company Ltd is a part of Sundaram Clayton group in TVS group of companies.

5. **Maruti Suzuki India Limited:** Maruti Suzuki India Ltd (formerly Maruti Udyog Ltd) is India's largest passenger car company, accounting for over 50 per cent of the domestic car market. The company offers full range of cars from entry level cars to stylish sedans. The company is a subsidiary of Suzuki Motor Corporation of Japan.

**Research Framework**

The study makes use of financial ratios to analyse the automobile industry. The ratios were grouped into four categories - solvency, liquidity, efficiency and profitability and five companies in the automobile industry were subject to these. The output of the analysis was used as industry benchmarks and to analyse any peculiarities in the financial trends of the companies.

**Research Objectives**

The study was conducted to achieve the following objectives:

1. To understand the concept of Financial Analysis
2. To understand financial position of selected companies in the automobile sector on the basis of key ratios.
3. To compare how different companies have been performing over a span of five years (intra- firm analysis)
4. To compare their performance with respect to each other (inter-firm analysis)

**Research Methodology**

**1. Source of Data:** Capitaline Plus Database

**2. Sample Size:**

1. Hero Moto Corp Limited
2. Bajaj Auto Limited
3. Tata Motors Limited
4. TVS Motor Company Limited
5. Maruti Suzuki India Limited

**3. Duration of Study**: The periods taken are:

2012-2013
2013-2014
2014-2015
2015-2016
2016-2017

**4. Ratios Considered**

1. Current Ratio
2. Quick Ratio
3. Interest Coverage Ratio
4. Total Debt/Total Assets
5. Total Equity/Total Assets
6. Debt Equity Ratio
7. Inventory Turnover Ratio
8. Inventory Holding Period
9. Fixed Assets Turnover Ratio
10. Debtors Turnover Ratio
11. Debtors Collection Period
12. Gross Profit Ratio
13. Operating Profit Ratio
14. Net Profit Ratio
15. Operating Expenses Ratio
16. Return on Capital Employed
17. Return on Assets
18. Return on total shareholder's equity
19. Rate of Return (using Du-Pont's Analysis)

5. **Tools for Analysing Data**:
1. Presentation through tables and graphs
2. Tools for calculating different ratios

**Limitations**

a) The study is based on secondary data obtained from Capitaline Database and depends entirely on the accuracy of such data.
b) The present study is largely based on ratio analysis which has its own limitations.
c) Inside view of the organization cannot be characterized in the study.
d) The financial statement does not keep pace with the changing price level.

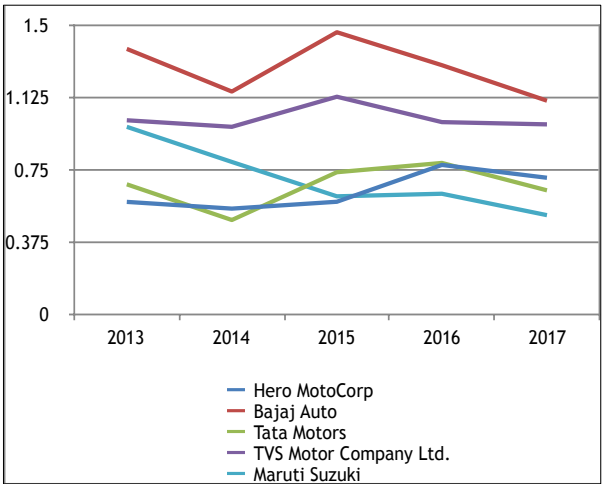
However, all these limitations do not, in any way, affect the worth of this research work.

**Current Ratio**

Current Assets divided by Current Liabilities, is known as Current Ratio. It is a measure of short-term financial liability of a firm. CA consists of Cash or Near Cash Assets, Inventories, Receivables, Prepaid Expenses. CL comprise of Payables, Short Term Borrowings, Expenses Payable, Short Term Provisions.

Current Ratio = Current Assets/Current Liabilities

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 0.59 | 0.55 | 0.59 | 0.78 | 0.71 |
| Bajaj Auto | 1.38 | 1.16 | 1.47 | 1.30 | 1.11 |
| Tata Motors | 0.68 | 0.49 | 0.74 | 0.79 | 0.65 |
| TVS Motor Company Ltd. | 1.01 | 0.98 | 1.13 | 1.00 | 0.99 |
| Maruti Suzuki | 0.98 | 0.79 | 0.62 | 0.63 | 0.52 |



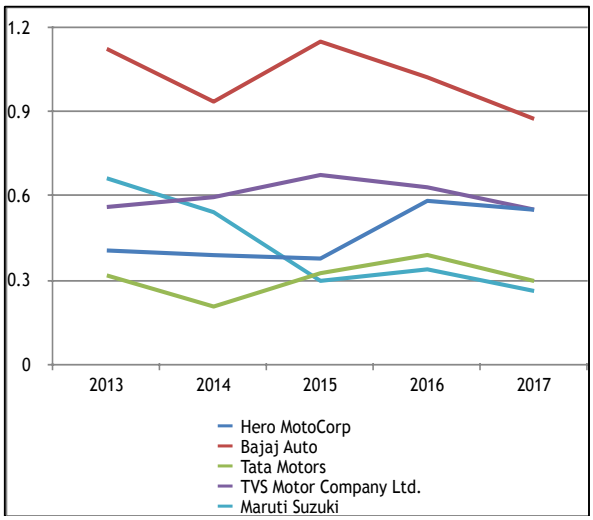

**Inference**

The current ratio of Bajaj Auto is the highest among the five companies which indicates that it efficiently meets its short term obligations by use of working capital and the short term creditors feel secured for the repayment by the company. The ratio is not too high which indicates that they don't have excessive inventories or investment in debtors. This is followed by TVS Motors, which too, has a reasonably good current ratio value. The current ratios of Hero Motocorp and Tata Motors has been consistent over the years however, the value is too low (less than 1) indicating that they don't meet their short term obligations effectively. The current ratio of Maruti Suzuki, which was already on a lower side in 2013, further decreased by March 2017 which implies that the company is unable to provide security to its creditors for repayment of short term obligations.

**Quick Ratio (Acid Test Ratio)**

Quick Ratio or Acid-Test Ratio = (Current Assets-Inventory-Prepaid Expenses)/ Current Liabilities

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 0.41 | 0.39 | 0.38 | 0.58 | 0.55 |
| Bajaj Auto | 1.12 | 0.94 | 1.15 | 1.02 | 0.87 |
| Tata Motors | 0.32 | 0.21 | 0.32 | 0.39 | 0.30 |
| TVS Motor Company Ltd. | 0.56 | 0.60 | 0.67 | 0.63 | 0.55 |
| Maruti Suzuki | 0.66 | 0.54 | 0.30 | 0.34 | 0.26 |




**Inference**

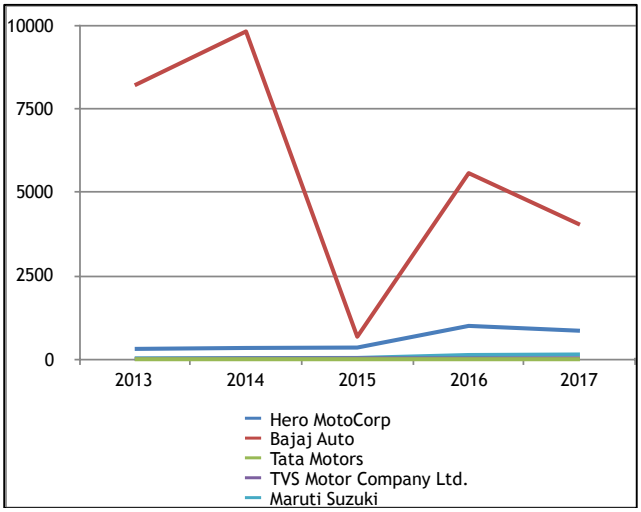
Liquid assets are those assets which can easily, at a short notice be converted into cash without loss in value. The quick ratio trends are similar to that of current ratio. Bajaj Auto has the highest value of quick ratio throughout the years. It implies that the company can meet its obligations without waiting for much time to liquidate its assets. However, its value is below the ideal ratio of 1 by the end of 2017. Hero Motocorp shows a significant increase in the ratio value and has a value similar to that of TVS Motors by 2017. Maruti Suzuki's ratio has been declining to a very low value of 0.26. Even Tata Motor's quick ratio values are abnormally low which means that the company is unable to pay off current obligations immediately with its most liquid (quick) assets.

