PROJECT DISSERTATION

Fundamental Analysis of Indian Automobile Industry
"A Study of Select Companies"

Submitted By

Gaurav Sharma

2K15/MBA/24

Under the Guidance of

Dr. Archana Singh

Assistant Professor

DELHI SCHOOL OF MANAGEMENT

Delhi Technological University

Bawana Road Delhi 110042

May 2017

CERTIFICATE

This is to certify that Project Dissertation titled **"Fundamental Analysis of Indian Automobile Industry: A Study of Select Companies"** is a bonafide work carried out by **Gaurav Sharma** of MBA 2015-17 and submitted in partial fulfillment of the requirement for the award of degree **MBA of DSM, DTU. It i**s a record of the candidate own work carried out by him under my supervision. The matter embodied in this report is original and has not been submitted for the award of any other degree.

Signature of Guide

Signature of HOD, DSM

Date:

Place:

DECLARATION

I, Gaurav Sharma, student of MBA 2015-17 batch of Delhi School Of Management, Delhi Technological University, Bawana Road, Delhi-42 declare that Project Dissertation titled **"Fundamental Analysis of Indian Automobile Industry: A Study of Select Companies"** submitted in partial fulfillment of Degree of Masters of Business Administration is the original work conducted by me.

This information and data given in the report is the authentic to the best of my knowledge.

This Project Dissertation is not being submitted to any other University for award of any other Degree, Diploma and Fellowship.

Place: Name of the student

Date:

ACKNOWLEDGEMENT

Every project big or small is successful largely due to effort of a number of wonderful people who have always given their valuable advice or lent a helping hand. I sincerely appreciate the inspiration; support and guidance of all those people who have been instrumental in making this Project Dissertation a success. At the outset, I would like to thank **Dr. Archana Singh, Asst. Professor, Delhi School of Management** for her support and professional approach in guiding me through the careful details of the project.

I owe special debt of gratitude to my guide and supervisor Ms. Varuna (PhD Scholar, DSM)**,** for her constant support and guidance throughout the course of my work. I perceive this opportunity as a big milestone in my career development. I will do my best to use gained skills and knowledge in the best possible way and I will continue to work on their improvement, in order to attain desired career objectives.

Sincerely,
GAURAV SHARMA

EXECUTIVE SUMMARY

Research is essential to collect facts and statistics about a company's customers, employees and competitors. On the basis of these numbers, companies are able to make better managerial decisions. A good research mechanism is essential, irrespective of the size of the company and its client base. Research is imperative for staying competitive in the market. The attempt in this research is to do fundamental analysis and equity valuation of three major automobile companies in Indian Automobile Industry – Maruti Suzuki Ltd, Tata Motors Ltd, Mahindra & Mahindra Ltd.

Financial statement analysis has traditionally been seen as part of the fundamental analysis required for equity valuation, but the analysis has typically been ad hoc. Drawing on recent research on accounting-based valuation, this study outlines a financial statement analysis for use in equity valuation. Standard profitability analysis is incorporated, and extended, and is complemented with an analysis of growth. The perspective is one of forecasting payoffs to equities. So, financial statement analysis is presented as a matter of pro forma analysis of the future, with forecasted ratios viewed as building blocks of forecasts of payoffs. The analysis of current financial statements is then seen as a matter of identifying current ratios as predictors of the future ratios that determine equity payoffs.

The financial statement analysis is hierarchical, with ratios lower in the ordering identified as finer information about those higher up. To provide historical benchmarks for forecasting, typical values for ratios are documented for the period 2012-2016. The price per share of each company has been estimated and the suggestion given to investors according to the results derived from this study. Share prices of all three automobile companies considered in this study are over-valued on Indian stock exchanges like NSE and BSE thus holds SELL signal according to this study. But, as Indian Automobile Industry is growing at a pace and Behavioral Investing with investor’s sentiments play a huge role in driving the stock prices, this study recommends SELL to Maruti Suzuki Ltd and HOLD signal to Tata Motors Ltd and Mahindra & Mahindra Ltd.

Another important analysis that is done includes Du-Pont analysis which arrives at return on equity from 3 other important ratios which show which has contributed the most to the profit. Return on equity could be arrived at by multiplying return on sales (PAT/Sales), asset turnover (Sales/assets) and financial leverage (Assets/Equity).

A quick analysis has shown that Maruti's net operating cycle has been relatively low compared to peers which indicates a better efficiency. ROCE value has increased from 17% to 23%, this implies that the company is making judicious use of the capital employed. ROE has increased from 13% to 17% for 2014-16. Gross sales margin has increased from 30% to 33%. All the major profitability ratios has increased Y-O-Y basis. This implies that the company is working efficiently to convert every rupee earned in revenue to profit. The company's solvency position more or less remained the same.

M&M had performed well in FY 2013 and FY 2014 where it generated good numbers in EBITDA margin and Gross sales. But, after FY 2014, M&M has seen a downfall in profitability and performance. EBITDA has come down to 14% in FY17. RoCE, RoE and RoA has fallen down to 13%, 14% and 4% respectively. The company's solvency position more or less remained the same.

Tata Motors, on the other hand, performed slightly well in the period 2014-16. P/E has been increased from 12.6 to 22.1. Other profitability parameters have been more or less consistent from FY14 to FY17. Fundamental growth rate has fallen since FY14 by 33%. RoE has come down from 19% to just 8%. Ev/Ebitda multiple is 12.9x for FY17.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1
INTRODUCTION

1.1 Fundamental Analysis

Fundamental Analysis is a mathematical and fundamental way of looking at a company and its future prospects. Analysis or valuation of any company can be done in 2 ways i.e. Fundamental analysis and Technical analysis. This study uses Fundamental analysis for “analyzing the company with the help of financial statements of the company which will be published annually and quarterly”. Stock investing requires careful analysis of financial data to find out the company’s true worth. This is generally done by examining “the company’s profit and loss account, balance sheet and cash flow statement”. This can be a time consuming process. An easier way to find out about a company’s performance is to look at its financial ratios. Fundamental Analysis covers the “area of research that studies economics, industry and company information for the purpose of making an informed judgment on a stock's value and its growth potential". The crux of Fundamental Analysis lies in its attempt to determine the economic value of a security (a generic term for stocks and shares).

The Focus of Fundamental Analysis

Economic Analysis covers the study of the country's economic indicators such as new orders, money supply, stock price indices, and stocks of unfinished goods, new business formations, and consumer price index and unit labor costs. Important economic considerations would include interest rates and inflation and its impact on the stock market, the level of government debt, and the level of corporate debts, monetary and fiscal policy. Industry Analysis covers the structure and state of competition in the industry, nature and prospects of demand for products and services of the industry, cost conditions and profitability, technology and research requirements, the immediate and long term outlook for sales and profit.

Company Analysis covers management analysis and financial analysis. Management analysis would consider the business acumen of the CEO and top managers, the past record and performance of the CEO and the corporate work ethic. Financial Analysis would consider revenue, costs, earnings of the company and the company's capital structure as reflected by its debt to equity ratio. Financial Analysis in the form of financial ratio analysis compares the company's current stock price to its earnings, dividends, and assets. Theses financial valuation ratios and then compared the financial valuation of other companies in the same industry to identify overvalued and undervalued companies in terms of earnings, dividends and assets.

Types of Fundamental Analysis

Although it is generally accepted that the aim Fundamental Analysis is to determine the economic value of a security, it is the practice of Fundamental Analysis that gives rise to two sub types namely Macro-Fundamental Analysis and Micro-Fundamental Analysis. Macro-Fundamental Analysis focuses on broad economic factors that affect the stock market as a whole or industry groups of securities. This approach is known as the Top down Approach of Macro-Fundamental Analysis. The practice of Macro-Fundamental Analysis starts at the overall performance of the economy, its impact on industry groups and finally down to specific companies in the industry groups. It is noteworthy that Macro-Fundamental Analysis has a more formal and structured approach and as such this approach is much favored by research departments of investment management companies and brokerage houses.

Micro-Fundamental Analysis starts by considering the current price of a stock and compares it to measures of value. Hence the current price of a stock is compared to its dividend, its earnings, and to its assets resulting in valuation ratios such as its dividend yield, price to earnings ratio and its price to asset ratio. The resultant valuations enable comparisons to be made amongst stocks in the same industry

groups and undervalued and overvalued stocks are identified by comparisons to the industrial norm. After this phase of analysis, the Micro-Fundamental Analysis attempts to predict industry and economic developments that may positively or negatively impact the stock's current price.

Fundamental Analysis is a structured and formal approach to research on a stock's value and its potential growth. This analytical procedure facilitates the identification of overvalued and undervalued stocks relative to their earnings potential, dividend income potential and to their asset values, against the backdrop of the economic and industry environment. On the basis of the research, investment decisions are made such that the odds are stacked in favor of the Fundamental Analyst.

1.2 Equity Research

Equity analysts should value the stocks in same manner as the corporate value their projects. A security analyzer should always think about his valuation, the way a corporate manager would work on his project. For projects, managers would estimate cash flows and discount them to present and later, analyze and think whether to accept the project or not. Similarly an analyzer should work in the way for the valuation of a particular company.

Equity research is all about finding the valuation of a listed company (Listed companies trade on stock exchange like NSE, BSE, NYSE, NASDAQ etc.

1. Once the company under consideration is taken, we look at the economic aspects like GDP, growth rates, market size of the industry and the competition aspects etc.
2. Once we understand the economics behind the business, perform the fundamental analysis of the historical balance sheet, cash flows and income statement to form an opinion on how the company did in the past.
3. Based on investor's expectation, historical performances and industry competition, project the financial statements like the Balance Sheet, Income

statement and Cash Flows of the company. (Also called as Financial Modeling in Equity Research).

4. Use the Equity valuation models like Dividend Discount Model, Discounted Cash Flows, Relative valuations, sum of parts valuation the company.
5. Calculate the intrinsic value of the stock based on the above models and compare the fair price with the Current Market Price (stock exchange).
6. If the Fair Price < Current Market Price, then the company stocks are overvalued and should be recommended as a SELL.
7. If the Fair Price > Current Market Price, then the company shares are undervalued and should be recommended as a BUY.

Ratio Analysis

Ratio analysis is a tool that was developed to perform quantitative analysis on numbers found on financial statements. Ratios help link the three financial statements together and offer figures that are comparable between companies and across industries and sectors. Ratio analysis is one of the most widely used fundamental analysis techniques. However, financial ratios vary across different industries and sectors and comparisons between completely different types of companies are often not valid. In addition, it is important to analyze trends in company ratios instead of solely emphasizing a single period's figures.

Ratio analysis is crucial for investment decisions. It not only helps in knowing how the company has been performing but also make it easy for investors to compare companies in the same industry. Over the years, investors and analysts have developed numerous analytical tools, concepts and techniques to compare the relative strengths and weaknesses of companies. These tools, concepts and techniques form the basis of fundamental analysis.

Financial modelling

Financial modelling is more of fundamental analysis whereby one tries to project the future earnings of the company by analyzing the past trends of growth of the company looking at the financial statements of the same.

When companies are expanding if they want to rise capital from the market, they should decide the price at which the shares should be offered to public which is determined with the help of financial modelling. And in case of mergers and acquisition, the price at which one company will be taken over will be decided with the help of modelling exercise. It is used to arrive at an optimal capital structure, investment in new projects, assets etc. Banks use financial model to estimate the repaying capacity of the borrower to take decisions about lending. Private equity firms, venture capital firms also use these models in their operations to determine fair value of the possible exit valuation. This way financial models is exclusively used in all areas because it helps us determine a possible outcome and helps us take a decision.

Financial modelling exercise starts with gathering together the historical financial data from the annual and quarterly reports of the company. The researcher gathered the revenue drivers of the company to check what drives the revenue and cost. After this some analysis as to how it is changing year on year (YOY) and gather data about the industry to find which stage of industry life cycle is it going through. We make some assumptions based on that to estimate a growth rate for various items. Once all this is done, we try to project the future earnings of the company. Then projects one the income statement and the balance sheet first and then the cash flow statement which is a subsidiary of income statement and balance sheet.

Over the years, investors and analysts have developed numerous analytical tools, concepts and techniques to compare the relative strengths and weaknesses of companies. These tools, concepts and techniques form the basis of fundamental analysis.

1.3 Valuation

Valuation methods typically fall into two main categories: absolute and relative valuation models.

a) Absolute Valuation Model

Absolute valuation models attempt to find the intrinsic or "true" value of an investment based only on fundamentals. Looking at fundamentals simply mean you would only focus on such things as dividends, cash flow and growth rate for a single company, and not worry about any other companies. Valuation models that fall into this category include the dividend discount model, discounted cash flow model, residual income models and asset-based models.

b) Relative Valuation Model

In contrast to absolute valuation models, relative valuation models operate by comparing the company in question to other similar companies. These methods generally involve calculating multiples or ratios, such as the price-to-earnings multiple, and comparing them to the multiples of other comparable firms. For instance, if the P/E of the firm you are trying to value is lower than the P/E multiple of a comparable firm, that company may be said to be relatively undervalued. Generally, this type of valuation is a lot easier and quicker to do than the absolute valuation methods, which is why many investors and analysts start their analysis with this method.

In this study absolute valuation model viz. Dividend Discount Model is used to find the intrinsic value of the share price of all three companies and compared it with the company's share price listed on stock exchange to find out whether the price of the share is over-valued or under-valued on stock exchange.

1.4 Objectives of the Study

The objective of this project is to value the equity of three automotive companies, i.e. Maruti Suzuki Ltd, Tata Motors Ltd and Mahindra & Mahindra Ltd.

The purpose is to estimate the equity share price of these companies and compare the share price of these companies as listed on NSE & BSE and also relate it to the fundamental business and growth of these companies. For this, Dividend Discount Model, Relative Analysis and Ratio Analysis has been used to value stocks of these companies. The attempt of this project is to analyze whether the share price of these companies are over-valued or under-valued and suggest the investors whether the shares should be purchased, held or sold.

The limitations of the project are:

1. Only secondary data is considered for the project and not any primary data.
2. The study doesn't focus on identifying the reasons behind the deviation of the market value of the stocks from its intrinsic value. This study is only limited to M&M, Tata Motors and Maruti Suzuki Ltd.
3. The stock market is influenced by investor confidence and sentiments which make a significant impact on the share prices leading a gap between the calculated values and the actual values. This factor of investor confidence has not been considered in the valuation.
4. The various economic parameters like inflation have not been considered which influence the value of the equity in the market.

CHAPTER 2.
LITERATURE REVIEW

In the area of equity analysis, research in finance has not been successful. Equity analysis—or fundamental analysis—was once the mainstream of finance. But, while enormous steps have been taken in pricing derivatives on the equity, techniques to value equities have not advanced much beyond applying the dividend discount model. So-called asset pricing models, like the Capital Asset Pricing Model, have been developed, but these are models of risk and the expected return, not models that instruct how to value equities. Real option analysis has been applied to equity valuation, but the measurement problems are significant.

However, financial statement measures were linked to equity value in an ad hoc way. Equity value is determined by "future earnings power," it was said, but there was no explicit justification for using future earnings as a valuation attribute, nor was there explicit development of the forecasting of this earnings power. A considerable amount of accounting research in the years since (Graham, Dodd and Cottle) has been involved in discovering how financial statements inform about equity value.

The whole endeavor of "capital markets research" deals with the "information content" of financial statements for determining stock prices. The extensive "time-series-of-earnings" literature summarized in Brown (1993) focuses on forecasting earnings, often with valuation in mind. Papers such as Lipe (1986), Ou (1990), Ou and Penman (1989), Lev and Thiagarajan (1993) and Fairfield, Sweeney and Yohn (1996), to name just a few, have examined the role of particular financial statement components and ratios in forecasting. But it is fair to say that the research has been conducted without much structure. Nor has it produced many innovations for practice.

Interesting, robust empirical correlations have been documented, but the research has not produced a convincing financial statement analysis for equity valuation. Indeed the standard textbook schemes for analyzing statements, such as the DuPont scheme, rarely appear in the research. The structure not only identifies relevant ratios, but also provides a way of organizing the analysis task.

The result is a fundamental analysis that is very much grounded in the financial statements; indeed, fundamental analysis is cast as a matter of appropriate financial statement analysis. The structural approach contrasts to the purely empirical approach in Ou and Penman (1989), paper identified ratios that predicted earnings changes in the data; no thought was given to the identification. The approach also contrasts to that in Lev and Thiagarajan (1993) who defer to "expert judgment" and identify ratios that analysts actually use in practice.

2.1 In the field of Financial Forecasting

Valuation involves forecasting payoffs. When companies are expanding, they want to rise capital from the market and should decide the price at which the shares should be offered to public which is determined with the help of financial modelling. In case of mergers and acquisition, the price at which one company will be taken over will be decided with the help of modelling exercise.

It is used to arrive at an optimal capital structure, investment in new projects, assets etc. Banks use financial model to estimate the repaying capacity of the borrower to take decisions about lending. Private equity firms, venture capital firms also use these models in their operations to determine fair value of the possible exit valuation. This way financial models is exclusively used in all areas because it helps us determine a possible outcome and helps us take a decision. Financial modelling exercise starts with gathering together the historical financial data from the annual and quarterly reports of the company.

The research gathered the revenue drivers of the company to check what drives the revenue and cost. After this some analysis as to how it is changing year on year (YOY) and gather data about the industry to find which stage of industry life cycle is it going through. This study made some assumptions based on that to estimate a growth rate for various items. Once all this is done, we tried to project the future earnings of the company. Then projects the income statement and the balance sheet first and then the cash flow statement which is a subsidiary of income statement and balance sheet.

