



## RISK AND RETURN ANALYSIS:A SPOTLIGHT ON TATA MOTORS

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### Abstract

Portfolio management has emerged as a separate academic discipline in India. Portfolio theory that deals with the rational investment decision-making process has now become an integral part of financial literature. Portfolio management presents the best investment plan to the individuals as per their income, Budget, age and ability to undertake risk. It will minimize the risk involved in investing and increases the chance of making profits. It is indeed rewarding but involves a great deal of risk & need artistic skill. Investing in financial securities is now considered to be one of the most risky revenues of investment. The investor can make diversification either by having a large number of shares of companies in different regions, in different industries or those producing different types of product lines. In this paper, researcher has tried to understand the Scope of Portfolio Management in general, risk and return analysis of select sample and suggestions rendered according to the analysis.

**Key Words:**Portfolio Management, Risk, Return and Uncertainty,Securities,Investments, Diversification.

### Introduction

A portfolio is a collection of assets. The assets may be physical or financial like Shares, Bonds, Debentures, Preference Shares, etc. Portfolio management is an art of selecting the right investment policy for the individuals inters of minimum risk and maximum return is called portfolio management. It refers to the managing of individual's investment in the form of bonds, shares, cash, mutual funds etc. so that he earns the maximum profits with in the stipulated time frame. According to Securities and Exchange Board of India Portfolio Manager is defined as: "the total holdings of securities belonging to any person".

### Criteria for Portfolio Decisions

1. In portfolio management, emphasis is put on identifying the collective importance of all investor's holdings.
2. Diversification across securities will reduce a portfolios risk and larger portfolio returns come only with larger portfolio risk.
3. The risk associated with a security type depends on when the investment will be liquidated. Risk is reduced by selecting securities with a payoff close to when the portfolio is to be liquidated.
4. Competition for abnormal returns is extensive, so one has to be careful in evaluating the risk and return from securities. Imbalances do not last long, and one must act fast to get profit from exceptional opportunities.
5. Portfolio management is a continuous process. It is a dynamic activity. The following are the basic operations of a portfolio management. Monitoring the performance of portfolio by incorporating the latest market conditions. Identification of the investor's objective, constraints and preferences. Making an evaluation of portfolio income (comparison with targets and achievement). Making revision in the portfolio. Implementation of the strategies in tune with investment objectives
6. There is a positive relationship between the amount of risk and the amount of expected return i.e., the greater the risk, the larger the expected return and larger the chances of substantial loss. One of the most difficult problems for an investor is to estimate the highest level of risk he is able to assume.
7. There are two approaches in construction of the portfolio of securities. They are
  - Traditional approach
  - Modern approach

### Traditional Approach

Traditional approach was based on the fact that risk could be measured on each individual security through the process of finding out the standard deviation and that security should be chosen where the deviation was the lowest.



### **Modern Approach**

Modern approach theory was brought out by Markowitz and Sharpe. It is the combination of securities to get the most efficient portfolio. Combination of securities can be made in many ways. Markowitz developed the theory of diversification through scientific reasoning and method. Modern portfolio theory believes in the maximization of return through a combination of securities. The modern approach discusses the relationship between different securities and then draws inter-relationships of risks between them. Markowitz gives more attention to the process of selecting the portfolio. It does not deal with the individual needs.

### **Review of Literature**

1. Donald E. Fischer and Ronald J. Jordan (1995) provided a comprehensive introduction to the area of security analysis and portfolio management. They noted that the measurement of return and risk were the focus of the job of the security analyst and the portfolio manager. They cleared that speculation and investment are two distinct terms by the time horizon and by the risk return characteristics of the investment. In this text they emphasized on investments and investment analysis although there were speculative situations
2. Dr. G.P. Jakhotia and Mrs. M.G. Jjakhotiya (2001) in their book 'finance for one and All' elaborated the techniques of investment management for individual investors. He discussed reasons for making investment and listed five important reasons for investment such as 1. Regular - income 2. Growth of Wealth 3. Contingency arrangement 4. fighting inflation 5. Old age or post retirement Provision.
3. Valery Polkovnichenko (2005) in his study 'Household Portfolio Diversification: A Case for Rank-Dependent Preferences' has supported for rank dependent preferences. This model explained the behavior of people that people both purchase lottery tickets which indicates risk taking preferences and insurance are implying risk aversion.
4. Angha Pathak (2005) in her doctoral work, "Comparative Study of Consumption, Savings, and investment pattern of Salary earners in Kolhapur" studied the determinants of consumption savings and investment. She studied single headed and multithreaded salary earners families with variables like saving habits, investment is various options. The researcher observed positive correlation between income and investment in shares.