**Interest Coverage Ratio**

It measures the firm's ability to pay interest on its borrowings. It is determined by dividing EBIT with the interest. Symbolically,

*Interest Coverage Ratio = EBIT/Interest*

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 309.22 | 337.26 | 349.85 | 997.42 | 852.44 |
| Bajaj Auto | 8210.26 | 9820.71 | 671.60 | 5576.70 | 4031.66 |
| Tata Motors | 2.44 | 1.77 | 0.15 | 2.42 | 1.35 |
| TVS Motor Company Ltd. | 7.12 | 20.06 | 23.23 | 18.75 | 23.45 |
| Maruti Suzuki | 26.56 | 33.65 | 36.62 | 126.94 | 141.31 |




**Inference**

This ratio indicates the extent to which earnings can fall, without causing any embarrassment to the firm, regarding the payment of interest charges. The higher the ratio, the better its is for both the firm and lenders. Tata Motors and TVS Motors have quite low ICR which remains constant throughout the years, in comparison to other firms, which implies that the lenders of the company feel less secured with respect to their periodical interest payments.

Maruti Suzuki has seen an increase in the ICR from 26 times to 141 times over a span of 5 years which shows that it is continuously doing well in terms of giving the creditors greater security. Hero Motocorp and Bajaj Auto showed immensely high values of ratio. However, Bajaj Auto has seen a fluctuating change, where the present value has become almost half of what it was during 2013.

**Total Debt/Total Assets Ratio**

*= Total Debt/ Total Assets x 100*

Where, total debt consists of:

(a) Long Term Debt

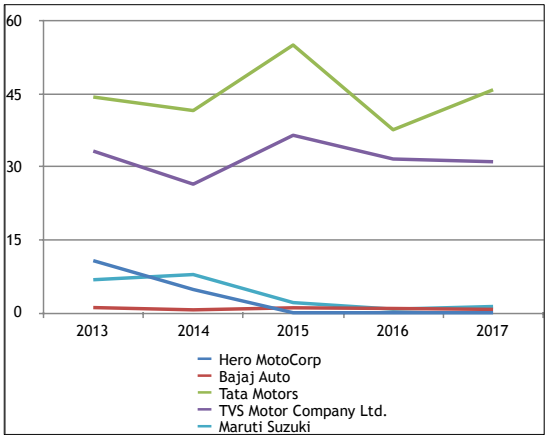
(b) Short Term Debt

(c) Other current liablilities

Safety Margin (100 - Ratio obtained)

The lower the ratio, the better it is from the point of view of external liability holders as then they are attached with greater margin of safety.

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 10.73 | 4.77 | 0.00 | 0.00 | 0.00 |
| Bajaj Auto | 1.07 | 0.60 | 1.03 | 0.87 | 0.69 |
| Tata Motors | 44.37 | 41.58 | 55.05 | 37.63 | 45.86 |
| TVS Motor Company Ltd. | 33.26 | 26.43 | 36.49 | 31.63 | 31.05 |
| Maruti Suzuki | 6.80 | 7.85 | 2.09 | 0.75 | 1.28 |



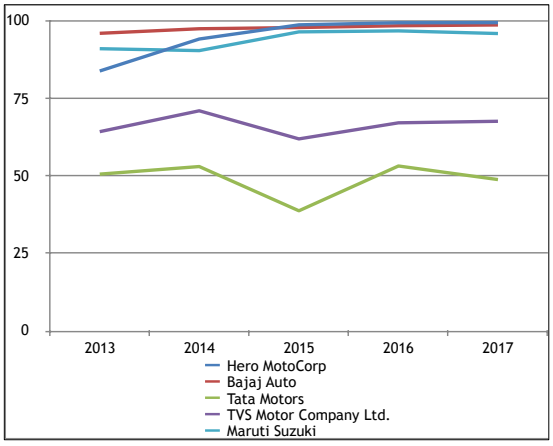

**Inference**

The total debt ratio for Tata Motors shows an increasing trend from FY13 to FY15. This indicates that the total debts of the company are more than its total assets which is not considered favourable from the point of view of the creditors of the company. This is of concern to the company because it may not be able to repay the debts and nor may borrow the additional funds required. This situation is risky because short term financing is limited and may not be available in an emergency. However, the value reduces from FY15 to FY17 which is a sign of improvement. The ratios for Maruti Suzuki, Hero Motocorp and Bajaj Auto are abnormally low which indicates that these companies are not risky as they have plenty of financing to meet their obligations. However a too low ratio suggests that the management is not using its credit most advantageously. It indicates that these companies must take on more debt as the ability to borrow is considered a resource. The value of total debt ratio is almost ideal for TVS Motors throughout the year(less than 50%). It is neither too low, nor too high. The company is successful in maintaining a good ratio over the years.

**Total Equity/Total Assets**

= Total Shareholder's Funds/ Total Assets x 100

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 83.71 | 93.98 | 98.54 | 99.24 | 99.26 |
| Bajaj Auto | 95.82 | 97.29 | 97.69 | 98.25 | 98.53 |
| Tata Motors | 50.54 | 52.97 | 38.72 | 53.14 | 48.76 |
| TVS Motor Company Ltd. | 64.19 | 70.90 | 61.87 | 67.00 | 67.53 |
| Maruti Suzuki | 90.88 | 90.27 | 96.29 | 96.60 | 95.74 |



**Inference**

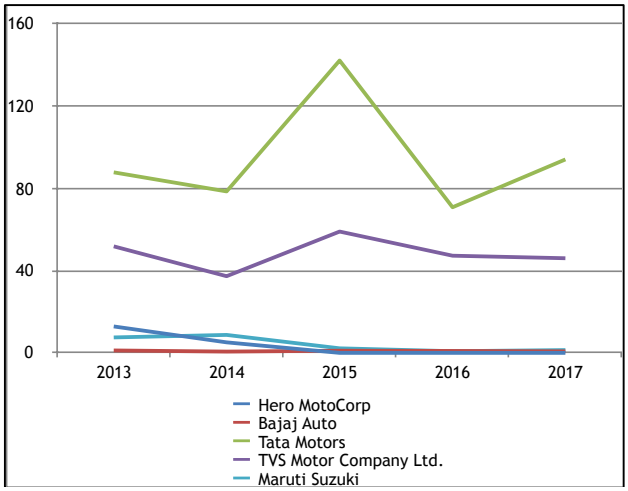
The equity ratio, also known as the proprietary ratio, gives an indication of the state of proprietors in assets of the business. A higher ratio is considered good for the firm as it provides a larger cushion of safety to its creditors. However, if the ratio is too high it implies that the company is not using is credit most advantageously. The ratios for Bajaj Auto, Hero Motocorp and Maruti Suzuki are abnormally high (more than 90%). In such a case, the shareholders of the firm are deprived of the benefits of low cost of debt. The conservative policy of using no debt or very low level of debt my deprive its equity holders from the advantage of debt as a cheaper source of finance to magnify their rate of return. The ratio for Tata Motors is low and falls below 40% in the FY15 which indicates that the creditors can be suspicious about the repayment of their debt which in turn, indicates greater risk to the creditors. However, the value improves after FY15, which means that creditors can now feel safe about repayment by the company. TVS Motors maintains a good equity ratio throughout the years which means that the creditors have a higher margin of safety and feel safe about repayment of debt by the company.