Forecasting is guided by an equity valuation model that specifies what is to be forecasted. So, for example, the dividend discount model directs the analyst to forecast dividends. Because it focuses on accrual-accounting financial statements, the residual income valuation model, recently revived through the work of Ohlson (1995) and Feltham and Ohlson (1995), serves as an analytical device to organize thinking about forecasting and analyzing financial statements for forecasting. This model is a statement of how book value and forecasted earnings relate to forecasted dividends and thus to value.

Penman (1997) shows that dividend and cash-flow approaches give the same valuation as the residual income approach under certain conditions. But cash flows and dividends are tied to accrual numbers by straightforward accounting relations, so building forecasts of accrual accounting numbers with the aid of analysis builds forecasts of free cash flows and dividends.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Research Overview

The purpose is to conduct fundamental analysis and value the three major automobile companies in Indian Automotive Industry – Maruti Suzuki Ltd, Tata Motors Ltd and Mahindra & Mahindra Ltd with use of valuation models like Dividend Discount Model and Fundamental Ratio Analysis approach. The analysis will reveal the actual value of the equity stocks of these companies and whether they are over-valued or under-valued.

3.2 Significance of the Study

The study is based on “Analytical Research” where the intrinsic value of the automotive companies’ stocks is calculated and is compared with their respective current market prices to find out whether the stocks are over-valued or under-valued in the Indian stock market.
Valuation techniques used in this research is Dividend Discount Model. Further, fundamental ratio analysis is done to evaluate performance of the companies.

3.3 Data Collection

An attempt has been made to understand the performance of 3 companies in last 4 years i.e. 2012-16. These 3 firms have been carefully chosen keeping in view the fact that these firms share the maximum sales in Indian Automobile sector.

Data were captured from published annual reports, documents in official websites of companies. Annual reports of past 3 years i.e. 2013-16 of all 3 companies were captured from their official websites.

3.4 Software for Analysis

MS Excel 2013

IBM SPSS 23

Eviews 7.2

3.5 Valuation Model

3.5.1 Dividend Discount Model

In the strictest sense, the only cash flow you receive from a firm when you buy publicly traded stock is the dividend. The simplest model for valuing equity is the dividend discount model -- the value of a stock is the present value of expected dividends on it

There are numbers of different discounted cash flow models one can use, however in this paper we will focus on Equity Valuation using Dividend Discount Model. The dividend discount model (DDM) is one of the most basic of the absolute valuation models. The dividend model calculates the "true" value of a firm based on the dividends the company pays its shareholders. The justification for using dividends to value a company is that dividends represent the actual cash flows going to the shareholder, thus valuing the present value of these cash flows should give you a value for how much the shares should be worth. DDM is a method for valuing the price of the stock for a company which pays out dividends, assuming that the price of the stock is equivalent to the sum of all of its future dividend payments discounted to the present values. Within this model one can use a set of different approaches such as;

1. Price of stock with zero growth dividends
2. Price of stock with constant growth dividends (Gordon growth Model)
3. Price of stock at time N with constant growth dividends (Terminal Value).
4. Price of stock with two and three stage growth dividend.

The General Model

When an investor buys stock, she generally expects to get two types of cash flows - dividends during the period she holds the stock and an expected price at the end of the holding period. Since this expected price is itself determined by future dividends, the value of a stock is the present value of dividends through infinity.

$$\text{Value per share of stock} = \sum_{t=1}^{t=\infty} \frac{E(DPS_t)}{(1+k_e)^t}$$

Where,
DPS = Expected dividends per share
Ke = Cost of equity

The rationale for the model lies in the present value rule - the value of any asset is the present value of expected future cash flows discounted at a rate appropriate to the riskiness of the cash flows.

There are two basic inputs to the model - expected dividends and the cost on equity.
To obtain the expected dividends, we make assumptions about expected future growth rates in earnings and payout ratios. The required rate of return on a stock is determined by its riskiness, measured differently in different models - the market beta in the CAPM, and the factor betas in the arbitrage and multi-factor models. The model is flexible enough to allow for time-varying discount rates, where the time variation is caused by expected changes in interest rates or risk across time.

The Gordon Growth Model

The Gordon growth model can be used to value a firm that is in 'steady state' with dividends growing at a rate that can be sustained forever. The Gordon growth model relates the value of a stock to its expected dividends in the next time period, the cost of equity and the expected growth rate in dividends.

$$\text{Value of Stock} = \frac{DPS_1}{k_e - g}$$

DPS = Expected Dividends one year from now (next period)
Ke= required rate of return for equity investors
g = Growth rate in dividends forever

While the Gordon growth model is a simple and powerful approach to valuing equity, its use is limited to firms that are growing at a stable rate. There are two insights worth keeping in mind when estimating a 'stable' growth rate. First, since the growth rate in the firm's dividends is expected to last forever, the firm's other measures of performance (including earnings) can also be expected to grow at the same rate. Over time, the dividends will exceed earnings. On the other hand, if a firm's earnings grow at a faster rate than dividends in the long term, the payout ratio, in the long term, will converge towards zero, which is also not a steady state. Thus, though the model's requirement is for the expected growth rate in dividends, analysts should be able to substitute in the expected growth rate in earnings and get precisely the same result, if the firm is truly in steady state.

Limitations of the model

The Gordon growth model is a simple and convenient way of valuing stocks but it is extremely sensitive to the inputs for the growth rate. Used incorrectly, it can yield misleading or even absurd results, since, as the growth rate converges on the discount rate, the value goes to infinity.

3.6 Limitations of the Study

1. Only secondary data is considered for the project and not any primary data.
2. The study doesn't focus on identifying the reasons behind the deviation of the market value of the stocks from its intrinsic value. This study is only limited to M&M, Tata Motors and Maruti Suzuki Ltd.
3. The stock market is influenced by investor confidence and sentiments which make a significant impact on the share prices leading a gap between the calculated values and the actual values. This factor of investor confidence has not been considered in the valuation.
4. The various economic parameters like inflation have not been considered which influence the value of the equity in the market.

4. DATA ANALYSIS AND INTERPRETATION

4.1 Economic and Industry Analysis

Overall, the global automotive industry is in better shape than it was five years ago, especially in the US, where profits and sales have recovered following the recent economic crisis, and in China, where growth remains strong. By 2020, global profits for automotive OEMs are expected to rise by almost 50 percent. The new profits will come mainly from growth in emerging markets and, to a lesser extent, the US.

Globally, the automotive industry has recovered from the economic crisis. Industry profits in 2012 (EUR 54 billion) were much higher than in 2007 (EUR 41 billion), the last pre-crisis year, and the prognosis for future growth is even better. By 2020, global profits could increase by another EUR 25 billion, to EUR 79 billion. Instead, some regions and segments will do much better than others. What is most striking about the recent past is how profoundly the source of profits has shifted. In 2007, the BRICs and RoW accounted for 30 percent of global profits (or EUR 12 billion). In 2012, that share rose to nearly 60 percent (EUR 31 billion), as sales in these regions rose 65 percent and outpaced growth in Europe, North America, Japan, and South Korea (Exhibit 1). More than half of this growth came from China (EUR 18 billion).

FIG 4.1

Indian Automobile Industry

The Indian auto industry is one of the largest in the world. The industry accounts for 7.1 per cent of the country's Gross Domestic Product (GDP). The Two Wheelers segment with 81 per cent market share is the leader of the Indian Automobile market owing to a growing middle class and a young population. Moreover, the growing interest of the companies in exploring the rural markets further aided the growth of the sector. The overall Passenger Vehicle (PV) segment has 13 per cent market share.

India is also a prominent auto exporter and has strong export growth expectations for the near future. In April-March 2016, overall automobile exports grew by 1.91 per cent. PV, Commercial Vehicles (CV), and Two Wheelers (2W) registered a growth of 5.24 per cent, 16.97 per cent, and 0.97 per cent respectively in April-March 2016 over April-March 2015.* In addition, several initiatives by the Government of India and the major automobile players in the Indian market are expected to make India a leader in the 2W and Four Wheeler (4W) market in the world by 2020.

Market Size

The sales of PVs, CVs and 2Ws grew by 9.17 per cent, 3.03 per cent and 8.29 per cent respectively, during the period April-January 2017.

FIG 4.2

Production of automobiles increased at a CAGR of 9.4 per cent over FY06-16. During FY06-16, passenger vehicle segment witnessed the fastest growth, at a CAGR of 10.09 per cent, followed by 2 wheeler segment, which grew at a CAGR of 9.48 per cent during the same time period.

1. During fiscal year 2016-17, passenger vehicle market in India is likely to cross the 3 million units' milestone. By February 2017, Suzuki Motors plans to commence production at its Gujarat plant.
2. The gross turnover of automobile manufacturers in India expanded at a CAGR of 11.72 per cent over FY07-15
3. The domestic 2 wheelers segment accounted for 80.4 per cent of the total domestic market share1 for the year 2015-16.

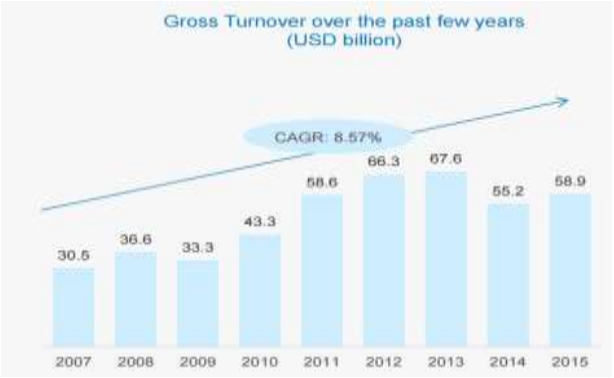

FIG 4.3

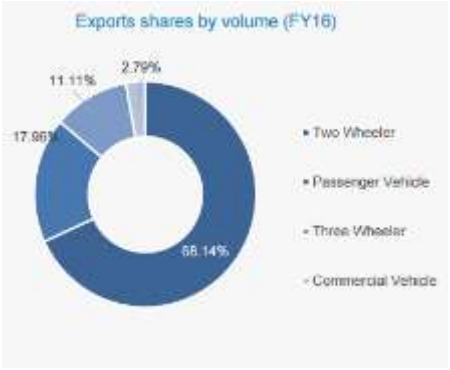

FIG 4.4

FIG 4.5

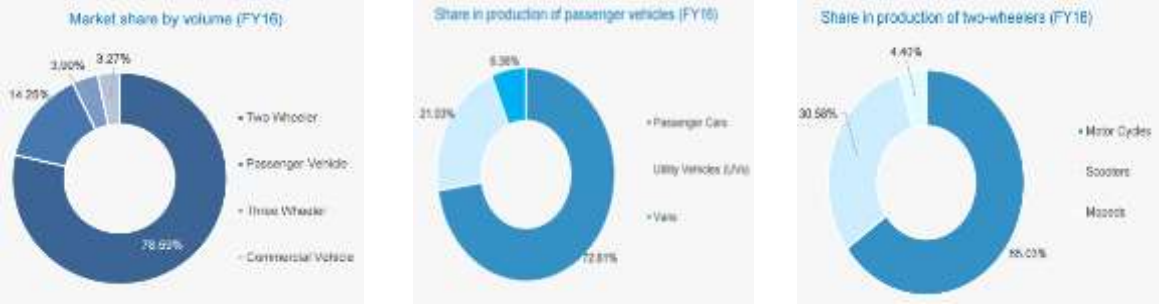

FIG 4.6

1. During FY06-16, automobile exports from the country increased at a CAGR of 16.23 per cent.
2. Further, during FY06-16, 2-wheeler segment reported fastest growth of around 17.5 per cent, followed by 3-wheelers, which grew at a rate of 14.8 per cent during the same period.
3. The country's largest carmaker Maruti Suzuki India recorded cumulative exports of 1500 thousand vehicles in September, 2016.
4. In January 2017, Suzuki India announced that it will begin exporting its Indian made motorcycle - Gixxer to Japan.
5. Automobile exports from India in 2016, declined by 5 per cent, in comparison with the previous year, due to declining sales of 2 & 3 wheelers in Latin America & Africa.
6. India is expected to become the 3rd largest car market across the world by 2020.

FIG 4.7

Investments

In order to keep up with the growing demand, several auto makers have started investing heavily in various segments of the industry during the last few months. The industry has attracted Foreign Direct Investment (FDI) worth US$ 15.79 billion during the period April 2000 to September 2016, according to data released by Department of Industrial Policy and Promotion (DIPP).

Some of the major investments and developments in the automobile sector in India are as follows:

1. Electric car maker Tesla Inc. is likely to introduce its products in India sometime in the summer of 2017.
2. South Korea's KIA Motors Corp is close to finalizing a site for its first factory in India, slated to attract US$1 billion (Rs 6,700 crore) of investment. It is deciding between Andhra Pradesh and Maharashtra. The target for operationalizing the factory is the end of 2018 or early 2019.
3. Ford Motor Co. plans to invest Rs 1,300 crore (US$ 195 million) to build a global technology and business center in Chennai, which will be designed as a hub for product development, mobility solutions and business services for India and other markets.
4. Cummins has plans to make India an export hub for the world, by investing in top components and technologies in India.
5. Suzuki Motor Corporation, the Japan-based automobile manufacturer, plans to invest Rs 2,600 crore (US$ 390 million) for setting up its second assembly plant in India and an engine and transmission unit in Mehsana, Gujarat.
6. Mr. Masayoshi Son, Chief Executive Officer, SoftBank Group, has stated that Ola Cabs may introduce a fleet of one million electric cars in partnership with an electric vehicle maker and the Government of India, which could help reduce pollution and thereby transform the electric mobility sector in the country.
7. China's biggest automobile manufacturer, SAIC Motor, plans to invest US$ 1 billion in India by 2018, and is exploring possibilities to set up

manufacturing unit in one of three states – Maharashtra, Andhra Pradesh and Tamil Nadu.

8. Suzuki Motorcycle India Pvt Ltd has started exports of made-in-India flagship bike Gixxer to its home country of Japan, which will be in addition to current exports to countries in Latin America and surrounding countries.
9. General Motors plans to invest US$ 1 billion in India by 2020, mainly to increase the capacity at the Talegaon plant in Maharashtra from 130,000 units a year to 220,000 by 2025.
10. FIAT Chrysler Automobiles has recently invested US$280 million in its Ranjangaon plant to locally manufacture Jeep Compass, its new compact SUV which will be launched in India in August 2017.

Strong FDI equity inflow in the automotive sector

FDI equity inflows in the automobile industry aggregated to USD16.51 billion over FY2010-16. Whereas, in FY17, FDI inflow automobile industry accounted for 5.09 per cent of total FDI equity inflow in country.

FIG 4.8

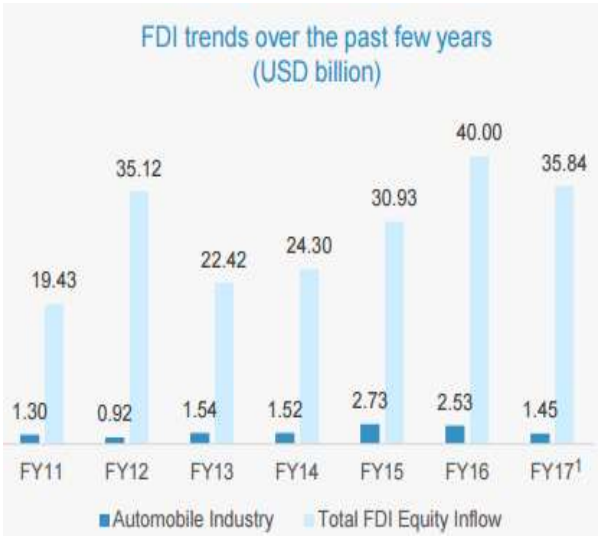

FIG 4.9

Government Initiatives

The Government of India encourages foreign investment in the automobile sector and allows 100 per cent FDI under the automatic route.

Some of the major initiatives taken by the Government of India are:

1. The Government of India plans to introduce a new Green Urban Transport Scheme with a central assistance of about Rs 25,000 crore (US$ 3.75 billion), aimed at boosting the growth of urban transport along low carbon path for substantial reduction in pollution, and providing a framework for funding urban mobility projects at National, State and City level with minimum recourse to budgetary support by encouraging innovative financing of projects.
2. Government of India aims to make automobiles manufacturing the main driver of 'Make in India' initiative, as it expects passenger vehicles market to triple to 9.4 million units by 2026, as highlighted in the Auto Mission Plan (AMP) 2016-26.
3. The Government plans to promote eco-friendly cars in the country i.e. CNG based vehicle, hybrid vehicle, and electric vehicle and also made mandatory of 5 per cent ethanol blending in petrol.
4. The government has formulated a Scheme for Faster Adoption and Manufacturing of Electric and Hybrid Vehicles in India, under the National Electric Mobility Mission 2020 to encourage the progressive induction of reliable, affordable and efficient electric and hybrid vehicles in the country.

Road Ahead

India's automotive industry is one of the most competitive in the world. It does not cover 100 per cent of technology or components required to make a car but it is giving a good 97 per cent, as highlighted by Mr. Vicent Cobee, Corporate Vice-President, and Nissan Motor's Datsun. Leading auto maker Maruti Suzuki expects Indian passenger car market to reach four million units by 2020, up from 1.97 million units in 2014-15.