### **A Glance on 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. The overall Passenger Vehicle (PV) segment has 13 per cent market share. The Government of India encourages foreign investment in the automobile sector and allows 100 per cent FDI under the automatic route. The Government of India encourages automobile manufacturing industry through 'Make in India' Initiatives. It also plans to introduce a new Green Urban Transport Scheme with a central assistance of about Rs 25,000 crores (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.

### **Production**

The industry produced a total 23,960,940 vehicles including passenger vehicles, commercial vehicles, three wheelers, two wheelers and quadric cycle in April- March 2018 as against 23,358,047 in April-March 2017, registering a marginal growth of 2.58 percent over the same period last year.

Category	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Passenger Vehicles	29,82,772	31,46,069	32,31,058	30,87,973	32,21,419	34,13,859
Commercial Vehicles	7,60,735	9,29,136	8,32,649	6,99,035	6,98,298	7,82,814
Three Wheelers	7,99,553	8,79,289	8,39,748	8,30,108	9,49,019	9,33,950
Two Wheelers	1,33,49,349	1,54,27,532	1,57,44,156	1,68,83,049	1,84,89,311	1,88,29,786
<b>Grand Total</b>	<b>1,78,92,409</b>	<b>2,03,82,026</b>	<b>2,06,47,611</b>	<b>2,15,00,165</b>	<b>2,33,58,047</b>	<b>2,39,60,409</b>

Source: secondary data

#### Domestic Sales

Category	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Passenger Vehicles	25,01,542	26,29,839	26,65,015	25,03,509	26,01,236	27,89,678
Commercial Vehicles	6,84,905	8,09,499	7,93,211	6,32,851	6,14,948	6,85,704
Three Wheelers	5,26,024	5,13,281	5,38,290	4,80,085	5,32,626	5,38,092
Two Wheelers	1,17,68,910	1,34,09,150	1,37,97,185	1,48,06,778	1,59,75,561	1,64,55,911
<b>Grand Total</b>	<b>1,54,81,381</b>	<b>1,73,61,769</b>	<b>1,77,93,701</b>	<b>1,84,23,223</b>	<b>1,97,24,371</b>	<b>2,04,69,385</b>

Source: secondary data

#### Observation

The sales of Passenger Vehicles grew by 7.24 percent in April-March 2018 over the same period last year. Within the Passenger Vehicles, Passenger Cars, Utility Vehicles and Vans grew by 7.87 percent, 6.25 percent and 3.58 percent respectively during April-March 2018 over the same period last year. The overall Commercial Vehicles segment registered a growth of 11.51 percent in April-March 2018 as compared to the same period last year. Medium & Heavy Commercial Vehicles (M&HCVs) registered a growth at 29.91 percent and Light Commercial Vehicles grew marginally by 0.30 percent during April- March 2018 over the same period last year. Three Wheelers sales grew by 1.03 percent in April-March 2018 over the same period last year. Passenger Carrier sales grew by 2.11 per cent & Goods Carrier sales declined by (-) 3.62 percent respectively in April-March 2018 over April-March 2017. Two Wheelers sales registered a growth at 3.01 percent during April-March 2018 over April-March 2017. Within the Two Wheelers segment, Scooters grew by 11.79 percent while Motorcycles and Mopeds dropped by (-) 0.24 percent and (-) Percent respectively in April-March 2018 over April-March 2017.

#### Exports

Category	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Passenger Vehicles	4,44,326	5,08,783	5,59,414	5,96,142	6,21,341	6,53,889
Commercial Vehicles	74,043	92,258	80,027	77,050	86,939	1,01,689
Three Wheelers	2,69,968	3,61,753	3,03,088	3,53,392	4,07,600	4,04,441
Two Wheelers	15,31,619	19,75,111	19,56,378	20,84,000	24,57,466	24,81,193
<b>Grand Total</b>	<b>23,19,956</b>	<b>29,37,905</b>	<b>28,98,907</b>	<b>31,10,584</b>	<b>35,73,346</b>	<b>36,41,212</b>

Source: secondary data

#### Observation

In April-March 2018, overall automobile exports grew by 1.91 percent. Passenger Vehicles, Commercial Vehicles, Three Wheelers and Two Wheelers registered a growth of 5.24 percent, 16.97 percent (-) 0.78 percent and 0.97 percent respectively in April- March 2018 over April-March 2017.