**Total Debt/Total Equity**

= Total Debt/ Total Shareholder's Equity

A high ratio shows large share of financing by the outsiders, vis-a-vis, the owners.

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 12.82 | 5.08 | 0.00 | 0.00 | 0.00 |
| Bajaj Auto | 1.12 | 0.62 | 1.05 | 0.89 | 0.70 |
| Tata Motors | 87.79 | 78.50 | 142.20 | 70.82 | 94.06 |
| TVS Motor Company Ltd. | 51.81 | 37.28 | 58.98 | 47.20 | 45.97 |
| Maruti Suzuki | 7.48 | 8.69 | 2.18 | 0.77 | 1.34 |




**Inference**

For all the companies the value of this ratio is mostly less than 100 which implies that all of them rely primarily on equity to finance their assets. This implies that for all the companies, the safety margin is more than 50% which means that even if the value of the assets fell by 50% the firm would be able to meet its claims. For Tata Motors, the ratio is highest and is in fact more than 100% in FY15 which indicates that the claim of the outsiders are more than those of the owners which may not be considered good by the long term creditors of the company because it gives a lesser margin of safety for them at the liquidation of the company. However, the value improves in the subsequent years. The ratio for TVS Motors is also pretty high (more than 30%) at all times. Thus the long term creditors of Tata Motors and TVS Motors feels insecure about their repayment by the company and they can also interfere in the affairs of the business or put certain restrictive conditions on the operations of the business. Bajaj Auto has the lowest ratio which is favourable for long term creditors. The ratios for Maruti Suzuki and Hero Motocorp have been decreasing over time which is favourable for the firm in terms of the safety cushion they provide to the creditors.

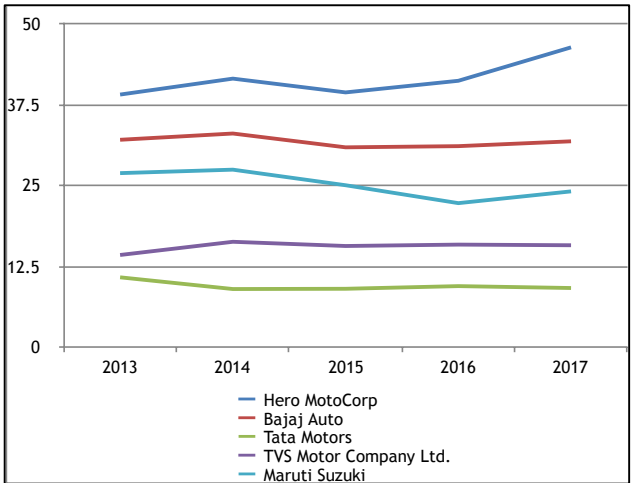
**Inventory Turnover Ratio**

Corresponding to three types of inventory, there are three types of inventory turnover ratios :

1. Finished Goods ITR
2. Work-in-progress ITR
3. Raw Materials ITR

= Cost of Goods Sold/Average Finished Goods

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 39.11 | 41.58 | 39.46 | 41.25 | 46.41 |
| Bajaj Auto | 32.14 | 33.1 | 30.98 | 31.15 | 31.9 |
| Tata Motors | 10.91 | 9.08 | 9.12 | 9.55 | 9.24 |
| TVS Motor Company Ltd. | 14.35 | 16.38 | 15.73 | 15.95 | 15.86 |
| Maruti Suzuki | 26.99 | 27.53 | 25.11 | 22.36 | 24.17 |

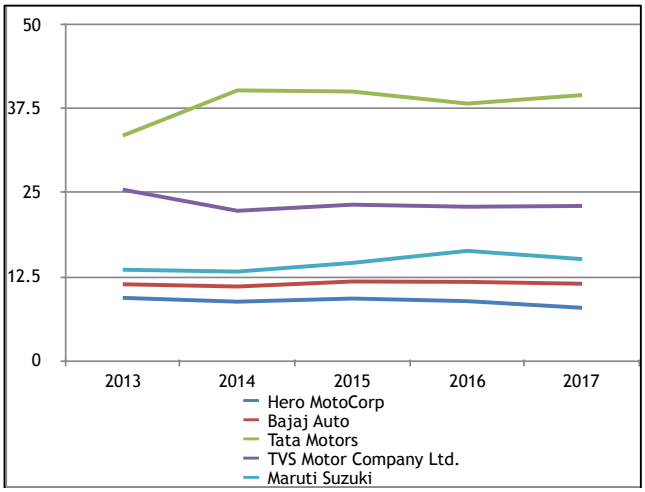



**Inference**

The inventory turnover ratio is lowest for TVS Motors and Tata Motors which shows that their stock does not sell quickly and remains in the godown for a long time. The ratio has been declining for Maruti Suzuki (with the exception of FY17 where it increased from 22.36 to 24.17). This indicates that the stock of the company sells quickly in FY17. The comparison of these ratios for Bajaj Auto and Hero Motocorp shows that Hero Motocorp has higher ratio which further increased in the FY17. Both these companies have high values of inventory turnover ratio indicating that their stock is selling quickly and thus reducing the blockage of funds in unsold stock, carrying cost and storage costs of inventory.

**Inventory Holding Period**
(In days) = 365 days/ Inventory Turnover Ratio

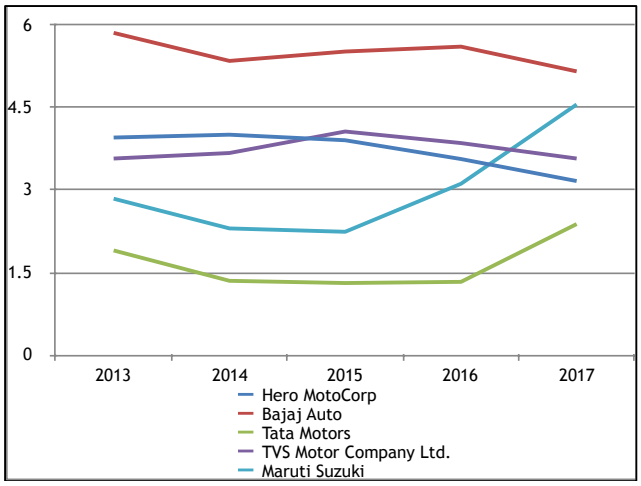
| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 9.33 | 8.78 | 9.25 | 8.85 | 7.86 |
| Bajaj Auto | 11.36 | 11.03 | 11.78 | 11.72 | 11.44 |
| Tata Motors | 33.46 | 40.20 | 40.02 | 38.22 | 39.50 |
| TVS Motor Company Ltd. | 25.44 | 22.28 | 23.20 | 22.88 | 23.01 |
| Maruti Suzuki | 13.52 | 13.26 | 14.54 | 16.32 | 15.10 |




**Inference**
This ratio is a measure of the velocity with which the goods move, thus serves as a yardstick of efficient inventory management. The period is low for Hero Motocorp and Bajaj Auto which is better for these companies as it indicates the stock of the company quickly converts into sales. The high average age of inventory for Tata Motors indicates that the stock of the company takes long time to convert it into sales and thus the funds of the company may be locked into its stock. The period is also low for Maruti Suzuki which shows an increase only in FY16 from 14.54 days to 16.32 days. The low values indicate that the Maruti Suzuki is able to convert its stock into sales which facilitates the fast recovery of cash and thus the company does not faces the problem of liquidity crunch. The inventory holding period for TVS Motors shows a decline from 25 days in 2013 to 22 days in 2014 and then remains nearly constant for the rest of the years.