India is home to a vibrant automobile of more than 40 million vehicles. It has been one of the few worldwide which saw growing passenger car sales during the recession of the past two years. In fact, in 2009-10 it has recorded its highest volumes ever. It is believed this upward trend will be sustained in the foreseeable future due to a strong domestic market and increased thrust on exports.

The Indian economy has grown at an average rate of around 9 percent over the past five years and is expected to continue this growth in the medium term. This is predicted to drive an increase in the percentage of the Indian population able to afford vehicles. India's car per capita ratio (expressed in cars per 1,000 population) is currently among the lowest in the world's top 10 auto markets. The twin phenomena of low car penetration and rising incomes, when combined with increasing affordability of cars, are expected to contribute to an increase in India's automobile demand.

Figure 1: Indian GDP growth vs. Annual passenger vehicle volumes

FIG 4.10

The automotive industry is one of the key drivers of India's economy, accounting for around 4 percent of India's GDP1 and over 200,000 jobs. It is also a focus area for

KPMG globally. KPMG regularly publishes reports on client industries including the automotive sector. This study which is focused on the Indian market contains insights from two such global reports, the KPMG Global Auto Executive Survey 2010 and Brand & Ownership Concentration in the European Automotive Industry.

India's automobile market has grown steadily over the last seven to eight years, with the exception of the previous two years where the effects of the global downturn were felt, primarily in sales of commercial vehicles. However, even during the downturn, the two-wheeler and three wheeler segments, which were until then experiencing low growth or losing volumes, bucked the trend.

India's vehicle demand is quite different from other top automobile markets – with the exception of China – in that two-wheelers constitute a significant portion of vehicle demand (more than 3/4th of the Indian market is in two-wheelers). The Indian automobile industry has seen interesting dynamics in recent times with the effect of the global downturn, followed by recovery in domestic demand.

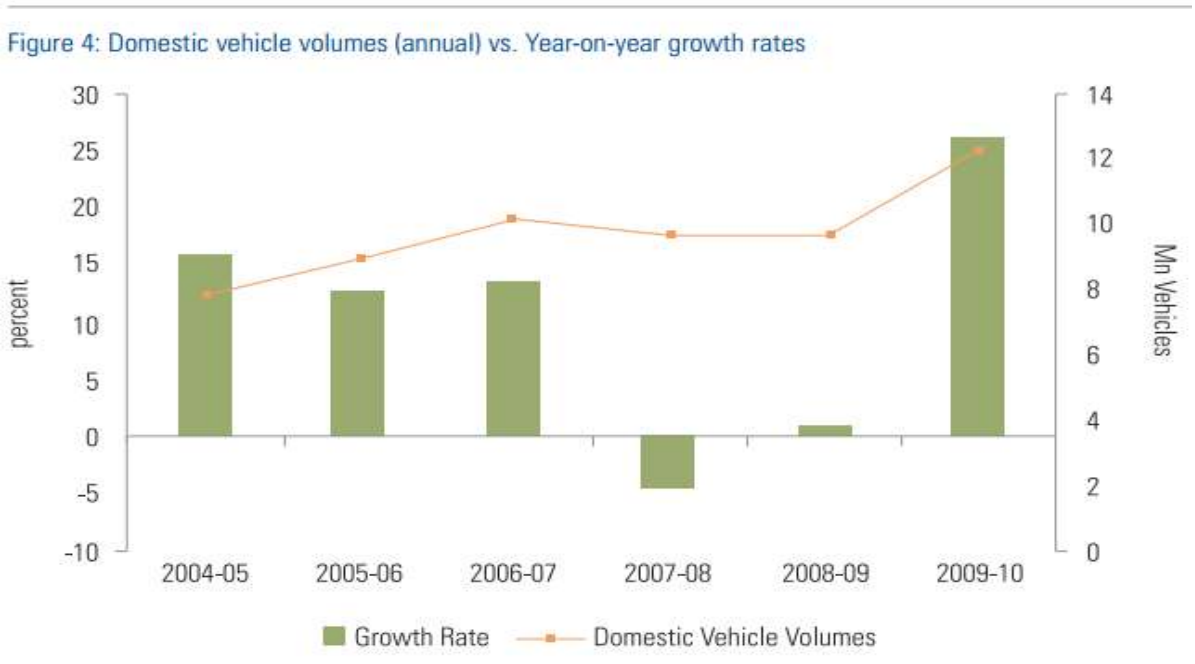

FIG 4.11

4.2 Porter's Five Forces Analysis of Industry

To determine the industry attractiveness and long-run industry profitability of the Indian Automotive parts whole selling industry, we chose to apply the Porter's Five Forces in our analysis.

Competitive Rivalry

- Competitive rivalry has increased post liberalisation to a great extent
- The competition has turned more intense after the entry of foreign players like Volkswagen and Ford in low- priced hatchback segment
- Foreign firms have aggravated the competition by changing their traditional designs and substituting it to cater Indian needs

Threat of New Entrants

- The threat of new entrants is generally medium because of the brand equity and capital intensive nature of the business
- But, considering India, foreign firms (with capital) have done pretty well

Substitute Products

- The threat from substitute products continues to be low, with public transportation being under developed even in cities
- Changing travel patterns and the convenience give it an edge

Bargaining Power of Suppliers

- Bargaining power of suppliers is low as most of the auto component manufacturers are specialised in some segments related to only one client
- Suppliers, in turn depend on them

Bargaining Power of Customers

- In a market, like India there is lot of bargaining power available to the customers as there are variety of products available in the same range, by different manufacturers
- It still depends on the markets

FIG 4.12

4.3 Company Analysis

4.3.1 Maruti Suzuki Ltd.

Maruti Suzuki India Ltd (MSIL), commonly referred to as Maruti and formerly known as Maruti Udyog Ltd, is an automobile manufacturer in India. The company is engaged in the business of manufacture, purchase and sale of motor vehicles, automobile components and spare parts (automobiles).

At present, the company is sitting on a capacity to make almost 1.5 million cars a year and it is in the process of adding capacity for another 250,000 cars. The company also pledged to invest in new, cost-effective technologies that bring down greenhouse gas emissions of its facilities. The Company is actively supporting the government, in laying down a robust policy framework to promote electric and hybrid vehicles in the country. It is also part of government efforts to introduce corporate fleet emission norms for 2015 and 2020.

In the overall passenger vehicle segment, the company has enhanced its market share to over 40 per cent during April-July, FY13.

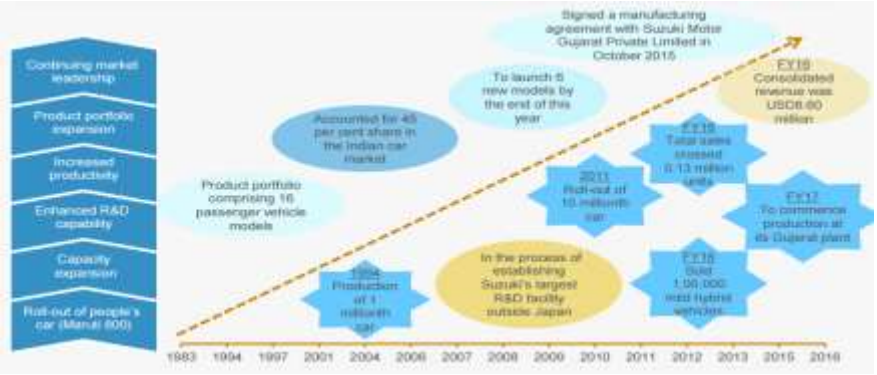

FIG 4.13

Maruti Suzuki India Limited (“Maruti” or the “Company”) has been the leader of the Indian passenger car market. The Company has two manufacturing facilities located at Gurgaon and Manesar. The Company’s portfolio includes Maruti 800, Alto, Alto K10, A-star, Estilo, WagonR, Ritz, Swift, Swift DZire, SX4, and Ertiga.

SWOT Analysis

Strengths

1. Market Leader in Passenger Vehicle Segment and commands 45% in the passenger vehicle (cars, sports utility vehicles (SUV) and vans) segment with Alto, Swift, Dzire and WagonR as the top 4 most selling passenger vehicle brand. The Company holds leadership position in passenger vehicle segment due to its continuous effort to build on its competitive value proposition by constantly upgrading models with latest technologies without a major increase in cost and penetrating deeper into the country to find new buyers.
2. The Company is always focused on launching new vehicles to tap more number of buyers in the passenger vehicles segment. Maruti has been at the forefront of upgradation and new vehicle launches for over 2 decades.
3. The Company continues to hold dominant market share on the back of its vast distribution network (~1200dealerships in ~800 cities) and strong service network (~3000 workshops in ~1400 cities). The Company is also establishing a chain of retail outlets branded Nexa to exclusively cater to the sale of premium products starting with upcoming cross-over utility vehicle S-Cross.
4. Maruti Suzuki is the largest passenger car company in India, accounting for around 45% market share. Over 12,000 people are employed with Maruti Good advertising, product portfolio, self-competing brands. Largest distribution network of dealers and after sales service centers. Strong brand value and strong presence in the second hand car market. Having different revenue streams like Maruti finance, Maruti Insurance and Maruti driving schools. Over 700,000 units sold in India annually including 50,000 exports Maruti Suzuki launched NEXA showrooms to cater to its premium cars market. The company has been recognized by several awards in the automobile segment in India

Weakness

1. Inability to penetrate into the international market
2. Employee management, strikes, worker wage problems have affected Maruti's brand image in the past

Opportunities

1. Developing hybrid cars and fuel efficient cars for the future can be an opportunity for Maruti Suzuki
2. Maruti can target tapping emerging markets across the world and building a global brand
3. Fast growing automobile market and increased purchasing power

Threat

1. Government policies for the automobile sector across the world
2. Ever increasing fuel prices
3. Intense competition from global automobile brands and cheaper brands can hurt Maruti Suzuki's business
4. Substitute modes of public transport like buses, metro trains etc.

Ownership Pattern

In its latest stock exchange filing dated 31 March 2017, Maruti reported a promoter holding of 56.21 %. Large promoter holding indicates conviction and sincerity of the promoters. We believe that a greater than 35 % promoter holding offers safety to the retail investors.

At the same time, institutional holding in the Company stood at 36.48 % (FII+DII). Large institutional holding indicates the confidence of seasoned investors. At the same time, it can also lead to high volatility in the stock price as institutions buy and sell larger stakes than retail participants.

Particulars	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17
Performance Ratio (%)					
EBITDA Margin	11%	13%	15%	16%	17%
Gross Margin	27%	30%	30%	33%	34%
EBIT Margin	8%	9%	11%	12%	13%

Table 4.1

Profitability Ratio (%)	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17
ROCE	16%	17%	20%	23%	24%
ROE	13%	13%	16%	17%	17%
ROA	9%	9%	11%	11%	13%
EPS	81.74	94.40	126.04	155.50	176.59
DPS	7.18	8.00	12.00	25.01	21.19
P/E	17.21	20.42	28.92	23.94	21.08

Table 4.2

DuPont Analysis	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17
PAT/PBT	0.80	0.76	0.76	0.70	0.70
PBT/EBIT	0.94	0.95	0.96	0.99	0.99
EBIT/Net Sales	0.08	0.09	0.11	0.12	0.13
Net Sales/Total Assets	1.57	1.37	1.43	1.42	1.48
Total Assets/Equity	1.45	1.46	1.42	1.45	1.34
ROE	13%	13%	16%	17%	17%

Table 4.3

Valuation Ratios	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17
EV/EBITDA (x)	8.34	9.41	14.81	12.60	10.60
EV/Net Sales (x)	1.00	1.31	2.32	2.12	1.92
EV/EBIT (x)	13.16	14.49	21.98	17.97	14.99
EV/CE (x)	2.08	2.45	4.48	4.19	3.63
Mcap/Net sales	0.98	1.35	2.23	1.97	1.87

Table 4.4

Liquidity & Debt Ratios	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17
Debt-Equity	0.45	0.46	0.42	0.45	0.34
Debt-Asset	0.31	0.32	0.29	0.31	0.25
Quick Ratio	1.4	1.5	0.7	0.4	0.6
Current Ratio	1.6	1.8	1.0	0.6	0.9

Table 4.5

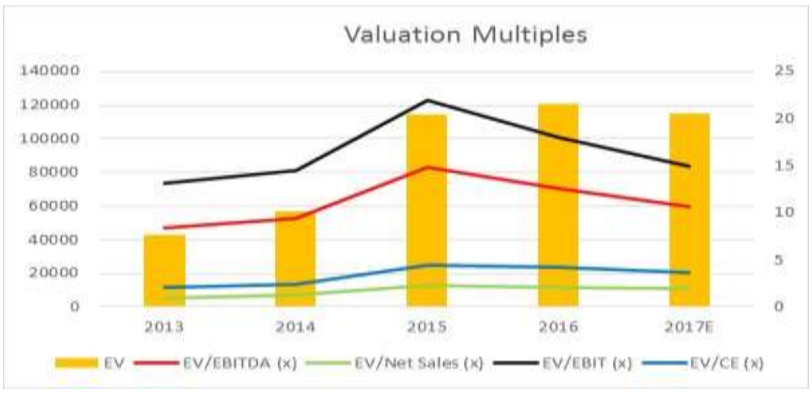

FIG 4.14

FIG 4.15

FIG 4.16

FIG 4.17

FIG 4.18

Valuation of Stock

a) Calculation for Growth rate

Weighted average growth rate of Maruti Suzuki Ltd is calculated by taking different weights of three growth rate namely; Outside estimate, Historical Growth in EPS and Fundamental growth rate. Outside estimate growth rate is affected by different market driving factors like inflation, market growth, and industry performance and investors sentiments. Historical growth in EPS is the average growth in EPS from last 4 years.

Fundamental growth rate = Retention Ratio*ROE

Retention Ratio = 88.70%

ROE = 14.6%

	Growth Rate	Weight
Outside Estimate	5%	0.4
Historical Growth in EPS	15.36%	0.3
Fundamental Growth Rate	12.96%	0.3
Weighted average Growth rate	10.50%	

b) Calculation for Cost of Equity

The cost of equity is the return a company requires to decide if an investment meets capital return requirements; it is often used as a capital budgeting threshold for required rate of return. A firm's cost of equity represents the compensation the market demands in exchange for owning the asset and bearing the risk of ownership. The traditional formulas for cost of equity (COE) are the dividend capitalization model and the capital asset pricing model.

$$r_e = r_f + \beta(r_m - r_f)$$

where

r_e = Required Return on Equity

r_f = Risk-free Rate

r_m = Market Return

β = Stock Beta

$(r_m - r_f)$ = Equity Risk Premium

			Risk Premium			
			4%	4.5%	5%	5.5%
Company	Beta	Risk Free Rate	CoE	CoE	CoE	CoE
Maruti Suzuki Ltd	0.81		10.2%	10.6%	11.0%	11.4%
Mahindra & Mahindra Ltd	0.87		10.4%	10.2%	11.1%	11.5%
Tata Motors Ltd	1.41	6.94%	12.6%	10.2%	11.2%	11.5%

c) Intrinsic Value Calculation

$Div_1 = Div_0 * (1 + growth\ rate)$

Growth Rate = 10.45% (constant)

Cost of equity = 10.80% (constant)

Intrinsic Value = $\sum Div_t / (CoE - Growth\ rate)^n$

	2017	2018	2019	2020
DPS	21.19	24.58	27.36	30.41
Growth rate	10.45%	10.45%	10.45%	10.45%
CoE Avg	10.80%	10.80%	10.80%	10.80%
Dividend PV	6054.38	24.58	0.10	0.00
Intrinsic Value	6079.06			

Intrinsic value = Rs 6079.06

Current Price = Rs 6674.23 (as on 2 may 2017; NSE)

d) Analysis:

1. Maruti Suzuki ltd stock price is over-valued on NSE.
2. Recommendation : SELL

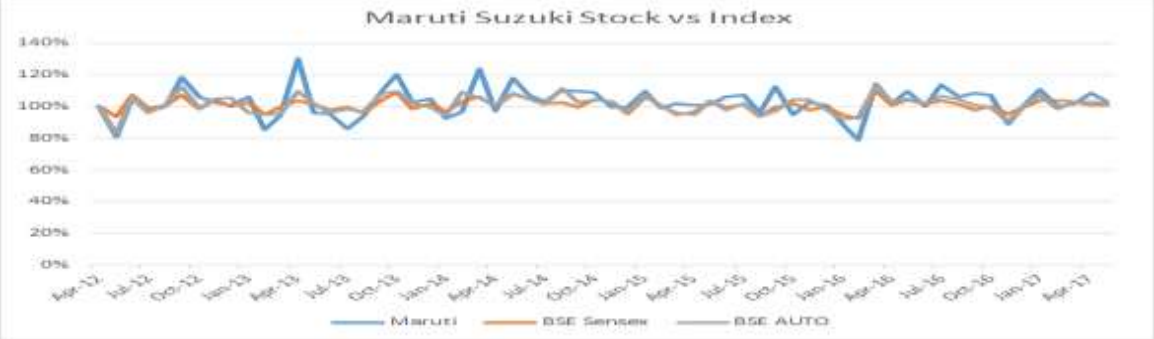

FIG 4.19

4.3.2 Tata Motors Ltd

Established in 1945, Tata Motors Limited is India's largest automobile company with over 60,000 employees. Tata Motors Limited (“Tata Motors” or the “Company”) is among the largest automobile manufacturing companies in the world by volume, and has presence across a range of passenger and commercial vehicles.