### Objectives of the Study

1. To understand the concept of Portfolio Management and criteria for portfolio decision making.
2. To analyze the Risk and Return of Select Sample Automobile Company. I.e. TataMotors.

### Research Methodology

**Sample of the Study:** Researcher chose Tata Motors as sample for the study. This company is one of the top most companies in Automobile Industry. Tata Motors Group (Tata Motors) is a \$45 billion organization. It is a leading global automobile manufacturing company. Its diverse portfolio includes an extensive range of cars, sports utility vehicles, trucks, buses and defense vehicles. Tata Motors is India's largest and the only original equipment manufacturer (OEM) offering extensive range of integrated, smart and e-mobility solutions. **Data**

**Collection Tools:** There are two tools available to collect the data. I.e. Primary Data and Secondary data. This study is based on secondary data and the data is collected from the websites.

**Statistical Tools used:** Mean, Standard deviation and Correlation is used to analyze the data. The researcher has taken 5 yrs. data of Tata Motors for the study.

### Data Analysis and Interpretation:

#### Calculation of risk & return of TATA motors:

##### Tata Motors Ltd

Year	(P0)	(P1)	D	(P1-P0)	D+(P1-P0)/P0*100
2013-14	899	1231	10	332	46.93
2014-15	1231	448	11	-783	-52.61
2015-16	448	876	11	428	106.54
2016-17	876	1145	12	269	42.71
2017-18	1145	684	14	-461	-26.26
<b>AVERAGE RETURN</b>					<b>23.46</b>

#### Calculation of Standard Deviation:

$$\text{Standard Deviation} = \sqrt{\text{Variance}}$$

$$\text{Variance} = 1/n (R-R)^2$$

##### Tata Motors Ltd

Year	Return (R)	Avg. Return $\bar{R}$	$(R-\bar{R})$	$(R-\bar{R})^2$
2013-14	46.93	23.46	23.47	550.79
2014-15	-52.61	23.46	-76.07	5786.30
2015-16	106.54	23.46	83.07	6901.42
2016-17	42.71	23.46	19.25	370.44
2017-18	-26.26	23.46	-49.72	2472.37
<b>TOTAL</b>				<b>16081.33</b>

$$\text{Variance} = 1/n (R-R)^2 = 1/5 (16081.33) = 3216.26$$

$$\text{Standard Deviation} = \sqrt{\text{Variance}} = \sqrt{3216.26} = 56.712$$

### Calculation of Correlation

$$\text{Covariance (COV XY)} = 1/n (\overline{RX-RX})(\overline{RY-RY})$$

Correlation Coefficient =

$$\rho_{X,Y} = \frac{\text{cov}(X, Y)}{\sigma_X \sigma_Y}$$

where:

- cov is the covariance
- $\sigma_X$  is the standard deviation of X
- $\sigma_Y$  is the standard deviation of Y

### Findings and Suggestions

1. It is observed that the total vehicles exported to other countries are very less comparatively with domestic market. It is suggested to focus more on exports and further production of automobiles to be increased.
2. As it is observed that the large production of automobiles causes the high rate of pollution, the Government should encourage the eco – friendly motor vehicles.
3. The Average return of select company is 23.46. The Risk is 56.71. As the calculated risk is more than the average return, it is suggested to take appropriate action to minimize the risk.
4. General suggestions through market observations include that investor should be cautious to invest in the promoter quota of lesser known company, company about in which one do not have appropriate knowledge, company which doesn't have a stringer financial record your portfolio should not stagnate etc.

### Conclusion

Portfolio management is a process of encompassing many activities of investment assets and securities. It is a dynamic and flexible concept and involves regular and systematic analysis, judgment, and action. A combination of securities held together will give a beneficial result if they grouped in a manner to secure higher returns after taking into consideration the risk elements. The main objective of the Portfolio management is to help the investors to make wise choice between alternate investments without a post trading shares. Any portfolio management must specify the objectives like Maximum returns, Optimum Returns, Capital appreciation, Safety etc., in the same prospectus. This service renders optimum returns to the investors by proper selection and continuous shifting of portfolio from one scheme to another scheme of from one plan to another plan within the same scheme.

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