**Fixed Assets Turnover Ratio**
= COGS/ Average Fixed Assets

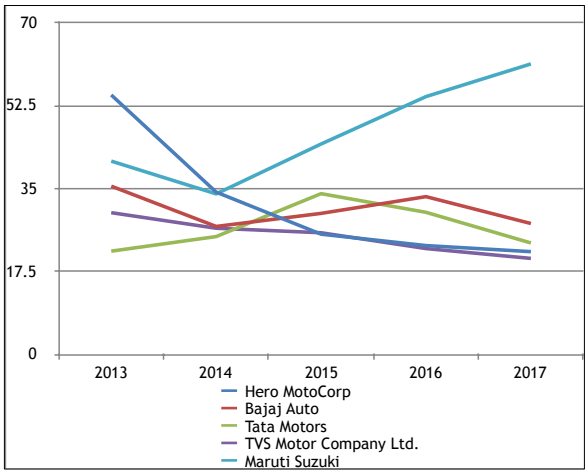
| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 3.95 | 4 | 3.9 | 3.56 | 3.16 |
| Bajaj Auto | 5.85 | 5.34 | 5.51 | 5.6 | 5.15 |
| Tata Motors | 1.9 | 1.35 | 1.31 | 1.33 | 2.38 |
| TVS Motor Company Ltd. | 3.57 | 3.67 | 4.06 | 3.85 | 3.57 |
| Maruti Suzuki | 2.84 | 2.3 | 2.24 | 3.11 | 4.55 |




**Inference**
This is an indication of how efficiently the fixed assets are utilized for generating sales for business. Higher the ratio, better is the utilization of these assets. It is highest for Bajaj Auto which implies that the firm has made efficient use of its fixed assets for generating sales. It is followed by TVS Motors and Hero Motocorp even though there is decrease in their values with time. It shows that they are no longer using their fixed assets efficiently which will result in low sales volume coupled with high overhead charges and underutilization of the available capacity. The ratios for Maruti Suzuki and Tata Motors shows a decrease in values from FY13 to FY15. However, their ratios have been showing tremendous improvement from FY15 to FY17 - Maruti Suzuki's ratio has reached from 2.24 to 4.55 and that of Tata Motors has increased from 1.31 to 2.38.

**Debtors Turnover Ratio**
= Net Credit Sales/ Average Debtors

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 54.75 | 34.25 | 25.37 | 22.98 | 21.69 |
| Bajaj Auto | 35.5 | 27.01 | 29.77 | 33.29 | 27.63 |
| Tata Motors | 21.79 | 24.88 | 33.92 | 29.99 | 23.53 |
| TVS Motor Company Ltd. | 29.92 | 26.62 | 25.68 | 22.35 | 20.26 |
| Maruti Suzuki | 40.78 | 33.86 | 44.4 | 54.39 | 61.29 |



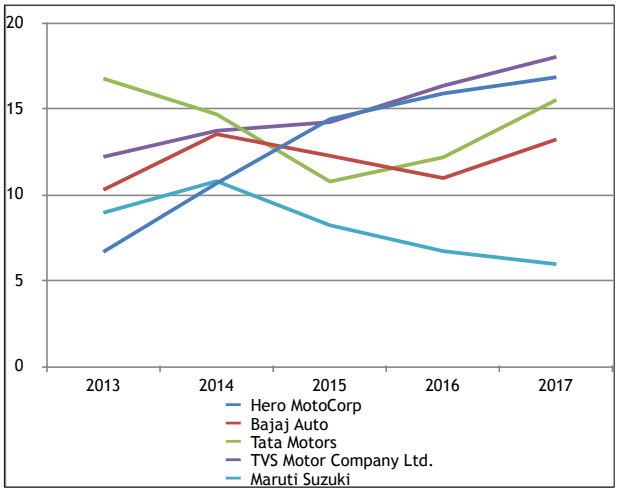

**Inference**
The ratio is a measure of the number of times the firm is able to collect money from its debtors in a financial year.

The higher this ratio, the better it is as the more quickly the debtors pay, the less is the risk from bad debts. It is highest for Hero Motocorp in FY13(54.75) but reaches the second lowest value by FY17(21.69). This is indicative of the inefficient credit sales policy of the management ie credit sales have been made to customers who did not deserve much credit. The ratio has been consistently low for TVS motors which indicates that they don't collect money from debtors quickly. The ratio's value increases from 21.79 in FY13 to 33.92 in FY15 for Tata Motors however, it again reduces to 23.53 in FY17. This implies that the Tata Motors have not been collecting money from its debtors quickly and can thus face the problem of liquidity crunch. Similar is the case for Bajaj Auto which has a low turnover ratio of 27.63 in FY17. The turnover ratio for Maruti Suzuki has shown significant increase from 40.78 in FY13 to 61.29 in FY17. This shows that the debtors pay quickly and hence there is less risk of bad debts. Thus lower is the expense of collection.

**Debtors Collection Period**

= 365 days/ Debtors Turnover Ratio

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 6.67 | 10.66 | 14.39 | 15.88 | 16.83 |
| Bajaj Auto | 10.28 | 13.51 | 12.26 | 10.96 | 13.21 |
| Tata Motors | 16.75 | 14.67 | 10.76 | 12.17 | 15.51 |
| TVS Motor Company Ltd. | 12.20 | 13.71 | 14.21 | 16.33 | 18.02 |
| Maruti Suzuki | 8.95 | 10.78 | 8.22 | 6.71 | 5.96 |



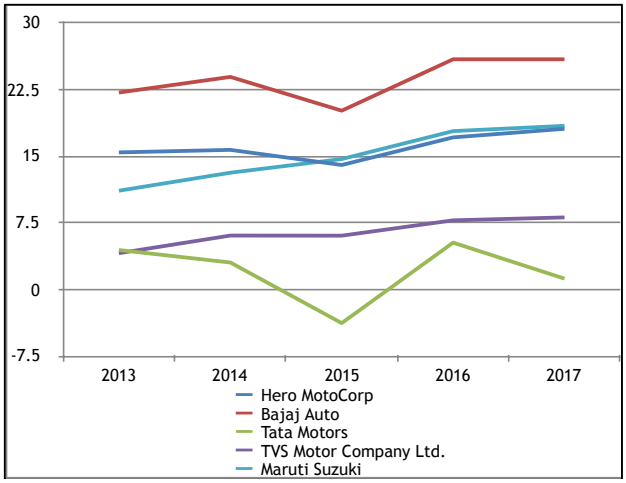

**Inference**

The average collection period is highest for TVS Motor followed closely by Hero Motocorp. These high values are indicative of the fact there is excessive blockage of funds with debtors thus increasing the chances of bad debt. It shows the liberal credit policy of these firms that need to be changed in order to avoid a liquidity crunch. It is lowest for Maruti Suzuki (with a slight increase to 10.78 days in 2014) which indicates that they collect cash from debtors quickly and there are less chances of bad debt. The value for Tata Motors decreased till FY15 then again showed an increase till FY17 to 15.5 days. For Bajaj Auto, the value increased from FY13 to FY14, showed a decrease till FY16 and again showed an increase in FY17. Thus, the firm needs to have a more restrictive credit policy as collection from debtors is not prompt.