The company is the leader in commercial vehicles in each segment, and among the top in passenger vehicles with winning products in the compact, midsize car and utility vehicle segments. It is also the world's fifth largest truck manufacturer and fourth largest bus manufacturer.

Tata Motors is expanding its international footprint, established through exports since 1961. It is also listed in the New York Stock Exchange (September 2004) and has emerged as an international automobile company. The company's commercial and passenger vehicles are already being marketed in several countries in Europe, Africa, the Middle East, South East Asia, South Asia, South America, CIS and Russia. It has franchisee/joint venture assembly operations in Bangladesh, Ukraine, and Senegal.

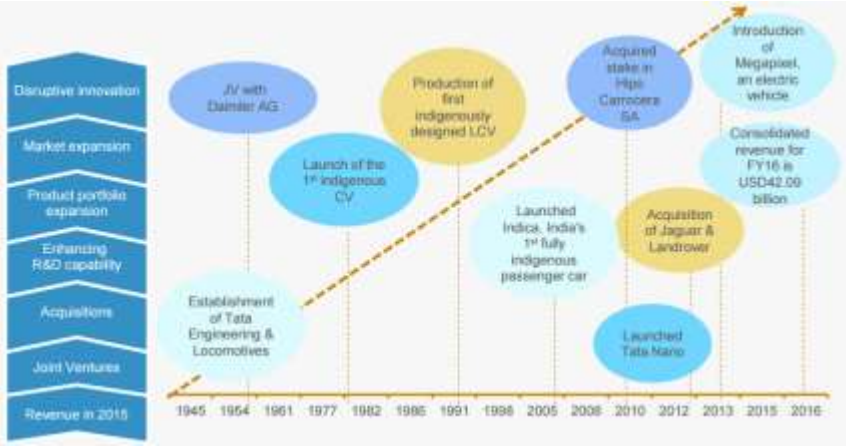

FIG 4.20

SWOT Analysis

Strength

Tata Motors is the largest automobile manufacturing company in the world by volume, with presence across a range of passenger cars and Commercial Vehicles (CV). It is the market leader in terms of volumes in CV Segment (including, Light Commercial Vehicles + Medium & Heavy Commercial Vehicles segments) and enjoys market share of ~ 58% in CV segment which has grown consistently over the last few years.

Tata Motors has been focusing on improving the mix of its products and markets. In India, future growth is expected to be driven largely in tier 2 and tier 3 cities. With growing rural affluence and broader connectivity, the Indian automobile industry will benefit from an increased demand in rural areas.

New Product launches Tata Motors is planning to launch a series of passenger cars (hatchback, sedan and sport utility) vehicle until FY2020 to increase its market share and has plans to launch two new cars every year.

1. Tata Motors is one of the most established company in automobile sector in India
2. Tata Motors has a wide & extensive distribution and service network
3. Good market penetration in the taxi & rental segment
4. Expert service professionals available
5. More than 70,000 employees are present with Tata Motors
6. Highly diversified product portfolio
7. Strong brand legacy owing to parent brand Tata

Weaknesses

1. Limited international presence as compared to international car manufacturers
2. Controversies like Singur plant for Nano etc hurt Tata Motors

Opportunities

1. Expanding automobile market can be a boon for Tata Motors
2. Increasing per capita income and purchasing capability of potential customer base
3. Leveraging customer engagement experience to acquire new customers can be done by Tata Motors
4. Leveraging mergers and acquisitions to acquire newer technology
5. Tata Motors can boost business by augmenting the distribution and service network in various countries

Threats

1. Increasing fuel costs
2. Competition from other big automobile giants means reduced market share for Tata Motors
3. Competitive products offering same level features at a lesser price
4. Product innovations and frugal engineering by competitors

Ownership Pattern

In its latest stock exchange filing dated 31 March 2017, Tata Motors reported a promoter holding of 33.01 %. Large promoter holding indicates conviction and sincerity of the promoters. We believe that a greater than 35 % promoter holding offers safety to the retail investors. At the same time, institutional holding in the Company stood at 39.16 % (FII+DII). Large institutional holding indicates the confidence of seasoned investors. At the same time, it can also lead to high volatility in the stock price as institutions buy and sell larger stakes than retail participants.

Performance Ratio (%)	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17E
EBITDA Margin	13%	15%	15%	14%	14%
Gross Margin	35%	37%	38%	40%	41%
EBIT Margin	9%	11%	10%	8%	8%

Table 4.6

Profitability Ratio (%)	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17E
ROCE	21%	19%	19%	13%	14%
ROE	26%	21%	25%	14%	16%
ROA	6%	6%	6%	4%	5%
EPS	31.01	43.47	43.45	32.46	41.47
DPS	4.79	2.14	2.12	0.25	2.49
P/E	8.14	9.23	12.86	11.70	12.85

Table 4.7

DuPont Analysis	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17E
PAT/PBT	0.72	0.75	0.65	0.79	0.75
PBT/EBIT	0.77	0.77	0.81	0.67	0.75
EBIT/Net Sales	0.09	0.11	0.10	0.08	0.08
Net Sales/Total Assets	1.11	1.06	1.10	1.02	1.03
Total Assets/Equity	4.53	3.35	4.24	3.33	3.37
ROE	26%	21%	25%	14%	16%

Table 4.8

Valuation Ratios	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17E
EV/EBITDA (x)	3.30	3.58	3.45	4.20	4.77
EV/Net Sales (x)	0.44	0.55	0.53	0.58	0.69
EV/EBIT (x)	4.71	5.19	5.17	7.65	8.54
EV/CE (x)	1.00	1.00	1.00	1.00	1.16
Mcap/Net sales	0.43	0.55	0.68	0.47	0.58

Table 4.9

Liquidity & Debt Ratios	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17E
Debt-Equity	3.53	2.35	3.24	2.33	2.37
Debt-Asset	78%	70%	76%	70%	70%
Quick Ratio	0.6	0.7	0.7	0.7	0.8
Current Ratio	0.9	1.0	1.0	1.0	1.1

Table 4.10

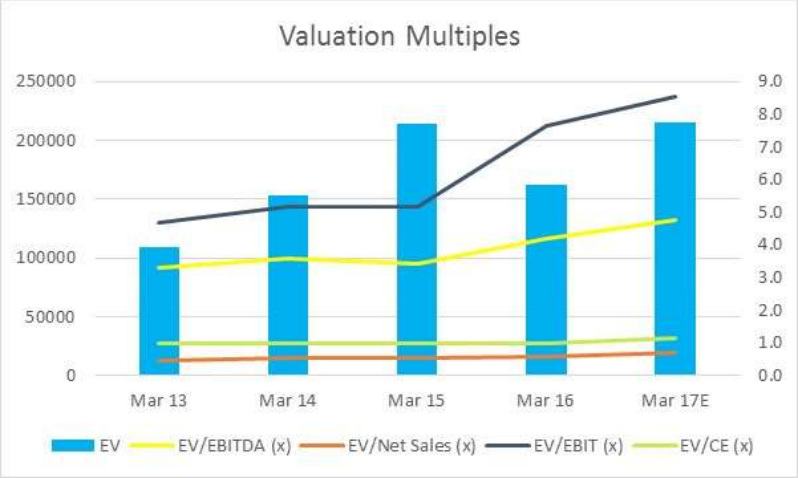

FIG 4.21

FIG 4.22

FIG 4.23

FIG 4.24

FIG 4.25

Valuation of Stock

a) Calculation for Growth rate

Weighted average growth rate of Tata Motors Ltd is calculated by taking different weights of three growth rate namely; Outside estimate, Historical Growth in EPS and Fundamental growth rate. Outside estimate growth rate is affected by different market driving factors like inflation, market growth, and industry performance and investors sentiments. Historical growth in EPS is the average growth in EPS from last 4 years.

Fundamental growth rate = Retention Ratio*ROE

Retention Ratio = 94.0%

ROE = 19.89%

	Growth Rate	Weight
Outside Estimate	8%	0.4
Historical Growth in EPS	5.00%	0.3
Fundamental Growth Rate	18.70%	0.3
WA Growth rate	10.3%	

b) Calculation for Cost of Equity

The cost of equity is the return a company requires to decide if an investment meets capital return requirements; it is often used as a capital budgeting threshold for required rate of return. A firm's cost of equity represents the compensation the market demands in exchange for owning the asset and bearing the risk of ownership. The traditional formulas for cost of equity (COE) are the dividend capitalization model and the capital asset pricing model.

$$r_e = r_f + \beta(r_m - r_f)$$

where

r_e = Required Return on Equity

r_f = Risk-free Rate

r_m = Market Return

β = Stock Beta

$(r_m - r_f)$ = Equity Risk Premium

			Risk Premium			
			4%	4.5%	5%	5.5%
Company	Beta	Risk Free Rate	CoE	CoE	CoE	CoE
Maruti Suzuki Ltd	0.81		10.2%	10.6%	11.0%	11.4%
Mahindra & Mahindra Ltd	0.87		10.4%	10.2%	11.1%	11.5%
Tata Motors Ltd	1.41	6.94%	12.6%	10.2%	11.2%	11.5%

c) Intrinsic Value Calculation

$Div_1 = Div_0 * (1 + growth\ rate)$

Growth Rate = 10.3% (constant)

Cost of equity = 11.40% (constant)

Intrinsic Value = $\sum Div_t / (CoE - Growth\ rate)^n$

	2017	2018	2019	2020
DPS	2.49	2.73	3.01	3.21
Growth rate	10.3%	10.3%	10.3%	10.3%
CoE Avg	11.40%	11.40%	11.40%	11.40%
Dividend PV	226.19	2.73	0.03	0.00
Intrinsic Value	228.95			

Intrinsic value = Rs 228.95

Current Price = Rs 451.62 (as on 2 may 2017; NSE)

d) Analysis:

1. Tata Motors stock price is over-valued on NSE.
2. Recommendation : SELL

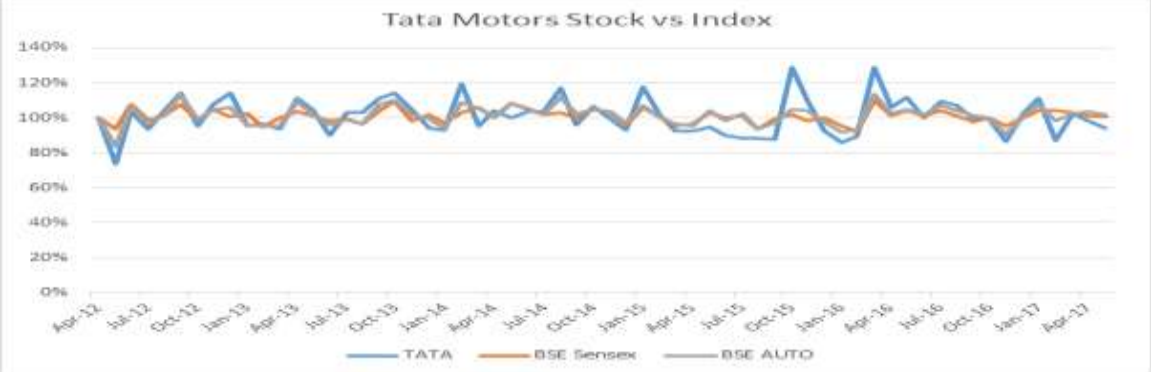

FIG 4.26

4.3.3 Mahindra & Mahindra

Founded in 1945 as a steel trading company, Mahindra and Mahindra (M&M) entered automotive manufacturing in 1947 to bring the iconic Willys Jeep to Indian roads. Over the years, the company diversified into many new businesses in order to better meet the needs of the customers.

With over 65 years of operations, M&M is still India's premier utility vehicle (UV) company. In addition to making groundbreaking UVs like the Scorpio and Bolero, Mahindra offers cars, electric vehicles, pickups, and commercial vehicles that are rugged, reliable, environment friendly, and fuel-efficient.

Mahindra maintains its vast customer base through the construction of excellent components, provision of spares, and commitment to superior service. The company also successfully caters to customers' transportation needs through its expert design, top-class manufacturing, and top-of-the-line service.

Mahindra and Mahindra: Leader in utility vehicle

2015	Mahindra rolls out its five millionth vehicle
2014	Launches first indigenously designed scooter Gusto
2013	Mahindra Two Wheelers receives international patents for four technology innovations
2012	Mahindra First Choice Wheels reaches significant milestone of 200 outlets
2011	Acquires SsangYong Motor Company
2011	Mahindra Racing enters the Italian Championship with Indian rider Sarath Kumar

Mahindra & Mahindra Limited ("Mahindra & Mahindra" or the "Company") is a major automobile manufacturer of utility vehicles, passenger cars, pickup trucks, commercial vehicles, and two wheelers.

SWOT Analysis

Strengths

The tractor industry in India is dominated by 3 players' viz. M&M, TAFE and Escorts who together control 70% of the overall tractor market. M&M is the market leader with ~42% market share. M&M has maintained its market share in domestic tractor industry since acquisition of Swaraj Tractors in FY 2009. The company plans to launch six new tractors in the next three years, three each under its Mahindra and Swaraj brands.

1. Mahindra has been one of the strongest brands in the Indian automobile market
2. Mahindra group give employment to over 110,000 employees
3. Excellent branding and advertising, and low after sales service cost
4. Sturdy SUV's good for Indian roads and off-road terrain

Weakness

1. Mahindra's partnership with Renault did not live up to international quality standards through their brand Logan

Opportunities

1. Developing hybrid cars and fuel efficient cars for the future
2. Tapping emerging markets across the world and building a global brand
3. Fast growing automobile market
4. Growing in the market through electric car Reva (controlling stake) and entry into two-wheeler segments

Threats

1. Government policies for the automobile sector across the world
2. Ever increasing fuel prices.
3. Intense competition from global automobile brands. Substitute modes of public transport like buses, metro trains etc.

Performance Ratio (%)	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17E
EBITDA Margin	14%	14%	13%	13%	14%
Gross Margin	39%	39%	41%	42%	42%
EBIT Margin	12%	13%	11%	11%	12%

Table 4.11

Profitability Ratio (%)	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17E
ROCE	15%	14%	12%	11%	11%
ROE	18%	19%	10%	8%	9%
ROA	5%	5%	3%	2%	2%
EPS	69.44	79.06	53.05	54.19	65.97
DPS	16.89	18.54	20.28	18.02	19.79
P/E	12.07	12.65	22.66	22.06	20.88

Table 4.12

DuPont Analysis	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17E
PAT/PBT	0.65	0.74	0.60	0.56	0.62
PBT/EBIT	0.75	0.69	0.60	0.56	0.57
EBIT/Net Sales	0.12	0.13	0.11	0.11	0.12
Net Sales/Total Assets	0.82	0.76	0.67	0.64	0.59
Total Assets/Equity	3.83	3.79	3.67	3.78	3.72
ROE	18%	19%	10%	8%	9%

Table 4.13

Valuation Ratios	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17E
EV/EBITDA (x)	9.55	10.06	13.37	12.90	14.04
EV/Net Sales (x)	1.45	1.60	1.97	1.88	2.19
EV/EBIT (x)	12.23	12.64	17.32	17.28	18.49
EV/CE (x)	1.80	1.76	2.04	1.93	2.07
Mcap/Net sales	0.79	0.88	1.12	1.01	1.17

Table 4.14

Liquidity & Debt Ratios	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17E
Debt-Equity	2.83	2.79	2.67	2.78	2.72
Debt-Asset	74%	74%	73%	74%	73%
Quick Ratio	1.0	1.1	0.9	0.9	0.9
Current Ratio	1.3	1.4	1.2	1.2	1.1

Table 4.15

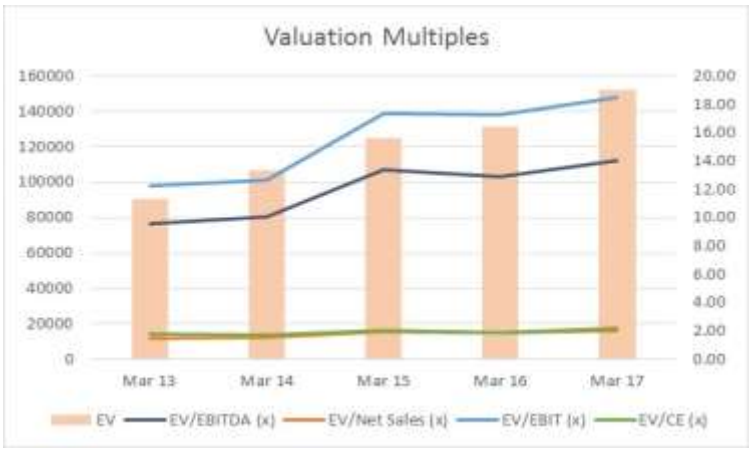

FIG 4.27

FIG 4.28

FIG 4.29

FIG 4.30

FIG 4.31

Valuation of Stock

a) Calculation for Growth rate

Weighted average growth rate of Tata Motors Ltd is calculated by taking different weights of three growth rate namely; Outside estimate, Historical Growth in EPS and Fundamental growth rate. Outside estimate growth rate is affected by different market driving factors like inflation, market growth, and industry performance and investors sentiments. Historical growth in EPS is the average growth in EPS from last 4 years.

Fundamental growth rate = Retention Ratio*ROE

Retention Ratio = 70%

ROE = 13%

	Growth Rate	Weight
Outside Estimate	14.30%	0.4
Historical Growth in EPS	2.00%	0.3
Fundamental Growth Rate	9.30%	0.3
WA Growth rate	9.1%	

b) Calculation for Cost of Equity

The cost of equity is the return a company requires to decide if an investment meets capital return requirements; it is often used as a capital budgeting threshold for required rate of return. A firm's cost of equity represents the compensation the market demands in exchange for owning the asset and bearing the risk of ownership. The traditional formulas for cost of equity (COE) are the dividend capitalization model and the capital asset pricing model.

$$r_e = r_f + \beta(r_m - r_f)$$

where

r_e = Required Return on Equity

r_f = Risk-free Rate

r_m = Market Return

β = Stock Beta

$(r_m - r_f)$ = Equity Risk Premium

			Risk Premium			
			4%	4.5%	5%	5.5%
Company	Beta	Risk Free Rate	CoE	CoE	CoE	CoE
Maruti Suzuki Ltd	0.81		10.2%	10.6%	11.0%	11.4%
Mahindra & Mahindra Ltd	0.87		10.4%	10.2%	11.1%	11.5%
Tata Motors Ltd	1.41	6.94%	12.6%	10.2%	11.2%	11.5%

c) Intrinsic Value Calculation

$Div_1 = Div_0 * (1 + growth\ rate)$

Growth Rate = 9.1% (constant)

Cost of equity = 10.80% (constant)

Intrinsic Value = $\sum Div_t / (CoE - Growth\ rate)^n$

	2017	2018	2019	2020
DPS	19.79	21.57	23.53	25.67
Growth rate	9.1%	9.1%	9.1%	9.1%
CoE Avg	10.80%	10.80%	10.80%	10.80%
Dividend PV	1164.19	21.57	0.40	0.01
Intrinsic value	1186.17			

Intrinsic value = Rs 1186.17

Current Price = Rs 1341 (as on 2 may 2017; NSE)

d) Analysis:

1. Tata Motors stock price is over-valued on NSE.
2. Recommendation : SELL

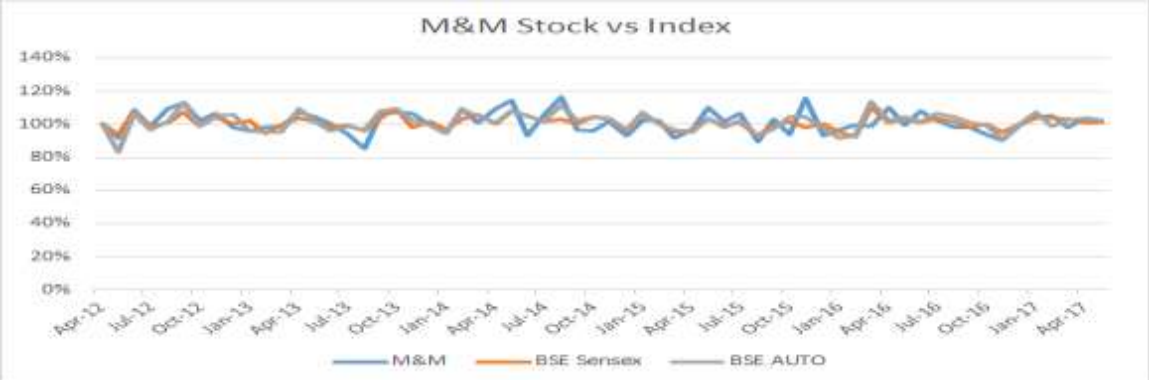

FIG 4.32

4.4 Peer Group Comparison

Peer group comparison is a method of valuing a firm by comparing standardized valuation metrics with those of similar companies, and it is generally the starting point in peer comparison analysis. Relevant ratios, such as price-earnings (P/E), price-to-sales (P/S), enterprise value / EBITDA (EV/EBITDA), or others that are relevant to the investment decision are taken to find these ratios for each company in the peer group and to see how each company stacks up to the rest.

The peer group is often made up of other firms in the same industry, but peers can also be chosen based on other circumstances of the firm, such as life-cycle stage.

Peer Group Analysis								
Y/E march	Sales	EBITDA	PAT	EBITDA Margin %	PAT Margin %	ROE %	P/E	EV/EBITDA
Maruti Suzuki Ltd								
2015	49295	7709.1	3790.6	15.6%	7.7%	16%	28.9	5.24
2016	57061.5	9590.3	4630.9	16.8%	8.1%	17%	23.9	4.64
2017E	60101.05	10866.05	5301.9	18.1%	8.8%	17%	21.1	3.58
Tata Motors Ltd								
2015	263158.98	40137.39	14059.65	15.3%	5.3%	25.0%	12.9	3.45
2016	275561.11	37737.95	11108.27	13.7%	4.0%	13.8%	11.7	4.20
2017E	312744.255	45100.86	14140.06	14.4%	4.5%	15.7%	12.8	4.77
Mahindra & Mahindra Ltd								
2015	63361.96	9318.32	3137.47	14.7%	4.1%	10.0%	12.6	13.37
2016	69785.97	10188.39	3211.26	14.6%	3.4%	8.3%	22.7	12.90
2017E	69501.84	10820.565	3909.705	15.6%	4.2%	9.3%	22.1	13.04

Analysis:

1. Expected valuation multiples are calculated based on historical data of last two years using fundamental analysis.
2. Maruti Suzuki Ltd is performing quite well in Indian Automotive market and stacks up a big amount of share in automobile market. EBITDA margin% and P/E multiple shows a good health of Maruti Suzuki ltd.
3. Tata Motors, though having largest market around the globe when comparing with Maruti Suzuki ltd, it lacks in performing in Indian market. EV/EBITDA multiple is quite low in comparison with other two firms. P/E multiple is 12.5 in average. Despite having heavy sales and PAT figures, Tata Motors ltd is performing averagely in Indian Automotive market.
4. Mahindra & Mahindra ltd is performing parallel to Maruti Suzuki ltd.

4.5 Limitations of the Study

1. The study doesn't focus on identifying the reasons behind the deviation of the market value of the companies' stock from its intrinsic value.
2. Only secondary data is considered for the project and not any primary data.
3. The study doesn't focus on identifying the reasons behind the deviation of the market value of the stocks from its intrinsic value. This study is only limited to M&M, Tata Motors and Maruti Suzuki Ltd.
4. The stock market is influenced by investor confidence and sentiments which make a significant impact on the share prices leading a gap between the calculated values and the actual values. This factor of investor confidence has not been considered in the valuation.
5. The various economic parameters like inflation have not been considered which influence the value of the equity in the market.

5. FINDINGS & CONCLUSIONS

The Indian auto industry is one of the largest in the world. The industry accounts for 7.1 per cent of the country's Gross Domestic Product (GDP). The Two Wheelers segment with 81 per cent market share is the leader of the Indian Automobile market owing to a growing middle class and a young population. Moreover, the growing interest of the companies in exploring the rural markets further aided the growth of the sector. The overall Passenger Vehicle (PV) segment has 13 per cent market share.

India is also a prominent auto exporter and has strong export growth expectations for the near future. In April-March 2016, overall automobile exports grew by 1.91 per cent. PV, Commercial Vehicles (CV), and Two Wheelers (2W) registered a growth of 5.24 per cent, 16.97 per cent, and 0.97 per cent respectively in April-March 2016 over April-March 2015.* In addition, several initiatives by the Government of India and the major automobile players in the Indian market are expected to make India a leader in the 2W and Four Wheeler (4W) market in the world by 2020.

5.1 Ratio Analysis

1. Maruti Suzuki ltd and Mahindra & Mahindra ltd have continued to increase their earnings for last 4 years. However, there are some irregularities in earnings of past 4 years of Tata motors Ltd.
2. Maruti Suzuki ltd stands fundamentally very strong when compared with other two companies. It has outperformed in all the aspects, such as ROE, P/E, EV/EBITDA, EV/PAT, and ROA and in terms of liquidity.
3. The next company better in terms of value is Mahindra & Mahindra ltd. It has been performing well in Indian automobile market. It has been consistently performing well in terms of ROE, ROA, EV/EBITDA and liquidity terms.
4. Tata Motors ltd performed well in 2016 when compared to previous year. It has been inconsistent in performance due to many factors like bigger

coverage on globe, management disputes and merger & acquisition in recent past.

5. In this study, we found that Mahindra & Mahindra Ltd and Tata Motors Ltd has high Debt-Equity ratio which means they have a high amount of debt in their capital structure which makes it a risky stock. Maruti Suzuki Ltd, on the other hand, has half of its debt to equity which means that the capital structure of Maruti Suzuki ltd is comprised more of equity than of debt making it a non-risky company. Liquidity ability of Tata Motors Ltd is higher when in comparison with Maruti Suzuki and M&M Ltd. Debt-Asset ratio is quite similar of all the three firms which means that all the three companies have less asset to meet their debt.
6. M&M had performed well in FY 2013 and FY 2014 where it generated good numbers in EBITDA margin and Gross sales. But, after FY 2014, M&M has seen a downfall in profitability and performance. EBITDA has come down to 14% in FY17. RoCE, RoE and RoA has fallen down to 13%, 14% and 4% respectively. The company's solvency position more or less remained the same.
7. Tata Motors, on the other hand, performed slightly well in the period 2014-16. P/E has been increased from 12.6 to 22.1. Other profitability parameters have been more or less consistent from FY14 to FY17. Fundamental growth rate has fallen since FY14 by 33%. RoE has come down from 19% to just 8%. Ev/Ebitda multiple is 12.9x for FY17.
8. The analysis of companies on the basis of valuation ratios/multiples shows that Maruti Suzuki Ltd has been performing at par in terms of EV/EBITDA multiple. An increment of 3x is seen in EV/EBITDA multiple. On the other hand, Mahindra & Mahindra valued at 4.2x in 2016 and Tata Motors is valued at 12.9x in 2016 making it the best valued company in all three. Mcap/Sales ratio analysis showed that Maruti Suzuki Ltd is capitalized twice to its Net sales in 2016. Tata Motors is equated in terms of Market capitalization with Net sales in 2016 and Mahindra & Mahindra Ltd market capitalization valued at half with respect to its Net Sales in 2016. Capital

Employed ratio shows the utilization of capital and how much the enterprise is valued in the market. Maruti Suzuki Ltd is valued 4x to its capital employed, Tata Motors at 2x and Mahindra & Mahindra Ltd

5.2 Valuation

1. The Dividend Discount Model is applied to calculate the approximate intrinsic value of a stock and this value is compared with the market value of the stock. This comparison enables the investors and financial analysts to take a decision of investing in a company.

- The intrinsic value of Maruti Suzuki ltd stock is Rs 6076.06 and the current market price is Rs 6674. Therefore, the stock is over-valued.
- The intrinsic value of Tata Motors ltd stock is Rs 228.95and the current market price is Rs 451.62. Therefore, the stock is over-valued.
- The intrinsic value of Mahindra & Mahindra ltd stock is Rs 1186.17 and the current market price is Rs 1341. Therefore, the stock is over-valued.

2. The Indian automotive industry is progressing consistently from last 5 years and thus Automotive Indices on different markets such as BSE NSE are showing healthy future. Despite being over-valued, all three companies hold well near future. All three companies stocks are over-valued on stock exchanges because of various factors like industry valuation, investor's sentiments, inflation rate, GDP growth rate etc.
3. This study recommends a SELL signal to Maruti Suzuki Ltd stock & HOLD signal to Mahindra & Mahindra Ltd and Tata Motors ltd despite being over-valued stock prices.

6. REFERENCES / BIBLIOGRAPHY

Annual Reports

Annual report 2013, Maruti Suzuki Ltd, available at www.marutisuzuki.com

Annual report 2014, Maruti Suzuki Ltd, available at www.marutisuzuki.com

Annual report 2015, Maruti Suzuki Ltd, available at www.marutisuzuki.com

Annual report 2016, Maruti Suzuki Ltd, available at www.marutisuzuki.com

Annual report 2013, Tata Motors Ltd, available at www.tatamotors.com

Annual report 2014, Tata Motors Ltd, available at www.tatamotors.com

Annual report 2015, Tata Motors Ltd, available at www.tatamotors.com

Annual report 2016, Tata Motors Ltd, available at www.tatamotors.com

Annual report 2013, Mahindra & Mahindra Ltd, available at www.mahindra.com

Annual report 2014, Mahindra & Mahindra Ltd, available at www.mahindra.com

Annual report 2015, Mahindra & Mahindra Ltd, available at www.mahindra.com

Annual report 2016, Mahindra & Mahindra Ltd, available at www.mahindra.com

Journals and Research Papers

1. Fisher, D. E. and Jordan, R. J., 1995. Security Analysis and Portfolio Management. 6th Ed. Prentice-Hall, New York, N.Y.
2. Holthausen, R. W. & Lacker, D. F., 1992. The prediction of stock return using financial statement information. Journal of Accounting & Economics.15, 2-3, 373 – 411.
3. Lev, B. and Thiagarajan, R., 1993. Fundamental Information analysis. Journal of Accounting Research. 31, 2, 190 - 215.
4. Ohlson, J. A., 1990. A synthesis of security valuation theory and the role of dividends, cash flows, and earnings. Contemporary Accounting Research. 6, 2, 648 – 676
5. Ou, J. A. & Penman, S. H., 1989. Financial statement analysis and the prediction of stock returns. Journal of Accounting and Economics. 11, 4,295 – 329.
6. Bauman, P. M., 1996. A review of Fundamental Analysis Research in Accounting. Journal of Accounting Literature. 15, 1 - 33.

7. ANNEXURE

7.1 Maruti Suzuki Ltd

Consolidated Statement of Profit & Loss	Maruti Suzuki Ltd							
	For the Year ended 31st March							
Particulars	2013	2014	2015	2016	2017	2018	2019	2020
REVENUE								
Gross Sales	48797	48530.5	54545.9	64675.9	67550.35	75623.05	82125.275	87598.85
growth %		-1%	12%	19%	4%	12%	9%	7%
Less: Excise Duty & Cess	5581.1	5258.7	5250.9	7614.4	7449.3	8627.15	9726.35	10232.725
% of Gross Sales	11%	11%	10%	12%	11%	11%	12%	12%
Less: Sales Tax	0	0	0	0	0	0	0	0
% of Gross Sales	0%	0%	0%	0%	0%	0%	0%	0%
Net Sales from Operations	43215.9	43271.8	49295	57061.5	60101.05	66995.9	72398.925	77366.125
growth %		0%	14%	16%	5%	11%	8%	7%
Other Income from Ops	1088.5	1270	1506.4	1550.5	1759.45	1899.7	2026.225	2200.825
Other Income	830.1	739.3	865	471.5	488.95	355.05	167.025	108.8
Net Revenue	45134.5	45281.1	51666.4	59083.5	62349.45	69250.65	74592.175	79675.75
EXPENDITURE								
(Increase/Decrease) in Stock	0	0	0	0				
% of sales	0%	0%	0%	0%	0%			
Raw materials	30789.8	29345.2	33361.2	36200.7	37486.4	40914.15	42976.75	45333.475
% of sales	71%	68%	68%	63%	62%	61%	59%	59%
Purchase of traded goods	2242	2487.4	2714.4	3171.5	3407.7	3749.75	4096.4	4385.525
% of sales	5%	6%	6%	6%	6%	6%	6%	6%
COGS	33031.8	31832.6	36075.6	39372.2	40894.1	44663.9	47073.15	49719
Mfg. Expense	-43.8	-34.3	-69.1	-60.2	0			
% of sales	0%	0%	0%	0%	0%			
Selling Expense	0	0	0	0	0			
% of sales	0%	0%	0%	0%	0%			
Admin. Expense		0						
% of sales	0%	0%	0%	0%	0%			
Other Expense	5849.5	6004.4	6740.7	8114.7	0			
% of sales	14%	14%	14%	14%	0%			
Duties and taxes(and IT)	0	0	0	0	0			
% of sales	0%	0%	0%	0%	0%			
Changes in inventories of finished goods, work-in-p	19.2	20.4	-460.9	6.3	0			
% of sales	0%	0%	-1%	0%	0%			
Employee Benefit Expense	1120.2	1423.7	1671	2060.2				
% of sales	3%	3%	3%	4%	0%			
Less : Cost of product capitalised								
Expenditure(before D/A,Frost)	39976.90	39246.80	43957.30	49493.20	51483.40	56606.60	60369.65	63926.35
Total Expenditure	42064.4	41547.3	46690.4	52453.9	54766.9	60265.6	64362.2	68263.05
EBITDA	5157.6	6034.3	7709.1	9550.3	10866.05	12644.05	14222.525	15749.4
EBITDA Margin %	12%	14%	16%	17%	18%			
Depreciation & Amortizaton	1889.7	2116	2515.3	2867	3179.8	3555.3	3887.55	4231.7
EBIT	3267.9	3918.3	5193.8	6723.3	7686.25	9088.75	10334.975	11517.7
EBIT	3267.9	3918.3	5193.8	6723.3	7686.25	9088.75	10334.975	11517.7
EBIT Margin %	8%	9%	11%	12%	12%	14%	14%	15%
Finance Cost	197.8	184.5	217.8	91.7	103.7	103.7	105	105
PBT before Exceptional	3070.1	3733.8	4976	6625.6	7582.55	8985.05	10229.975	11412.7
Margin %	7%	9%	10%	12%	12%	13%	14%	15%
Add/Less : Exceptional Items								
Add/Less : Extraordinary Items	0	0	0	0				
PBT	3070.1	3733.8	4976	6629.6	7582.55	8985.05	10229.975	11412.7
Margin %	7%	9%	10%	12%	12%	13%	14%	15%
TAX EXPENSE								
Commulative Tax		0	0	0				
Current Income Tax	741.9	774	1336.3	2078.8				
Deferred income tax	-30	128.2	-80.5	-80.1				
Tax of earlier years		0	0	0				
Less : Mat Credit	90.4	0	70.4	0				
Total Tax	621.5	902.2	1185.4	1998.7	2280.65	2828.9	3376.525	3791.625
Effective tax rate	20.24%	24.16%	23.82%	30.15%	30.08%	31.48%	33.01%	33.22%
PAT	2448.6	2831.6	3790.6	4630.9	5301.9	6156.15	6853.45	7621.075
PAT Margin %	6%	7%	8%	8%	9%	9%	9%	10%
growth %		16%	34%	22%	14%	16%	11%	11%
Less: Div on pref. shares	0	0	0	0	0			
Add/Less : Minority Interest	1.3	1.6	1.2	1	1	1	1	1
Share of Profit/Loss in Associates Inv.	21.9	22.9	18	68.9	30	30	30	30
PAT after MI	2471.8	2856.1	3809.8	4700.8	5332.9	6187.15	6884.45	7652.075
EPS								
Paid up share capital								
Basic EPS	81.74	94.4	126.04	155.5	176.6	204.9	228.0	253.4
growth %		15.5%	33.5%	23.4%	13.6%	16.0%	11.3%	11.2%
Diluted EPS	81.74	94.4	126.04	155.5	176.6	204.9	228.0	253.4