**Gross Profit Ratio**

= Gross Profit/ Net Sales x100

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 15.44 | 15.73 | 14.02 | 17.13 | 18.09 |
| Bajaj Auto | 22.17 | 23.93 | 20.14 | 25.92 | 25.92 |
| Tata Motors | 4.45 | 3.05 | -3.78 | 5.28 | 1.24 |
| TVS Motor Company Ltd. | 4.10 | 6.08 | 6.07 | 7.79 | 8.13 |
| Maruti Suzuki | 11.13 | 13.16 | 14.69 | 17.84 | 18.44 |



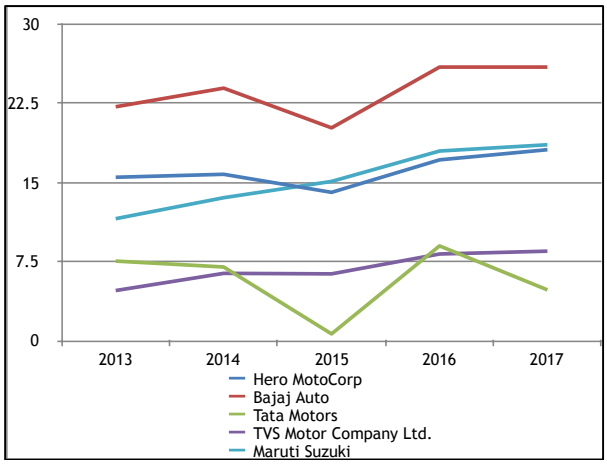

**Inference**

This ratio is a measure of how well the firm is able to control cost of goods sold which is a major expense. It is indicative of the profit made on sales before taking accounts of overheads. Higher gross profit ratio is always in the interest of the firm as it is indicative of reduction in cost or increase in selling price. It is highest for Bajaj Auto with a dip in the value in FY15 to 20.14. It has adequate gross profit ratio to cover fixed expenses, dividends and creation of reserves in the company. The trend is similar for Hero Motocorp even though its ratio values are lower than that for Bajaj Auto. Maruti Suzuki's ratio shows an increase from 11.13 in FY13 to 18.44 in FY17. It is indicative of the improved efficiency of the company in manufacturing or trading activities which might be a result of increase in selling price or decrease in cost price or reduction in raw material consumption per unit, all of which are beneficial to the firm. TVS Motor's gross profit ratio is pretty low even though it has been increasing steadily from FY13 to FY17. The gross profit ratio for Tata Motors is very low reaching a value of -3.78 in FY15. Thus, it implies that Tata Motors is not controlling its direct expenses efficiently. There is increase in cost or reduction in selling price.

**Operating Profit Ratio**

= Operating Profit (EBIT)/ Net Sales x100

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 15.49 | 15.77 | 14.07 | 17.15 | 18.11 |
| Bajaj Auto | 22.17 | 23.93 | 20.17 | 25.92 | 25.93 |
| Tata Motors | 7.55 | 6.99 | 0.66 | 9.00 | 4.82 |
| TVS Motor Company Ltd. | 4.77 | 6.40 | 6.34 | 8.23 | 8.49 |
| Maruti Suzuki | 11.57 | 13.56 | 15.10 | 17.98 | 18.57 |



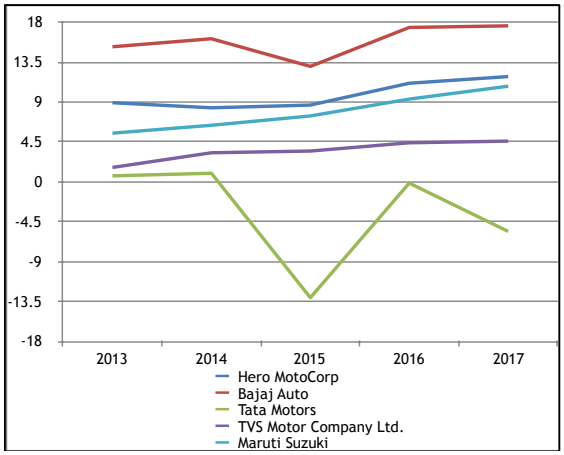

**Inference**

This ratio is indicative of the fraction of money from sales left with us after operating costs and expenses have been made.It tells the efficiency of the firm in management of business. The ratio is highest for Bajaj Auto in FY17 even though there is a dip in FY15 to 20.17%. This indicates that Bajaj Auto has high profitability after operating expenses have been made for distribution among its shareholders. Hero Motocorp shows similar trend even though its ratio value is lower than that Bajaj Auto. These are followed closely by Maruti Suzuki which has shown an increase in the ratio from 11.57% in FY13 to 18.57% in FY17. Thus, compared to previous years, Maruti Suzuki is making higher profits after operating expenses for its shareholders. The value is lowest for Tata Motors and in fact, sees a tremendous dip in FY15 to 0.66%. This shows the inefficiency of Tata Motors in its operating activities and the fact that it is unable to make sufficient profits for its owners. The value of the ratio is low for TVS Motors, however, it is increasing steadily and has reached a value of 8.49% in FY17.

**Net Profit Ratio**

= Net Profit/ Total Sales x100

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 8.91 | 8.34 | 8.65 | 11.11 | 11.86 |
| Bajaj Auto | 15.22 | 16.13 | 13.02 | 17.40 | 17.58 |
| Tata Motors | 0.67 | 0.98 | -13.05 | -0.15 | -5.59 |
| TVS Motor Company Ltd. | 1.62 | 3.28 | 3.46 | 4.41 | 4.60 |
| Maruti Suzuki | 5.49 | 6.38 | 7.43 | 9.32 | 10.79 |



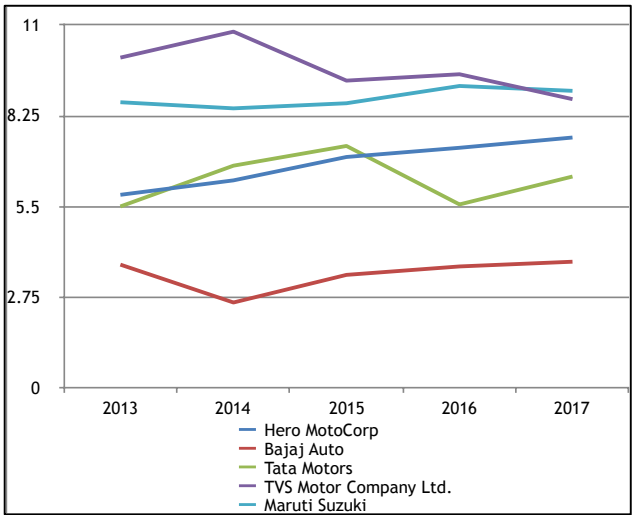

**Inference**

This ratio measures the profit the firm makes after the total cost of operations. A higher ratio implies a higher net profit and better financial management whereas a lower ratio shows managerial inefficiency and excessive expenses. The graph shows that the value is highest for Bajaj Auto in FY17 with a value of 17.58%. This implies that the company has efficient control over its total expenses. It is followed by Hero Motocorp and Maruti Suzuki which show a rise in their profitability ratios with the values for FY17 being 11.86% and 10.78% respectively. Tata Motors has been incurring losses since FY14 going as low as -13.05% in FY15. Thus, the company needs to take corrective action to avoid heavy losses in the future. TVS Motors also needs to increase its gross profit ratio which is still pretty low even though it has been steadily increasing from FY13 to FY17.