Consolidated Balance Sheet	Maruti Suzuki Ltd			
	As at 31st March			
Particulars	**2013**	**2014**	**2015**	**2016**
I. EQUITY AND LIABILITIES				
(1) Shareholder's funds				
(a) Share Capital	151	151	151	151
(b) Reserves and surplus	18876.8	21345.4	24167.4	27597.7
Total Owners Equity	**19027.8**	**21496.4**	**24318.4**	**27748.7**
(2) Non-current liabilities				
(a) Long-term borrowings	704.9	627.4	278.3	147.1
(b) Deferred tax liabilities (net)	417.6	596.2	484.4	475.1
(c) Other Long term liabilities	258.8	247.6	105.9	122.4
(d) Long term provisions	225.9	200.7	295.8	302.1
(e.) Minorty Interest	10.6	12.2	13.4	14.4
Long term Liabilities	**1617.8**	**1684.1**	**1177.8**	**1061.1**
(3) Current liabilities				
(a) Short-term borrowings	863.9	1237.9	52.5	90.7
(b) Trade payables	4277.2	4998.9		
(i) Total outstanding dues of micro enterprises and small enterprises			59	53.3
(ii) Total outstanding dues of creditors other than micro enterprises and small enterprises			5454.5	7073.8
(c) Other current liabilities	1088.4	1385.3	2058.2	2407.8
(d) Short-term provisions	641.9	672.9	1356.5	1834.5
Current Liabilities	**6871.4**	**8295**	**8980.7**	**11460.1**
Total Liabilities (I)	**8489.2**	**9979.1**	**10158.5**	**12521.2**
Total Liabilities (II)	**27517**	**31475.5**	**34476.9**	**40269.9**
II. ASSETS				
(1) Non-current assets				
(a) Fixed assets				
(i) tangible assets	9797.7	10849.3	12194.7	12625.1
(ii) Intangible assets	224	184.4	294.8	350.8
(iii) Capital work-in-progress	1966.5	2639.5	1890.1	1013.4
(iv) Intangile assets under development	0	0		
Total Fixed Assets	**11988.2**	**13673.2**	**14379.6**	**13989.3**
(b) Goodwill on consolidation				
(c) Non-current Investments	2171	1521.2	9991.8	17511.7
(d) Long term loans and advances	1287.8	1653.3	1366.6	1355.5
(e) Other non-current assets	894.6	53.8	44.2	9.1
(f) Deferred Tax Assets				
Total Long Term Assets	**16341.6**	**16901.5**	**25782.2**	**32865.6**
(2) Current Assets				
(a) Current Investments	5250.4	9005.9	3305.9	874.8
(b) Inventories	1887.2	1763.2	2745.3	3199.8
(c) Trade receivables	1535.5	1489.1	1144.3	1387.3
(d) Cash and cash equivalents	814.8	648.6	43.2	76.8
(e) Short-term loans and advances	1134.3	1283.9	1201.7	1595.7
(f) Other current assets	553.2	383.3	254.3	269.9
Total Current Assets	**11175.4**	**14574**	**8694.7**	**7404.3**
Total Assets	**27517**	**31475.5**	**34476.9**	**40269.9**

Cash Flow Statement	Maruti Suzuki Ltd			
	For the year ended			
	March 13	March 14	March 15	March 16
(A.) Cash flow from Operating Activities:				
Net Profit before Tax	3070	3733.8	4976	6629.6
Adjustments for:				
Depreciation and amortisation	1889.7	2116	2515.3	2867
Finance cost	197.8	184.5	217.8	93.7
Interest income	-313.5	-227	-108.9	-151.8
Dividend Income	-42.6	-54.5	-54.1	-10.7
Share of profit in respect of investment in associates	21.9	22.9	18	68.9
Share of minority interest	-1.3	-1.6	-1.2	-1
Net loss on sale / discarding of fixed assets	33.2	14.9	48.3	135.4
Profit on sale of investments (net)	-423.4	-455.5	-686.7	-303.9
Provisions no longer required written back	-47.2	-91.2	-145.2	-218.4
Provision for doubtful advances	6.3	0.1		
Unrealised foreign exchange (gain)/ loss	142.5	-131.5	-0.3	-19
Operating Profit before Working Capital changes	4533.5	5110.9	6779	9089.8
Adjustments for changes in Working Capital :				
Increase/(Decrease) in Trade Payables	633.5	812.9	711.5	1832
Increase/(Decrease) in Short Term Provisions	25.2	24.3	17.8	54
Increase/(Decrease) in Long Term Provisions	52.4	-25.2	95.1	6.3
Increase/(Decrease) in Other Current Liabilities	-49.7	87.3	424.3	494.5
Increase/(Decrease) in Other Long Term Liabilities	9.3	1.8	-8	16.5
Increase/Decrease in Trade Receivables	-412.1	46.4	344.8	-243
Increase/Decrease in Inventories	343.1	124	-982.1	-454.5
Increase/Decrease in Short Term Loans and Advances	-219.8	-149.6	82.2	-394
Increase/Decrease in Long Term Loans and Advances	-96.8	-413.1	-59.3	140.7
Increase/Decrease in Other Current Assets	-201.1	247.5	109.6	-45.5
Increase/Decrease in Other Non Current Assets	-7.9	-14.4	9.4	35.1
Cash generated from Operating Activities	4609.6	5852.8	7524.3	10531.9
Taxes (Paid) (Net of Tax Deducted at Source)	550.7	858.2	1075.1	1947.5
Net Cash from Operating Activities	4058.9	4994.6	6449.2	8584.4
(B.) Cash flow from Investing Activities:				
Purchase of Tangible Assets	-3572.5	-3544.9	-3057.8	-2442.9
Purchase of Intangible Assets	0	0	-131.5	-181
Sale of Tangible Assets	43.8	8.9	16.1	19.2
Sale of Current and Non Current Investments	11846.5	10449.8	15269.9	7404.5
Purchase of Current and Non Current Investments	-12694.6	-13100	-17353.8	-12189.4
Investments in Deposits with Banks	-1500	-900		
Maturities of Deposits with Banks	2260	1840	560	-6.8
Interest Received	350.2	194.8	151.9	66.9
Dividend Received	42.6	54.5	54.1	10.7
Net Cash from Investing Activities	-32240	-4996.9	-4491.1	-7318.8
(C.) Cash flow from Financing Activities:				
Proceeds from Short Term borrowings	863.9	1237.9	52.5	90.7
Repayment of Short Term borrowings	-1092.4	-863.9	-1237.9	-52.5
Proceeds from Long Term borrowings	168.8	26.5	39	28.4
Repayment of Long Term borrowings	-458.8	-21.5	-211.4	-292.1
Interest Paid	-208.3	-170.1	-221.6	-104.3
Dividend Paid	-216.7	-241.7	-362.5	-755.2
Corporate Dividend Tax Paid	-35.1	-41.1	-61.6	-153.8
Net Cash from Financing Activities	-978.6	-73.9	-2003.5	-1238.8
Net Increase/(Decrease) in Cash & Cash Equivalents	-143.7	-76.2	-45.4	26.8
Cash and Cash Equivalents as at 1st April (Opening Balance)	203.4	164.8	88.6	43.2
Cash and Cash Equivalents as at 1st April (previous year)	105.1			
Cash and Cash Equivalents as at 31st March (Closing Balance)	164.8	88.6	43.2	70
Cash and Cash Equivalents comprise	164.8	88.6	43.2	70
Cash & Cheques in Hand	103.6	55.2	1.3	2.5
Balance with Banks	34	32.9	35.3	67.5
Balance with Scheduled Banks in Deposit Accounts	27.2	0.5	6.6	0

Particulars	2012-13	2013-14	2014-15	2015-16
	In Rs (Crores)			
Current Asset	11175.4	14574	8694.7	7404.3
Current Liabilities	6871.4	8295	8980.7	11460.1
Total Assets	27517	31475.5	34476.9	40269.9
Total owner's equity	19027.8	21496.4	24318.4	27748.7
Inventory	1887.2	1763.2	2745.3	3199.8
Net Revenue	45134.5	45281.1	51666.4	59083.5
EPS (Rs)	81.74	94.4	126.04	155.5
Equity Multiplier	1.4	1.5	1.4	1.5
PAT	2448.6	2831.6	3790.6	4630.9
Total Liabilities	8489.2	9979.1	10158.5	12521.2
EBIT	3267.9	3918.3	5193.8	6723.3
EBITDA	5157.6	6034.3	7709.1	9590.3
EV	43016.12	56762.84	114134.04	120813.46
Minority Interest	10.6	12.2	13.4	14.4
Cash & Equivalents	7952.4	11417.7	6094.4	4151.4
Cash	814.8	648.6	43.2	76.8
Outstanding Shares	30.2	30.2	30.2	30.2
Stock Price (Rs)	1406.6	1927.2	3644.7	3723.3
C Emp	20645.6	23180.5	25496.2	28809.8
Mcap	42479.32	58201.44	110069.94	112443.66
Net sales	43215.9	43271.8	49295	57061.5
Dividend (Rs)	216.7	241.7	362.5	755.2

Ratio Analysis — **Maruti Suzuki Ltd**

Particulars	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19	Mar 20
Performance Ratio (%)								
EBITDA Margin	11%	13%	15%	16%	17%	18%	19%	20%
Gross Margin	27%	30%	30%	33%	34%	36%	37%	38%
EBIT Margin	8%	9%	11%	12%	13%	14%	14%	15%
Growth Rate	11.73%	12.05%	14.10%	13.97%	15.35%	16.16%	16.50%	17.00%
Profitability Ratio (%)								
ROCE	16%	17%	20%	23%	24%	26%	27%	28%
ROE	13%	13%	16%	17%	17%	18%	19%	19%
ROA	9%	9%	11%	11%	13%	14%	14%	15%
EPS	81.74	94.40	126.04	155.50	176.59	204.87	227.96	253.38
DPS	7.18	8.00	12.00	25.01	21.19	24.58	27.36	30.41
P/E	17.21	20.42	28.92	23.94	21.08	18.17	16.33	14.69
Dividend Payout Ratio	9%	9%	10%	16%	12%	12%	12%	12%
Retention Ratio	91%	91%	90%	84%	88%	88%	88%	88%
DuPont Analysis								
PAT/PBT	0.80	0.76	0.76	0.70	0.70	0.69	0.67	0.67
PBT/EBIT	0.94	0.95	0.96	0.99	0.99	0.99	0.99	0.99
EBIT/Net Sales	0.08	0.09	0.11	0.12	0.13	0.14	0.14	0.15
Net Sales/Total Assets	1.57	1.37	1.43	1.42	1.48	1.53	1.53	1.52
Total Assets/Equity	1.45	1.46	1.42	1.45	1.34	1.31	1.30	1.29
ROE	13%	13%	16%	17%	17%	18%	19%	19%
Valuation Ratios								
EV/EBITDA (x)	8.34	9.41	14.81	12.60	10.60	9.12	8.14	7.39
EV/Net Sales (x)	1.00	1.31	2.32	2.12	1.92	1.72	1.60	1.50
EV/EBIT (x)	13.16	14.49	21.98	17.97	14.99	12.69	11.21	10.10
EV/CE (x)	2.08	2.45	4.48	4.19	3.63	3.30	3.03	2.85
Mcap/Net sales	0.98	1.35	2.23	1.97	1.87	1.68	1.55	1.45
Liquidity Ratios								
Debt-Equity	0.45	0.48	0.42	0.45	0.34	0.31	0.30	0.29
Debt-Asset	31%	32%	29%	31%	25%	24%	23%	22%
Quick Ratio	1.4	1.5	0.7	0.4	0.6	0.6	0.8	0.7
Current Ratio	1.6	1.8	1.0	0.6	0.9	0.9	1.1	1.0

7.2 Tata Motors Ltd

Consolidated Profit & Loss Statement	Tata Motors							
	For the year ended 31st march							
Particulars	2013	2014	2015	2016	2017	2018	2019	2020
					expected	*expected*	*expected*	*expected*
REVENUE								
Gross Sales	193698.47	236626.43	266707.9	280096.72	316601.435	338336.58	363283.3475	392403.2775
growth %		22%	13%	5%	13%	7%	7%	8%
Less: Excise Duty & Cess	4905.78	3792.77	3548.92	4535.61	3857.18	4228.6	4382.73	4229.225
% of Gross Sales	3%	2%	1%	2%	1%	1%	1%	1%
Less: Sales Tax	0	0	0	0	0	0	0	0
% of Gross Sales	0%	0%	0%	0%	0%	0%	0%	0%
Net Sales from Operations	188792.69	232833.66	263158.98	275561.11	312744.255	334107.98	358900.6175	388174.0525
growth %		23%	13%	5%	13%	7%	7%	8%
Other Income from Ops	0	0	0	0	0	0	0	0
Other Income	815.59	828.59	898.74	981.72	1023.295	1099.88	1162.1375	1221.2075
Net Revenue	189608.28	233662.25	264057.72	276542.83	313767.55	335207.84	360062.755	389395.26
EXPENDITURE								
(Increase/Decrease) in Stock	0	0	0	0	0	0	0	0
% of sales	0%	0%	0%	0%	0%	0%	0%	0%
Raw materials	113851.34	135550.04	149956.54	152445.39	170497.99	178945.665	189216.39	202466.5275
% of sales	60%	58%	57%	55%	55%	54%	53%	52%
Purchase of traded goods	9266	10876.95	13293.82	13850.27	14884.18	15850.84	16636.02	18136.305
% of sales	5%	5%	5%	5%	5%	5%	5%	5%
COGS	123117.34	146426.99	163250.36	166295.66	185382.17	194796.505	205852.41	220602.8325
Mfg. Expense	2021.59	2565.21	2875.17	3480.43	3907.22	4364.83	4880.855	5323.055
% of sales	1%	1%	1%	1%	1%	1%	1%	1%
Selling Expense	0	0	0	0	0	0	0	0
% of sales	0%	0%	0%	0%	0%	0%	0%	0%
Admin. Expense	-10193.45	-13537.85	-15404.18	-16718.43	-19323.795	-20914.085	-22873.8925	-24971.72
% of sales	-5%	-6%	-6%	-6%	-6%	-6%	-6%	-8%
Other Expense	35648.33	43825.77	50980.37	60424.95	68090.97	76390.56	84945.86	92928.665
% of sales	19%	19%	19%	22%	22%	23%	24%	24%
Duties and taxes(and IT)	0	0	0	0	0	0	0	0
% of sales	0%	0%	0%	0%	0%	0%	0%	0%
Changes in inventories of finished goods, work-in-prog	-3029.29	-2840.58	-3330.35	-2876.62	-3027.15	-3045.17	-2893.57	-2977.845
% of sales	2%	-1%	-1%	-1%	-1%	-1%	-1%	-1%
Employee Benefit Expense	16632.19	21556.42	25548.96	29198.89	33657.275	37478.51	41532.6675	45672.4775
% of sales	9%	9%	10%	11%	11%	11%	12%	12%
Less : Cost of product capitalised								
Expenditure(before D/A,Fcost)	164196.71	197995.96	223920.33	238804.88	268666.69	289071.15	311444.33	336577.46
Total Expenditure	175358.24	213807.9	242170.45	260442.41	293848.515	317165.77	343004.8025	371366.4825
EBITDA	25411.57	35666.29	40137.39	37737.95	45100.86	46136.69	48618.425	52817.795
EBITDA Margin %	13%	15%	15%	14%	14%	14%	14%	14%
Depreciation & Amortization	7601.28	11078.16	13388.63	17014.18	19907.859	22875.865	26135.4775	29066.32
EBIT	17810.29	24588.13	26748.76	20723.77	25193.005	23260.825	22482.9475	23751.475
EBIT	17810.29	24588.13	26748.76	20723.77	25193.005	23260.825	22482.9475	23751.475
EBIT Margin %	9%	11%	10%	8%	8%	7%	6%	6%
Finance Cost	3560.25	4733.78	4861.49	4623.35	5273.97	5218.755	5424.995	5722.6975
PBT before Exceptional	14250.04	19854.35	21887.27	16100.42	19919.035	18042.07	17057.9525	18028.7775
Margin %	8%	9%	8%	6%	6%	5%	5%	5%
Add/Less : Exceptional Items	-602.71	-985.38	-184.71	-2119.55	-973.25	-973.25	-973.25	-973.25
Add/Less : Extraordinary Items	0	0	0	0				
PBT	13647.33	18868.97	21702.56	13980.87	18945.785	17068.82	16084.7025	17055.5275
Margin %	7%	8%	8%	5%	6%	5%	4%	4%
TAX EXPENSE								
Commulative Tax	3776.66	4764.79	7642.91	2872.6				
Current Income Tax								
Deferred Income tax								
Tax of earlier years								
Less : Mat Credit								
Total Tax	3776.66	4764.79	7642.91	2872.6	4805.725	3859.63	3441.0375	3934.5525
Effective tax rate	27.67%	25.25%	35.22%	20.55%	25.37%	22.61%	15.18%	17.21%
PAT	9870.67	14104.18	14059.65	11108.27	14140.06	13209.19	13643.665	14120.975
PAT Margin %	5%	6%	5%	4%	5%	4%	4%	4%
growth %		43%	0%	-21%	27%	-7%	3%	3%
Less: Div on pref. shares	0	0	0	0	0	0	0	0
Add/Less : Minority Interest	-83.67	-59.45	-86.78	-105.86	-86.24	-85	-94.32	-102.65
Share of Profit/Loss in Associates Inv.	105.61	-53.71	13.42	21.34	28.25	32.65	45.52	65.29
PAT after MI	9892.61	13991.02	13986.29	11023.75	14082.07	13156.84	13594.865	14083.615
EPS								
Paid up share capital								
Basic EPS	31.0	43.5	43.5	32.5	41.5	38.7	40.0	41.5
growth %		40%	0%	-25%	28%	-7%	3%	4%
Diluted EPS	30.9	43.5	43.0	32.6	41.5	38.7	40.0	41.5

Consolidated Balance Sheet	Tata Motors			
	As at 31st March			
Particulars	**2013**	**2014**	**2015**	**2016**
I. EQUITY AND LIABILITIES				
(1) Shareholder's funds				
(a) Share Capital	638.07	643.78	643.78	679.18
(b) Reserves and surplus	36999.23	64959.67	55618.14	80103.49
Total Owners Equity	**37637.3**	**65603.45**	**56261.92**	**80782.67**
(2) Non-current liabilities				
(a) Long-term borrowings	32155.29	45258.61	56071.34	51876.31
(b) Deferred tax liabilities (net)	2048.21	1572.33	1343.2	3166.08
(c) Other Long term liabilities	3284.06	2596.86	9141.92	9946.52
(d) Long term provisions	8337.24	12190.29	15134.27	11817.3
(e.) Minorty Interest	370.48	420.65	433.34	888.26
Long term Liabilities	**46195.28**	**62038.74**	**82124.07**	**77694.47**
(3) Current liabilities				
(a) Short-term borrowings	11620.21	9695.86	13140.14	11223.63
(b) Trade payables	44912.35	57315.73	57407.28	63632.89
(i) Total outstanding dues of micro enterprises and small enterprises				
(ii) Total outstanding dues of creditors other than micro enterprises and small enterprises				
(c) Other current liabilities	22224.94	17373.86	23688.58	27261.82
(d) Short-term provisions	7788.16	7970.68	6036	8702.12
Current Liabilities	**86545.66**	**92356.13**	**100272**	**110820.46**
Total Liabilities (I)	**132740.94**	**154394.87**	**182396.07**	**188514.93**
Total Liabilities (II)	**170378.24**	**219998.32**	**238657.99**	**269297.6**
II. ASSETS				
(1) Non-current assets				
(a) Fixed assets				
(i) tangible assets	32728.95	40694.29	52326.21	63107.34
(ii) Intangible assets	18680.41	23418.55	31456.29	38482.89
(iii) Capital work-in-progress	4345.11	10137.3	9330.47	7808.51
(iv) Intangile assets under development	14108.44	23125.26	19309.62	19451.93
Total Fixed Assets	**69862.91**	**97375.4**	**112422.59**	**128850.67**
(b) Goodwill on consolidation	4102.37	4978.83	4696.99	4836.52
(c) Non-current Investments	1222.41	1114.39	1240.5	1253.15
(d) Long term loans and advances	15584.12	13268.84	14948.31	13940.82
(e) Other non-current assets	1023.95	5068.45	858	2374.88
(f) Deferred Tax Assets	4428.93	2347.08	2733.2	2726.43
Total Long Term Assets	**96224.69**	**124152.99**	**136899.59**	**153982.47**
(2) Current Assets				
(a) Current Investments	7542.32	9572.28	14096.24	19212.94
(b) Inventories	21036.82	27270.89	29272.34	33398.98
(c) Trade receivables	10959.6	10574.23	12579.2	12989.96
(d) Cash and cash equivalents	21114.82	29711.79	32115.76	32879.98
(e) Short-term loans and advances	12667.05	14055.24	10746.44	14757.51
(f) Other current assets	832.94	4660.9	2948.42	2075.76
Total Current Assets	**74153.55**	**95845.33**	**101758.4**	**115315.13**
Total Assets	**170378.24**	**219998.32**	**238657.99**	**269297.6**

Cash Flow Statement	Tata Motors			
	For the year ended			
	March 13	March 14	March 15	March 16
(A.) Cash flow from Operating Activities:				
Net Profit before Tax	**9892.61**	**13991.02**	**13986.29**	**11023.75**
Adjustments for:				
Depreciation and amortisation	7596.76	11073.64	13386.36	17014.18
Finance cost				
Interest income	2828.3	4019.77	4082.32	3823.02
Dividend Income	0	0		
Employee Stock Compensation Expense	0	0		
Share of profit in respect of investment in associates	-105.61	53.71	-13.42	-21.34
Share of minority interest	83.76	59.45	86.78	105.86
loss on sale / discarding of fixed assets (net)	23.89	46.52	699.83	792.04
Profit on sale of investments (net)	-80.09	-114.58	-119.57	-181.39
Provisions no longer required written back	87.62	224.16	0	208.25
Provision for diminution in value of long term investment	0.41	-1.05	0	1.5
Provision for Inter cororate Deposits	5.29	0		
Provision for doubtful advances	0	0	1805.12	810.29
Unrealised foreign exchange (gain)/ loss	434.31	722.11	2019.13	885.65
Gain on settlement of deferred sales tax liability	-138.29	-154.46	-178.64	-163.68
Exceptional items - others	0	0	0	1638.39
Tax expense (net)	3776.67	4764.79	7642.91	2872.6
Operating Profit before Working Capital changes	24405.63	34685.08	43397.11	38609.12
Adjustments for changes in Working Capital :				
Increase/(Decrease) in Trade Payables	8132.19	4891.9	3597.82	4741.4
Increase/(Decrease) in Short Term Provisions	0	0	0	0
Increase/(Decrease) in Long Term Provisions	1324.79	888.18	-197.45	3279.5
Increase/(Decrease) in Other Current Liabilities	0	0	0	0
Increase/(Decrease) in Other Long Term Liabilities	-628.33	-141.66	423.83	2376.42
Increase/Decrease in Trade Receivables	-2697.57	2130.19	-3008.02	-136.4
Increase/Decrease in Inventories	-2655.81	-2852.55	-3692.41	-5234.24
Increase/Decrease in Short Term Loans and Advances	0		0	0
Increase/Decrease in Long Term Loans and Advances	-2479.1	-67.55	-170.97	-2628.23
Increase/Decrease in Other Current Assets	0	0	0	0
Increase/Decrease in Other Non Current Assets	-999.03	1123.9	-624.61	153.08
Cash generated from Operating Activities	24402.77	40459.49	39725.3	41160.65
Taxes (Paid) (Net of Tax Deducted at Source)	2240.07		4194.04	1993.94
Net Cash from Operating Activities	22162.7	40459.49	35531.26	39166.71
(B.) Cash flow from Investing Activities:				
Purchase of fixed Assets	-18862.57	-26975.13	-31962.17	-32682.08
Purchase of Intangible Assets	0	0		
Sale of Fixed Assets	36.69	49.93	74.19	58.84
Sale of Current Investments	0	0	42.34	89.2
Sale of Long term Investments	12.86	3.56	0	0
Purchase of Current and Non Current Investments	9.91	-414.97	-5561.49	-4892.11
Investments in Deposits with Banks	-6135.57	-4426.57	1823.02	-2101.67
Maturities of Deposits with Banks	0	0	0	0
Interest Received	712.89	653.23	697.74	768.14
Dividend Received from associates	56.25	14.51	15.33	15.42
Dividend Received from others	38.4	25.53	64.65	42.27
Decrease in Earmarked & margin Account	510.94	1381.45	36.17	69.98
Inter corporate Deposits (Net)	44.83	0	-95	65
Purchase consideration paid on acquisition (net)	0	-184.56	0	-111.44
Subscription received on divesture of interest (net)	0	0	0	0
Loan Given	0	0	0	7.58
Repayment of loan given	0	0	0	0
Net Cash from Investing Activities	-23575.37	-29893.02	-34867.22	-38470.87
(C.) Cash flow from Financing Activities:				
Proceeds from issue of share capital	0	0	0	7436.06
Proceeds from issue of Preference Share to Minority Shareholders	0.56	0	0	428.44
Brokerage and other expenses on NCD & Others	-93.02	-87.54	-47.95	0
Premium paid on redemption on NCD & Others	-96.55	-658.05	-744.19	0
Expense on FCCN/CARS Conversion & others	-0.23	-0.35		
Premium paid on redemption of FCCN/CARS	-886.95	0		
Proceeds from Short Term borrowings	14702.92	11353.56	8969.27	13964.41
Repayment of Short Term borrowings	-13011.82	-12403.24	-9771.64	-15132.23
Proceeds from Long Term borrowings	13160.24	23321.39	27393.38	10887.42
Repayment of Long Term borrowings	-7538.44	-16737.81	-17714.72	-13964.34
Repayment of Fixed Deposits	-1868.38	-362.19		
Interest & Finance Charges Paid	-4665.56	-6170.56	-6306.98	-5703.9
Dividend Paid	-1527.24	-688.62	-681.06	-86.28
Dividend to Minority Shareholders	-23.33	-33.35	-39.31	-87.66
Corporate Dividend Tax Paid	0	0	0	0
Increase/Decrease in Loans repayable on demand and credit	155.56	-1416.57	4144.84	-934.87
Net Cash from Financing Activities	-1692.24	-3883.33	5201.44	-3192.95
Net Increase/(Decrease) in Cash & Cash Equivalents	-3020.84	2374.9	5865.48	-2637.05
Cash and Cash Equivalents as at 1st April (Opening Balance)	14849.89	12350.97	16627.98	21128.33
Cash and Cash Equivalents as at 1st April (previous year)				
Cash and Cash Equivalents on acquisition of subsidiaries (Net)	0	40.51	0.46	0
Cash and Cash Equivalents as at 31st March (Closing Balance)	11829.05	14766.38	22493.92	18491.28
Cash and Cash Equivalents comprise				
Cash & Cheques in Hand				
Balance with Banks				
Balance with Scheduled Banks in Deposit Accounts				
Effect of Foreign Exchange	521.92	1861.6	-1365.59	859.2
Cash & Cash Balances as at 31st March (Net)	***12350.97***	***16627.98***	***21128.33***	***19350.48***

Particulars	2013	2014	2015	2016
	Rs (In Crores)			
Current Asset	74153.55	95845.33	101758.4	115315.13
Current Liabilities	86545.66	92356.13	100272	110820.46
Total Assets	170378.24	219998.32	238657.99	269297.6
Total owner's equity	37637.3	65603.45	56261.92	80782.67
Inventory	21036.82	27270.89	29272.34	33398.98
Net Revenue	189608.28	233662.25	264057.72	276542.83
EPS (Rs)	31.01	43.47	43.45	32.46
Equity Multiplier	4.5	3.4	4.2	3.3
PAT	9870.67	14104.18	14059.65	11108.27
Total Liabilities	132740.94	154394.87	182396.07	188514.93
EBIT	17810.29	24588.13	26748.76	20723.77
EBITDA	25411.57	35666.29	40137.39	37737.95
EV	108,896.22	153,888.21	214,552.47	162,291.84
Minority Interest	370.48	420.65	433.34	888.26
Cash & Equivalents	49693.96	66554.96	75484.34	85491.9
Cash	21114.82	29711.79	32115.76	32879.98
Outstanding Shares	319.035	321.89	321.89	339.59
Stock Price (Rs)	252.49	401.2	558.9	379.65
C Emp	83832.58	127642.19	138385.99	158477.14
Mcap	80553.15	129142.27	179904.32	128925.34
Net sales	188792.69	232833.66	263158.98	275561.11
Dividends	1527.24	688.62	681.06	86.28

Ratio Analysis	Tata Motors							
Particulars	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19	Mar 20
Performance Ratio (%)								
EBITDA Margin	13%	15%	15%	14%	14%	14%	14%	14%
Gross Margin	35%	37%	38%	40%	41%	42%	43%	43%
EBIT Margin	9%	11%	10%	8%	8%	7%	6%	6%
Growth rate	22.2%	20.4%	23.8%	13.6%	14.8%	12.7%	11.2%	10.8%
Profitability Ratio (%)								
ROCE	21%	19%	19%	13%	14%	12%	10%	10%
ROE	26%	21%	25%	14%	16%	14%	12%	11%
ROA	6%	6%	6%	4%	5%	4%	4%	4%
EPS	31.01	43.47	43.45	32.46	41.47	38.74	40.03	41.47
DPS	4.79	2.14	2.12	0.25	2.49	2.32	2.40	2.49
P/E	8.14	9.23	12.86	11.70	12.85	13.48	12.72	13.99
Dividend Payout Ratio	15%	5%	5%	1%	6%	6%	6%	6%
Retention ratio	85%	95%	95%	99%	94%	94%	94%	94%
DuPont Analysis								
PAT/PBT	0.72	0.75	0.65	0.79	0.75	0.77	0.85	0.83
PBT/EBIT	0.77	0.77	0.81	0.67	0.75	0.73	0.72	0.72
EBIT/Net Sales	0.09	0.11	0.10	0.08	0.08	0.07	0.06	0.06
Net Sales/Total Assets	1.11	1.06	1.10	1.02	1.03	1.02	1.00	1.00
Total Assets/Equity	4.53	3.35	4.24	3.33	3.37	3.36	3.15	3.17
ROE	26%	21%	25%	14%	16%	14%	12%	11%
Valuation Ratios								
EV/EBITDA (x)	3.30	3.58	3.45	4.20	4.77	4.75	4.52	4.70
EV/Net Sales (x)	0.44	0.55	0.53	0.58	0.69	0.66	0.61	0.64
EV/EBIT (x)	4.71	5.19	5.17	7.65	8.54	9.43	9.77	10.45
EV/CE (x)	1.00	1.00	1.00	1.00	1.16	1.09	0.98	1.01
Mcap/Net sales	0.43	0.55	0.68	0.47	0.58	0.53	0.48	0.51
Liquidity Ratios								
Debt-Equity	3.53	2.35	3.24	2.33	2.37	2.36	2.15	2.17
Debt-Asset	78%	70%	76%	70%	70%	70%	68%	68%
Quick Ratio	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.8
Current Ratio	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1