**Operating Expenses Ratio**

= Admin and Selling Expenses/ Net Sales x 100

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 5.86 | 6.30 | 7.01 | 7.28 | 7.59 |
| Bajaj Auto | 3.74 | 2.59 | 3.43 | 3.68 | 3.83 |
| Tata Motors | 5.51 | 6.74 | 7.34 | 5.57 | 6.41 |
| TVS Motor Company Ltd. | 10.02 | 10.81 | 9.32 | 9.52 | 8.76 |
| Maruti Suzuki | 8.66 | 8.48 | 8.64 | 9.16 | 9.01 |




**Inference**

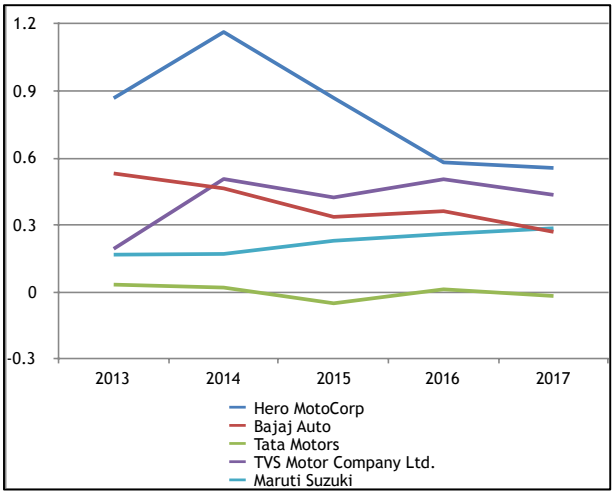
The value for Operating Ratio is lowest for Bajaj Auto which indicates that they have minimum expenditure on operating expenses and hence are able to make maximum profits (as can be seen from the profitability ratios). It is indicative of good financial management because less operating ratio is indicative of higher profits for payment of dividends and creation of reserves. The value for Maruti Suzuki and Hero Motocorp is gradually increasing from FY13 to FY17 which implies that they need to take corrective action in order to reduce their expenses. Similar is the case for Tata Motors which shows an increase in the ratio except for in FY16 when the ratio falls to 5.56%. TVS Motors started out with the highest expense ratio in FY13 but has since then showed a gradual decrease which implies better management of operating expenses and more profits.

**Return on Capital Employed (Roce)**

ROCE = (EAT + Interest - Tax Advantage on Interest) / (Total Assets-Current Liabilities) x 100

This measures the rate of return earned with reference to the long term/ permanent capital employed by the business firm.

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 0.87 | 1.16 | 0.87 | 0.58 | 0.55 |
| Bajaj Auto | 0.53 | 0.46 | 0.34 | 0.36 | 0.27 |
| Tata Motors | 0.03 | 0.02 | -0.05 | 0.01 | -0.02 |
| TVS Motor Company Ltd. | 0.19 | 0.51 | 0.42 | 0.50 | 0.43 |
| Maruti Suzuki | 0.17 | 0.17 | 0.23 | 0.26 | 0.29 |



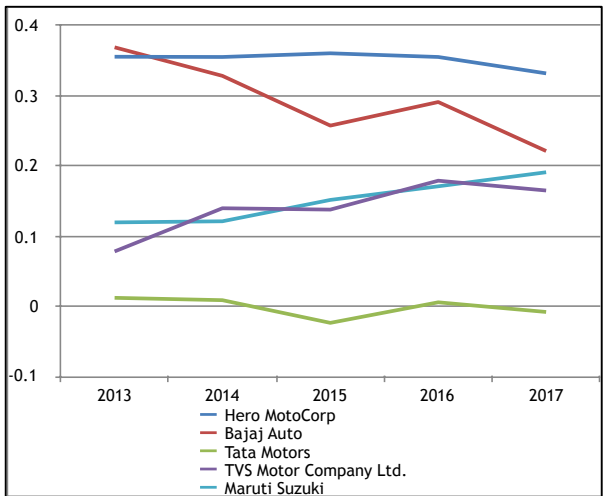

**Inference**

This ratio is a measure of how efficiently the capital is employed to earn profits for the shareholders. It assists in taking decisions regarding capital investment in new projects. Lenders like bankers and financial institutions can use this ratio to determine whether the firm is viable for giving credit and extending loans or not. With the help of this ratio, shareholders can also find out whether they will receive regular and higher dividend or not. The higher the ratio, the better it is, for the firm. The return on capital employed is highest for Hero Motocorp even though it has decreased significantly from 116% in FY14 to 55% in FY17. It is abnormally low for Tata Motors going to a value of -5% in FY15. This is indicative of the inefficiency of the firm to provide adequate return to its shareholders. The ratio for Maruti Suzuki, even though low, has been increasing steadily from 17% in FY13 to 28% in FY17. The ratio for TVS Motor has increased from 19% in FY13 to 43% in FY17 which implies that during this period, funds provided by the shareholders and creditors have been used efficiently by the firm. The value for Bajaj Auto has been decreasing from 53.1% in FY13 to 26.9% in FY17 with a slight increase in FY16. This shows the firm decreasing efficiency in providing suitable return to shareholders and creditors.

**Return on Assets (Roa)**

ROA = (EAT + Interest - Tax Advantage on Interest)/ (Total Assets) x 100

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 0.36 | 0.36 | 0.36 | 0.36 | 0.33 |
| Bajaj Auto | 0.37 | 0.33 | 0.26 | 0.29 | 0.22 |
| Tata Motors | 0.01 | 0.01 | -0.02 | 0.01 | -0.01 |
| TVS Motor Company Ltd. | 0.08 | 0.14 | 0.14 | 0.18 | 0.17 |
| Maruti Suzuki | 0.12 | 0.12 | 0.15 | 0.17 | 0.19 |



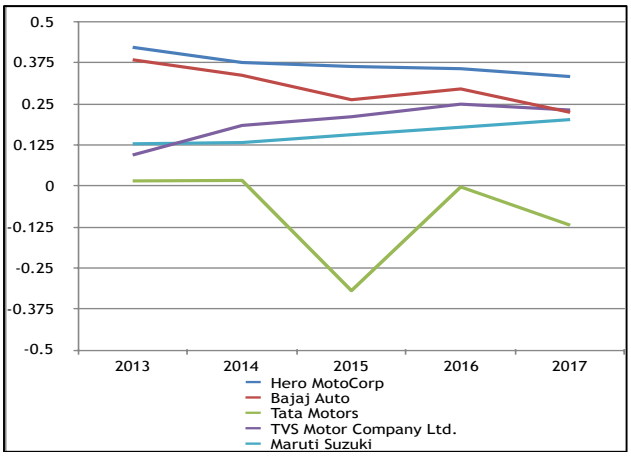

**Inference**

This ratio measures the profitability of the firm in relation to the assets employed by it. It measures the overall efficiency of the management in generating profits from the use of assets. The higher the ratio, the better it is for the company. The increase in size of the firm should be accompanied with the increase in ROA, only then will the employment of more assets be justified. From the study of data spread over 5 years, we observe that Hero MotorCorp has the highest ROA (~35%) which has remained almost constant throughout. In the FY13, Bajaj Auto showed the highest ROA (36.9%), but it declined rapidly in the subsequent years. Tata Motors has the lowest ROA in comparison to all major players in the sector, this implies that it must use its assets efficiently to maximise profitability. The values (-2.33%) show that Tata Motors has also been incurring negative returns on assets. Maruti Suzuki, showed slow but continuous increase in the ROR over the years, which can be considered as a positive point for the company. TVS Motor company has been showing fluctuating rate of returns over the years, therefore it must be cautious in using its assets.