7.3 Mahindra & Mahindra Ltd

Consolidated Profit & Loss Statement	Mahindra & Mahindra							
	For the year ended 31st march							
Particulars	2013	2014	2015	2016	2017	2018	2019	2020
					expected	*expected*	*expected*	*expected*
REVENUE								
Gross Sales	67921.93	71160.67	66903.19	74436.05	73926.68	75564.37	79076.115	79640.275
growth %		5%	-6%	11%	-1%	2%	5%	1%
Less: Excise Duty & Cess	5278.39	4229.7	3541.23	4650.08	4424.84	4650.08	5278.26	4424.24
% of Gross Sales	8%	6%	5%	6%	6%	6%	7%	6%
Less: Sales Tax	0	0	0	0	0	0	0	0
% of Gross Sales	0%	0%	0%	0%	0%	0%	0%	0%
Net Sales from Operations	62643.54	66930.97	63361.96	69785.97	69501.84	70914.29	73797.855	75216.035
growth %		7%	-5%	10%	0%	2%	4%	2%
Other Income from Ops	6049.95	7069.96	8086.04	8229.63	9247.675	9827.51	10408.3275	11207.2675
Other Income	388.94	505.09	525.03	541	609.045	627	669.0075	712.0075
Net Revenue	69082.43	74506.02	71973.03	78556.6	79358.56	81368.8	84875.19	87135.31
EXPENDITURE								
(Increase/Decrease) in Stock	0	0	0	0	0	0	0	0
% of sales	0%	0%	0%	0%	0%	0%	0%	0%
Raw materials	39409.5	43252.55	40386.83	43173.41	43662.075	43622.505	45260.1275	45484.675
% of sales	63%	65%	64%	62%	63%	62%	61%	60%
Purchase of traded goods	2610.67	1879.01	2188.73	2690.53	2479.56	2885.32	3030.735	3128.13
% of sales	4%	3%	3%	4%	4%	4%	4%	4%
COGS	42020.17	45131.56	42575.56	45863.94	46141.635	46507.825	48290.8625	48612.805
Mfg. Expense					0	0	0	0
% of sales	0%	0%	0%	0%	0%	0%	0%	0%
Selling Expense	0	0	0	0	0	0	0	0
% of sales	0%	0%	0%	0%	0%	0%	0%	0%
Admin. Expense		0						
% of sales	0%	0%	0%	0%	0%	0%	0%	0%
Other Expense	11132.44	12341.91	12887.31	15524.95	16402.385	17993.905	19751.4425	20985.92
% of sales	18%	18%	20%	22%	24%	25%	27%	28%
Duties and taxes(and IT)	0	0	0	0	0	0	0	0
% of sales	0%	0%	0%	0%	0%	0%	0%	0%
Changes in inventories of finished goo	-128	-238.97	274.13	-524.37	-323.305	-466.005	-764.7225	-735.54
% of sales	0%	0%	0%	-1%	0%	-1%	-1%	-1%
Employee Benefit Expense	6819.07	6885.94	7202.49	7992.24	6815.23	6522.26	7202.56	7102.32
% of sales	11%	10%	11%	11%	10%	9%	10%	9%
Less : Cost of product capitalised	265.98	239.67	284.78	488.55	497.95	622.39	728.97	795.89
Expenditure(before D/A,Fcost)	59577.70	63880.77	62654.71	68368.21	68537.99	69935.59	73751.17	75169.61
Total Expenditure	63954.56	69004.27	67935.23	74322.79	74944.405	76757.545	81136.0625	82988.19
EBITDA	9504.73	10625.25	9318.32	10188.39	10820.565	11433.205	11124.0225	11965.7
EBITDA Margin %	15%	16%	15%	15%	16%	16%	15%	16%
Depreciation & Amortizaton	2079.86	2169.57	2123.83	2581.64	2603.625	2809.66	3049.5575	3163.5675
EBIT	7424.87	8455.68	7194.49	7606.75	8216.94	8623.545	8074.465	8802.1325
EBIT	7424.87	8455.68	7194.49	7606.75	8216.94	8623.545	8074.465	8802.1325
EBIT Margin %	12%	13%	11%	11%	12%	12%	11%	12%
Finance Cost	2297	2953.93	3156.69	3372.94	3802.785	4012.29	4335.3375	4655.0125
PBT before Exceptional	5127.87	5501.75	4037.8	4233.81	4414.155	4611.255	3739.1275	4147.12
Margin %	8%	8%	6%	6%	6%	7%	5%	6%
Exceptional Items	452.5	317.85	274.9	5.03	262.57	254.26	152.36	274.56
Extraordinary Items	0	0	0	0	0	0	0	0
PBT	5580.37	5819.6	4312.7	4238.84	4676.725	4865.515	3891.4875	4421.68
Margin %	9%	9%	7%	6%	7%	7%	5%	6%
TAX EXPENSE								
Commulative Tax								
Current Income Tax	1754.11	1793.91	1770.11	1879.38				
Deferred Income tax	201.63	193.02	42.63	38.69				
Tax of earlier years	0	0	0	0				
Less : Mat Credit	21.11	490.71	92.72	54.42				
Total Tax	1934.63	1496.22	1720.02	1863.65	1756.345	1940.06	1958.2225	1996.4275
Effective tax rate	34.67%	25.71%	39.88%	43.97%	37.56%	39.87%	50.32%	45.15%
PAT	3645.74	4323.38	2592.68	2375.19	2920.38	2925.455	1933.265	2425.2525
PAT Margin %	6%	6%	4%	3%	4%	4%	3%	3%
growth %		19%	-40%	-8%	23%	0%	-34%	25%
Less: Div on pref. shares	0	0	0	0	0			
Add/Less : Minority Interest	-29.95	-486.87	-243.91	-139.86	-139.25	-243.91	-139.56	-125.23
Share of Profit/Loss in Associates Inv.	483.41	830.42	788.7	975.93	1128.575	1201.33	1371.2675	1483.9675
PAT after MI	4099.2	4666.93	3137.47	3211.26	3909.705	3882.875	3164.9725	3783.99
EPS								
Paid up share capital								
Basic EPS	69.44	79.06	53.05	54.19	65.97	65.52	53.40	63.85
growth %		14%	-33%	2%	22%	-1%	-18%	20%
Diluted EPS	66.76	75.83	50.69	51.7				

Consolidated Balance Sheet	Mahindra & Mahindra			
	As at 31st March			
Particulars	**2013**	**2014**	**2015**	**2016**
I. EQUITY AND LIABILITIES				
(1) Shareholder's funds				
(a) Share Capital	295.16	295.16	295.7	296.32
(b) Reserves and surplus	19665.54	23011.7	25560.68	28323.32
Total Owners Equity	**19960.7**	**23306.86**	**25856.38**	**28619.64**
(2) Non-current liabilities				
(a) Long-term borrowings	19860.26	25491.75	22327.03	25096.3
(b) Deferred tax liabilities (net)	893.5	1201.97	1286.83	1552.03
(c) Other Long term liabilities	2103.4	2388.1	2508.76	2980.44
(d) Long term provisions	2251.63	2590.12	3239.95	3590.33
(e.) Minorty Interest	5296.97	5733.1	5892.23	6327.03
Long term Liabilities	**30405.76**	**37405.04**	**35254.8**	**39546.13**
(3) Current liabilities				
(a) Short-term borrowings	3368.48	2780.65	7177.44	8250.69
(b) Trade payables	11910.63	11799.84		
(i) Total outstanding dues of micro enterprises and small enterprises			112.45	168.59
(ii) Total outstanding dues of creditors other than micro enterprises and small enterprises			11308.82	13459.03
(c) Other current liabilities	8789.46	10479.33	12771.82	15868.23
(d) Short-term provisions	2034.76	2498.54	2362.22	2310.58
Current Liabilities	**26103.33**	**27558.36**	**33732.75**	**40057.12**
Total Liabilities (I)	**56509.09**	**64963.4**	**68987.55**	**79603.25**
Total Liabilities (II)	**76469.79**	**88270.26**	**94843.93**	**108222.89**
II. ASSETS				
(1) Non-current assets				
(a) Fixed assets				
(i) tangible assets	15530.98	16058.29	17247.09	19578.42
(ii) Intangible assets	779.02	978.68	1035.38	2171.49
(iii) Capital work-in-progress	1119.5	1243.6	1272.54	806
(iv) Intangile assets under development	511.7	947.45	1759.6	1630.03
Total Fixed Assets	**17941.2**	**19228.02**	**21314.61**	**24185.94**
(b) Goodwill on consolidation	1997.34	1343.99	764.27	779.46
(c) Non-current Investments	4626.2	5852.37	7898.99	8744.17
(d) Long term loans and advances	16972.59	21364.41	24066.47	26604.06
(e) Other non-current assets	397.66	505.37	581.76	655.13
(f) Deferred Tax Assets	338.36	381.67	467.77	709.14
Total Long Term Assets	**42273.35**	**48675.83**	**55093.87**	**61677.9**
(2) Current Assets				
(a) Current Investments	1814.21	2229.98	2128.15	3432.68
(b) Inventories	8416.9	8353.54	8453.39	10628.99
(c) Trade receivables	5176.97	5725.42	5476.16	6419.04
(d) Cash and cash equivalents	4936.54	6522.79	4911.83	4906.48
(e) Short-term loans and advances	13006.56	15842.14	17811.8	20018.29
(f) Other current assets	845.26	920.56	968.78	1139.51
Total Current Assets	**34196.44**	**39594.43**	**39750.11**	**46544.99**
Total Assets	**76469.79**	**88270.26**	**94843.98**	**108222.89**

Consolidated Cash Flow Statement	Mahindra & Mahindra			
	For the year ended			
	March 13	March 14	March 15	March 16
(A.) Cash flow from Operating Activities:				
Net Profit before Tax	**5127.87**	**5501.75**	**4037.8**	**4233.81**
Adjustments for:				
Depreciation and amortisation	2084.55	2174.95	2127.58	2612.3
Finance cost	629.75	676.36	513.69	505.34
Interest income	-226.07	-400.8	-398.66	-347.7
Dividend Income	0	0	0	0
Employee Stock Compensation Expense	98.28	76.66	51.51	113.33
Share of profit in respect of investment in associates	0	0	0	0
Share of minority interest	0	0	0	0
loss on sale / discarding of fixed assets (net)	-2.09	-1.62	24.72	24.02
Profit on sale of investments (net)	-76.81	-10.56	-21.31	-59.8
Provisions no longer required written back	17.04	7.19	19.38	9.44
Provision for diminution in value of long term investment	0	-1.12	16.08	0
Provision for doubtful advances	-1.84	3.57	-0.76	-2.9
Unrealised foreign exchange (gain)/ loss	12.77	60.02	83.51	164.1
Operating Profit before Working Capital changes	7663.45	8086.4	6453.54	7251.94
Adjustments for changes in Working Capital :				
Increase/(Decrease) in Trade Payables	3230.94	1094.42	1168.63	2245.21
Increase/(Decrease) in Short Term Provisions	0	0	0	0
Increase/(Decrease) in Long Term Provisions	0	0	0	0
Increase/(Decrease) in Other Current Liabilities	0	0	0	0
Increase/(Decrease) in Other Long Term Liabilities	-6756.35	-5813.86	-4228.64	-4966.82
Increase/Decrease in Trade Receivables	-2154.52	-2258.2	-575.09	-240.53
Increase/Decrease in Inventories	-1124.01	-77.78	-62.46	-1275.44
Increase/Decrease in Short Term Loans and Advances	0	0	0	0
Increase/Decrease in Long Term Loans and Advances	0	0	0	0
Increase/Decrease in Other Current Assets	0	0	0	0
Increase/Decrease in Other Non Current Assets	0	0	0	0
Cash generated from Operating Activities	859.51	1030.98	2755.98	3014.36
Taxes (Paid) (Net of Tax Deducted at Source)	1781.18	1274.72	1701.12	2043.67
Net Cash from Operating Activities	-921.67	-243.74	1054.86	970.69
(B.) Cash flow from Investing Activities:				
Purchase of fixed Assets	-3291.39	-3665.28	-4758.93	-4334.27
Purchase of Intangible Assets	0	0	0	
Sale of Fixed Assets	63.66	57.57	43.13	78.14
Sale of Current Investments	45519.84	64682.69	79737.21	86749
Sale of Long term Investments	156.29	106.34	40.42	15.98
Purchase of Current and Non Current Investments	-45660.89	-66102.06	-80046.58	-88000
Investments in Deposits with Banks	-544.61	-543.77	-277.95	-330.52
Maturities of Deposits with Banks	0	0	0	
Interest Received	179.78	231.26	355.56	279.28
Dividend Received from associates	27.16	23.5	155.89	192.15
Dividend Received from others	0	0	12.98	12.05
Decrease in Earmarked & margin Account	-46.91	-232.48	220.93	122.3
Inter corporate Deposits (Net)	-48.45	86.45	-22.5	2.5
Purchase consideration paid on acquisition (net)	-296.33	-20.81	-60.96	-239.88
Subscription received on divesture of Interest (net)	1154.24	943.81	400.78	199.95
Loan Given	0	-112.7	0	
Repayment of loan given	0	55.75	35.15	14.95
Net Cash from Investing Activities	-2787.61	-4489.73	-4164.87	-5238.37
(C.) Cash flow from Financing Activities:				
Proceeds from issue of share capital	0	183.9	2.6	0
Proceeds from Short Term borrowings	0	0	0	0
Repayment of Short Term borrowings	0	0	0	0
Proceeds from Long Term borrowings	60108.18	60506.94	47957.34	98427.1
Repayment of Long Term borrowings	-54392.17	-53264.69	-44328.4	-94097.75
Interest & Finance Charges Paid	-638.33	-583.08	-488.77	-540.59
Dividend Paid	-997.3	-1094.2	-1199.64	-1067.94
Corporate Dividend Tax Paid	0	0	0	0
Increase/Decrease in Loans repayable on demand and credit	427.91	-171.49	-273.75	1250.64
Net Cash from Financing Activities	4508.29	5577.38	1669.38	3971.46
Net Increase/(Decrease) in Cash & Cash Equivalents	799.01	843.91	-1440.63	-296.22
Cash and Cash Equivalents as at 1st April (Opening Balance)	3138.88	3822.84	4632.88	2999.67
Cash and Cash Equivalents as at 1st April (previous year)				
Cash and Cash Equivalents on acquisition of subsidiaries (Net)	-115.75	-33.87	-192.58	88.57
Cash and Cash Equivalents as at 31st March (Closing Balance)	3822.14	4632.88	2999.67	2792.02
Cash and Cash Equivalents comprise				
Cash & Cheques in Hand				
Balance with Banks	1113.7	1889.95	1912.24	2114.65
Balance with Scheduled Banks in Deposit Accounts				
Cash & Cash Balances (Net)	***4935.84***	***6522.83***	***4911.91***	***4906.67***

Particulars	2013	2014	2015	2016
	In Rs (Crores)			
Current Asset	34196.44	39594.43	39750.11	46544.99
Current Liabilities	26103.33	27558.36	33732.75	40057.12
Total Assets	76469.79	88270.26	94843.98	108222.89
Total owner's equity	19960.7	23306.86	25856.38	28619.64
Inventory	8416.9	8353.54	8453.39	10628.99
Net Revenue	69082.43	74506.02	71973.03	78556.6
EPS (Rs)	69.44030356	79.05762976	53.05157254	54.18567765
Equity Multiplier	3.8	3.8	3.7	3.8
PAT	3645.74	4323.38	2592.68	2375.19
Total Liabilities	56509.09	64963.4	68987.55	79603.25
EBIT	7424.87	8455.68	7194.49	7606.75
EBITDA	9504.73	10625.25	9318.32	10188.39
EV	90804.3528	106889.09	124586.374	131467.4328
Minority Interest	5296.97	5733.1	5892.23	6327.03
Cash & Equivalents	15167.65	17106.31	15493.37	18968.15
Cash	4936.54	6522.79	4911.83	4906.48
Outstanding Shares	59.032	59.032	59.14	59.264
Stock Price (Rs)	837.9	1000	1202.1	1195.2
C Emp	50366.46	60711.9	61111.23	68165.77
Mcap	49462.9128	59032	71092.194	70832.3328
Net sales	62643.54	66930.97	63361.96	69785.97
Dividend (Rs)	997.3	1094.2	1199.64	1067.94

Ratio Analysis	Mahindra & Mahindra							
Particulars	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19	Mar 20
Performance Ratio (%)								
EBITDA Margin	14%	14%	13%	13%	14%	14%	13%	14%
Gross Margin	39%	39%	41%	42%	42%	43%	43%	44%
EBIT Margin	12%	13%	11%	11%	12%	12%	11%	12%
Growth rate	13.3%	13.9%	5.4%	4.6%	6.5%	6.0%	3.6%	4.3%
Profitability Ratio (%)								
ROCE	15%	14%	12%	11%	11%	11%	10%	10%
ROE	18%	19%	10%	8%	9%	9%	5%	6%
ROA	5%	5%	3%	2%	2%	2%	1%	2%
EPS	69.44	79.06	53.05	54.19	65.97	65.52	53.40	63.85
DPS	16.89	18.54	20.28	18.02	19.79	19.66	16.02	19.15
P/E	12.07	12.65	22.66	22.06	20.88	22.51	29.26	26.66
Dividend Payout Ratio	27.4%	25.3%	46.3%	45.0%	30.0%	30.0%	30.0%	30.0%
Retention Ratio	72.6%	74.7%	53.7%	55.0%	70.0%	70.0%	70.0%	70.0%
DuPont Analysis								
PAT/PBT	0.65	0.74	0.60	0.56	0.62	0.60	0.50	0.55
PBT/EBIT	0.75	0.69	0.60	0.56	0.57	0.56	0.48	0.50
EBIT/Net Sales	0.12	0.13	0.11	0.11	0.12	0.12	0.11	0.12
Net Sales/Total Assets	0.82	0.76	0.67	0.64	0.59	0.56	0.53	0.51
Total Assets/Equity	3.83	3.79	3.67	3.78	3.72	3.72	3.74	3.72
ROE	18%	19%	10%	8%	9%	9%	5%	6%
Valuation Ratios								
EV/EBITDA (x)	9.55	10.06	13.37	12.90	14.04	14.41	15.93	16.06
EV/Net Sales (x)	1.45	1.60	1.97	1.88	2.19	2.32	2.40	2.55
EV/EBIT (x)	12.23	12.64	17.32	17.28	18.49	19.10	21.95	21.83
EV/CE (x)	1.80	1.76	2.04	1.93	2.07	2.13	2.12	2.18
Mcap/Net sales	0.79	0.88	1.12	1.01	1.17	1.23	1.25	1.34
Liquidity Ratios								
Debt-Equity	2.83	2.79	2.67	2.78	2.72	2.72	2.74	2.72
Debt-Asset	74%	74%	73%	74%	73%	73%	73%	73%
Quick Ratio	1.0	1.1	0.9	0.9	0.9	0.8	0.8	0.8
Current Ratio	1.3	1.4	1.2	1.2	1.1	1.1	1.0	1.0

gaurav sharma

ORIGINALITY REPORT

6%	5%	1%	2%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	issuu.com Internet Source	2%
2	core.ac.uk Internet Source	1%
3	www.rbi.org.in Internet Source	1%
4	homepage.stat.uiowa.edu Internet Source	1%
5	Poon, Ser-Huang, and Clive W. J Granger. "Forecasting Volatility in Financial Markets: A Review", Journal of Economic Literature, 2003. Publication	<1%
6	iiste.org Internet Source	<1%
7	Submitted to University of Durham Student Paper	<1%
8	arno.uvt.nl Internet Source	<1%