**Return on Total Shareholder's Equity**

Return on Total Shareholder's Equity= EAT/ Average Shareholder's Funds x 100

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 0.42 | 0.38 | 0.36 | 0.36 | 0.33 |
| Bajaj Auto | 0.39 | 0.34 | 0.26 | 0.30 | 0.22 |
| Tata Motors | 0.02 | 0.02 | -0.32 | 0.00 | -0.12 |
| TVS Motor Company Ltd. | 0.09 | 0.18 | 0.21 | 0.25 | 0.23 |
| Maruti Suzuki | 0.13 | 0.13 | 0.16 | 0.18 | 0.20 |




**Inference**

It is a measure of the profitability the firm provides to its shareholders. It reveals how profitably the shareholders funds have been utilised by the corporate firm. It is highest for Hero Motocorp even though it is showing a gradual decrease from 42.3% in FY13 to 33.4% in FY17. Similar trend is observed for Bajaj Auto which shows a decrease from 38.5% in FY13 to 22.46% in FY17. This implies that there has been a decrease in the returns these firms provide to their shareholders. The value of the return has been increasing for TVS Motors and Maruti Suzuki from FY13 to FY17 with TVS Motors showing a better growth compared to Maruti Suzuki. This means that the company made efficient use of the funds provided to it by its shareholders and is able to pay regular dividends to them. The return for Tata Motors is very low and even negative in the FY15 to FY17. This implies that Tata Motors has not utilised the funds provided by its shareholders efficiently and is thus, in need of dire corrective action in order to provide regular dividends to its shareholders in the future.

**Du Pont's Two Point Analysis**

| Hero MotoCorp Ltd. | | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|---|
| Net Profit Ratio | EAT | 21,181.60 | 21,090.80 | 23,856.40 | 31,601.90 | 33,771.20 |
| | Sales | 237,681.10 | 252,754.70 | 275,853.00 | 284,427.00 | 284,749.90 |
| | Ratio | 8.91177296 | 8.344375001 | 8.648229311 | 11.11072437 | 11.85995149 |
| Asset Turnover Ratio | Sales | 237,681.10 | 252,754.70 | 275,853.00 | 284,427.00 | 284,749.90 |
| | Total Assets | 59,801.40 | 59,585.60 | 66,382.80 | 89,020.10 | 101,865.90 |
| | Ratio | 3.974507286 | 4.241875554 | 4.155489072 | 3.195087402 | 2.795340737 |
| ROR | | 35.41990656 | 35.39580033 | 35.9376224 | 35.49973545 | 33.15260553 |

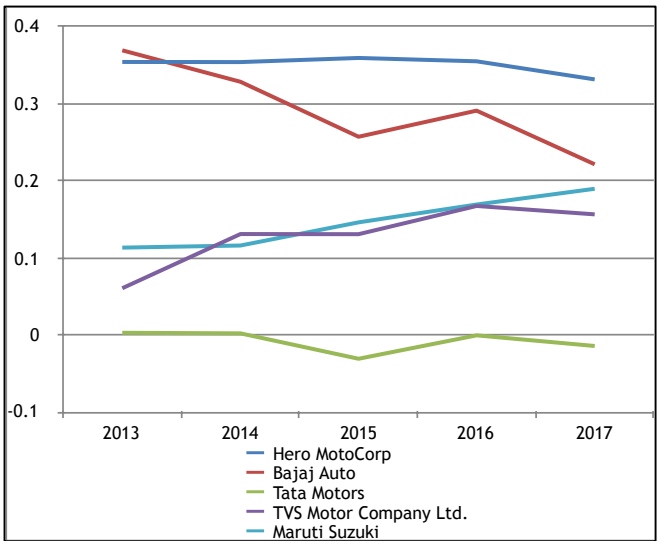
| Bajaj Auto Ltd. | | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|---|
| Net Profit Ratio | EAT | 30,435.70 | 32,433.20 | 28,137.40 | 39,296.70 | 38,275.60 |
| | Sales | 199,972.50 | 201,089.20 | 216,120.10 | 225,865.20 | 217,666.80 |
| | Ratio | 15.21994274 | 16.12876276 | 13.01933508 | 17.39829775 | 17.58449153 |
| Asset Turnover Ratio | Sales | 199,972.50 | 201,089.20 | 216,120.10 | 225,865.20 | 217,666.80 |
| | Total Assets | 82,470.60 | 98,756.30 | 109,445.30 | 135,027.10 | 172,886.90 |
| | Ratio | 2.424773192 | 2.036216424 | 1.974685985 | 1.672739769 | 1.259012684 |
| ROR | | 36.90490914 | 32.84165162 | 25.70909852 | 29.10282454 | 22.13909787 |

| Tata Motos Ltd. | | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|---|
| Net Profit Ratio | EAT | 3,018.10 | 3,345.20 | -47,389.50 | -623.00 | -24,799.90 |
| | Sales | 447,657.20 | 342,881.10 | 363,016.30 | 428,454.70 | 443,640.00 |
| | Ratio | 0.6741989183 | 0.9756151622 | -13.05437249 | -0.1454062705 | -5.590095573 |
| Asset Turnover Ratio | Sales | 447,657.20 | 342,881.10 | 363,016.30 | 428,454.70 | 443,640.00 |
| | Total Assets | 1,033,447.90 | 1,414,535.30 | 1,545,818.40 | 1,744,665.10 | 1,749,256.40 |
| | Ratio | 0.4331686193 | 0.2423984046 | 0.2348376109 | 0.245579911 | 0.2536163366 |
| ROR | | 0.2920418146 | 0.2364875588 | -3.065657648 | -0.03570885897 | -1.417739561 |

| TVS Motor Company Ltd. | | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|---|
| Net Profit Ratio | EAT | 1,160.20 | 2,616.30 | 3,478.30 | 4,892.80 | 5,580.80 |
| | Sales | 71,692.50 | 79,659.40 | 100,423.30 | 111,046.60 | 121,353.10 |
| | Ratio | 1.61830038 | 3.284358155 | 3.463638419 | 4.406078169 | 4.598811238 |
| Asset Turnover Ratio | Sales | 71,692.50 | 79,659.40 | 100,423.30 | 111,046.60 | 121,353.10 |
| | Total Assets | 19,079.50 | 19,960.60 | 26,595.60 | 29,227.20 | 35,663.30 |
| | Ratio | 3.757567022 | 3.990831939 | 3.775936621 | 3.799426562 | 3.402744558 |
| ROR | | 6.08087214 | 13.10732142 | 13.07847915 | 16.74057043 | 15.64857991 |

| Maruti Suzuki India Ltd. | | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|---|
| Net Profit Ratio | EAT | 23,921.00 | 27,830.00 | 37,112.00 | 53,643.00 | 73,377.00 |
| | Sales | 435,879.00 | 436,463.00 | 499,706.00 | 575,381.00 | 680,348.00 |
| | **Ratio** | **5.487990933** | **6.376256407** | **7.426766939** | **9.323039864** | **10.7852158** |
| Asset Turnover Ratio | Sales | 435,879.00 | 436,463.00 | 499,706.00 | 575,381.00 | 680,348.00 |
| | Total Assets | 210,919.00 | 239,610.00 | 253,997.00 | 316,836.00 | 387,015.00 |
| | **Ratio** | **2.066570579** | **1.821555862** | **1.967369693** | **1.816021538** | **1.757937031** |
| ROR | | 11.3413206 | 11.61470723 | 14.6111962 | 16.93084119 | 18.95973024 |

| | Mar 2013 | Mar 2014 | Mar 2015 | Mar 2016 | Mar 2017 |
|---|---|---|---|---|---|
| Hero MotoCorp | 0.35 | 0.35 | 0.36 | 0.35 | 0.33 |
| Bajaj Auto | 0.37 | 0.33 | 0.26 | 0.29 | 0.22 |
| Tata Motors | 0.00 | 0.00 | -0.03 | 0.00 | -0.01 |
| TVS Motor Company Ltd. | 0.06 | 0.13 | 0.13 | 0.17 | 0.16 |
| Maruti Suzuki | 0.11 | 0.12 | 0.15 | 0.17 | 0.19 |




**Inference**

Du-Pont's Analysis is another method to determine the ROR. It is given by the product of Net Profit Margin and Investment Turnover. Its operational usefulness lies in the fact that it indicates the that profitability of a firm can be improved either by improving net profit margin per rupee of sales or by generating more sales revenue per rupee of investment.

1. Of all the companies, Hero MotoCorp showed the highest ROR. On closer analysis we find that, over the years, the asset turnover ratio has been around 3.8 times and the net profit margin has been near 10%. There is a scope of improvement in both categories. The ratio has however remained consistent over the years, unlike other companies.
2. Bajaj Auto started with a very high ROR (36.9%) in the FY13. However it showed a rapid decline in the net profit margin in the FY15 due to which the overall ROR decreased. In the next two financial years, an increase in the net profit per rupee of sales was observed, but the asset turnover kept on declining. Thus, the total return was never very satisfactory.
3. Tata Motors has had a very low (even negative) net profit margin and asset turnover ratio (~0.25 times) over the years, which explains why it has remained on the lower side on the graph when compared to other companies. The company must work towards increasing either of the two to be able to increase its rate of returns.
4. TVS Motor Company has been able to successfully increase its net profit margin from 1.62% in the FY13 to 4.60% in the FY17, whereas its asset turnover remained somewhat constant (~3.7) over the years. Therefore the company must work on generating more sales revenue per rupee of investment to increase its overall rate of return.
5. Maruti Suzuki India Ltd. has almost doubled its net profit margin in a span of 5 years (5.48% in the FY13 to 10.78% in the FY17). Although the ROR has been increasing throughout the years, there has been a decrease in the asset turnover ratio. The company must pay more attention on increasing this ratio to be able to perform well in the sector.

**Conclusion**

Assignment of ranks to companies on the basis of their average performance (FY13 to FY17)

| Particulars | Hero Motocorp Ltd. | Bajaj Auto Ltd. | Tata Motors Ltd. | TVS Motors Company Ltd. | Maruti Suzuki India Ltd. |
|---|---|---|---|---|---|
| **Liquidity** | | | | | |
| **Current Ratio** | 5 | 1 | 4 | 2 | 3 |
| **Quick Ratio** | 3 | 1 | 5 | 2 | 4 |
| **Composite Score** | 8 | 2 | 9 | 4 | 7 |
| **Rank On the basis of Liquidity** | **III** | **I** | **V** | **II** | **IV** |
| **Solvency** | | | | | |
| **Interest Coverage Ratio** | 2 | 1 | 5 | 4 | 3 |
| **Total Debt to Total Assets Ratio** | 2 | 1 | 5 | 4 | 3 |
| **Total Equity to Total Assets Ratio** | 2 | 1 | 5 | 4 | 3 |
| **Total Debt to Total Equity Ratio** | 2 | 1 | 5 | 4 | 3 |
| **Composite Score** | 8 | 4 | 20 | 16 | 12 |
| **Rank On the basis of Solvency** | **II** | **I** | **V** | **IV** | **III** |
| **Efficiency** | | | | | |
| **Inventory Turnover Ratio** | 1 | 2 | 5 | 4 | 3 |
| **Inventory Holding Period** | 1 | 2 | 5 | 4 | 3 |
| **Debtors Turnover Ratio** | 3 | 2 | 4 | 5 | 1 |
| **Average Collection Period** | 3 | 2 | 4 | 5 | 1 |
| **Fixed Assets Turnover Ratio** | 3 | 1 | 5 | 2 | 4 |
| **Composite Score** | 11 | 9 | 23 | 20 | 12 |
| **Rank On the basis of Efficiency** | **II** | **I** | **V** | **IV** | **III** |
| **Profitability** | | | | | |
| **Gross Profit Ratio** | 2 | 1 | 5 | 4 | 3 |
| **Operating Profit Ratio** | 2 | 1 | 5 | 4 | 3 |
| **Net Profit Ratio** | 2 | 1 | 5 | 4 | 3 |
| **Operating Expenses Ratio** | 3 | 1 | 2 | 5 | 4 |
| **Return On Capital Employed** | 1 | 3 | 5 | 2 | 4 |
| **Return On Assets** | 1 | 2 | 5 | 4 | 3 |
| **Return On Shareholder's Equity** | 1 | 2 | 5 | 3 | 4 |
| **Composite Score** | 12 | 11 | 32 | 26 | 24 |
| **Rank On the basis of Profitability** | **II** | **I** | **V** | **IV** | **III** |

From the above table, we observe that Bajaj Auto Ltd. has been performing best over the years among all its competitors in terms of liquidity, solvency, efficiency and profitability. It is followed by Hero Moto Corp, Maruti Suzuki, TVS Motors and Tata Motors (in order). However TVS Motors has performed better than Hero Moto Corp and Maruti Suzuki in terms of liquidity.

**References**


1. Agarwal Nidhi, Financial Appraisal of Automobile Industry in India, Online Available at shodhganga.inflibnet.ac.in, 2014.
2. Shivam Mathur, Krati Agarwal. Financial Analysis of Automobile Industries in India, 2016. ISSN Print: 2394-7500
3. Florenz C Tugas, CISA, CPA, Comparative Analysis of the Financial Ratios, International Journal of Business and Social Science, 2012.
4. Dabasish Sur. 'Liquidity Management: An overview of four companies in Indian Power Sector', The Management Accountant, 2001, 407-412.
5. Rana Vishal S. Performance Evaluation of Maruti Suzuki India Limited". Asia Pacific Journal of Marketing & Management Review, ISSN 2319-2836, 2013; 2(2). Online Available At Indianresearchjournals.Com
6. Dr. Ramya A, Dr. Kavitha S. A Study on Financial Analysis of Maruthi Suzuki India Limited Company", IOSR Journal of Business and Management (IOSR-JBM) e-ISSN: 2278-487X, p- ISSN: 2319-7668. 2017; 19(7):II, 93-101 a
7. Bulgurcu B. "Financial Performance Ranking of the Automotive Industry Firms in Turkey: Evidence from an Entropy-Weighted Technique", International Journal of Economics and Financial Issues. 2013; 3(4):844-851 ISSN: 2146-4138 ww.econjournals.com
8. Dharamaraj A, Dr. Kathirvel N. "Financial Performance of Indian Automobile Industry - A Comparative Study During Pre and Post Foreign Direct Investment", ISSN International Journal of Scientific Research, 2277-817,