Risk and Return Analysis of Stocks with Special Reference to Automobile Sector

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Abstract. An important source of funds for companies is the stock market and it is a medium of earning returns for investors while giving them liquidity. An investor therefore, before purchasing or selling any security (in our case- equity shares) needs to make an analysis of the Risk and Returns associated with the security. It is only by the buying and selling of these securities than enables economic growth of a country. The present study aims to analyze the risk and returns of companies listed on National Stock Exchange of India in the automobile sector. The study recommends for suitable investment in the priority stocks in the sector

Keywords: Equity, Risk, Returns, Automobile sector

Introduction

Risk and return are two significant factors that are associated with investment return. Uncertainty of future lead to risk that an investor is willing to realize from the investment causes unwarranted returns and outcomes. Risk and returns are directly related i.e. greater the risk and greater would be the return which is associated with the direct holding of an investment.

Risk can be categorized as systematic and unsystematic which cannot be diversified. They are beyond the control of the firm or the individuals as they are caused by the factors like change in interest rates, inflation/deflation, political instability, volatility in the financial markets, speculations. The risk is measured using the beta coefficient. The other category of the risk i.e. unsystematic risk is under the control of the firm and is related to the management, operational issues, labour activities, interest risk, financial risk, and inflation.

Investment in shares involves risks which needs guidance but are not controlled in many situations. Investors need to continuous watch over the investment strategies and adjust their

portfolios in different situations of the financial markets. The present study is an attempt to analyze the risk and return of the securities in automobile sector on the national stock exchange.

OBJECTIVES

1. To calculate risk and returns for each company' and identify the maximum returns with minimum risk.
2. To recommend investment decisions on the basis of "Minimum risk and maximization of returns.

METHODOLOGY

The study has collected data (closing prices) of company shares listed on national stock exchange of automobile sector from Feb 2 to Feb 28, 2015.

***Step 1*: Calculation of Returns**

- MS Excel has been used. The specimen worksheet is attached.
- Return on the market as well as on equity share of company are calculated using Log Normal returns in Excel
- Formula used :

$$Return\ (capital\ gain) = \text{Log}\ \frac{P_1}{P_0} \times 100$$

Where P_0 = Price on preceding day (for example on 9/2/17)
P_1= price on very next day(on 10/2/17)

This gives us returns in the form of Capital Appreciation.

***Step 2*: Calculation of Systematic Risk (Beta) and Unsystematic Risk (Alpha) of each company**

- Risk has been calculated in MS Excel as shown in the Excel sheet attached below
- Formulae used for α and β is as follows.

$$\beta = \frac{N\sum XY - (\sum X)(\sum Y)}{N\sum X^2 - (\sum X)^2}$$

$$\alpha = \frac{\sum Y}{N} + \beta \text{ x } \frac{\sum X}{N}$$

- Scatter diagram and trendlines have also been made. It displays equation of trendline which is of the form

$$R=\alpha+\beta\times R_m$$

α represents Unsystematic Risk and is the intercept of the CRL.
β represents Systematic Risk and is the slope of CRL.

The formula of Beta is nothing but

$$\beta = \frac{\text{COVARIANCE (Stock, market)}}{\text{VARIANCE OF MARKET}}$$

Where

$$\text{Covariance} = \frac{\sum (\text{Deviation from avg. return in stock x Deviation from avg. return in market})}{\text{No. of Observations}}$$

$$\text{Variance of Market} = \frac{\sum (\text{Dev from avg. Return in Market})^2}{\text{No of Observations}}$$

RESULTS

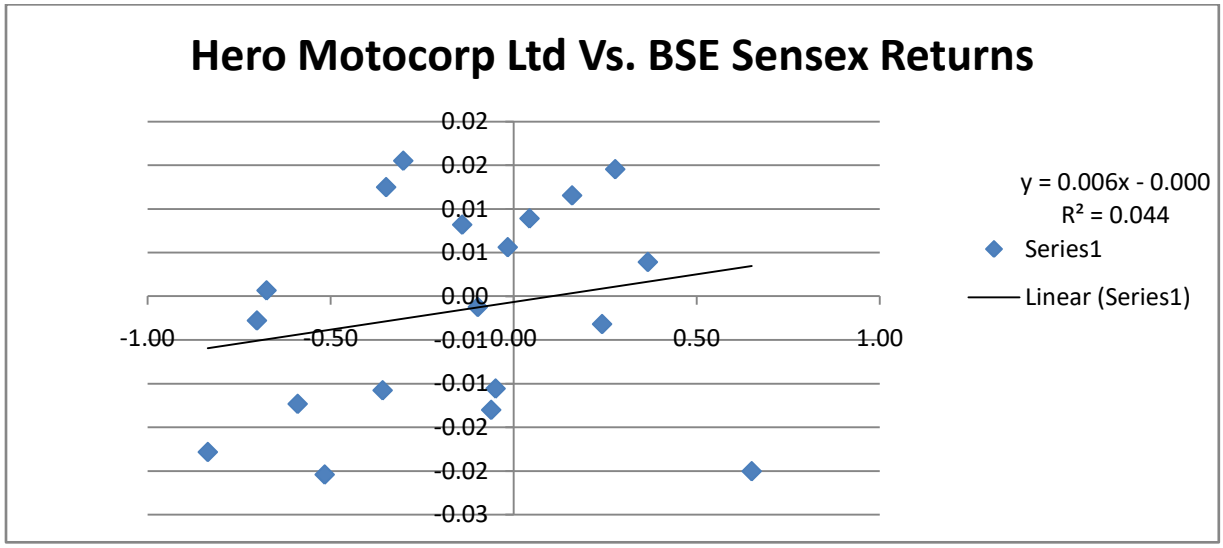
Table 1: Descriptive Statistics

Auto Sector :	Mean	Standard deviation	Minimum	Maximum	Lower C. I	Upper C. I.
TATA MOTORS	484.44	33.94	436.55	541.70	471.14	497.75
FORCE MOTORS	4236.45	89.58	4080.25	4436.20	4201.33	4271.56
EICHER MOTORS	24396.42	643.80	23382.65	25320.00	24144.04	24648.79
VST TILLERS	1869.73	36.14	1802.45	1917.85	1855.56	1883.90
MAHINDRA & MAHINDRA	1296.68	22.67	1258.65	1347.80	1287.79	1305.57
HERO MOTOCORP	3188.02	62.60	3085.65	3284.10	3163.48	3212.56
TVS MOTORS	413.09	15.40	389.35	434.80	407.05	419.13
SML ISUZU	1236.75	25.98	1186.05	1281.50	1226.57	1246.93
MARUTI SUZUKI INDIA	6057.74	101.66	5860.50	6205.90	6017.89	6097.59
ESCORTS	405.75	25.83	375.20	461.30	395.62	415.87

Securities Analysis and Findings

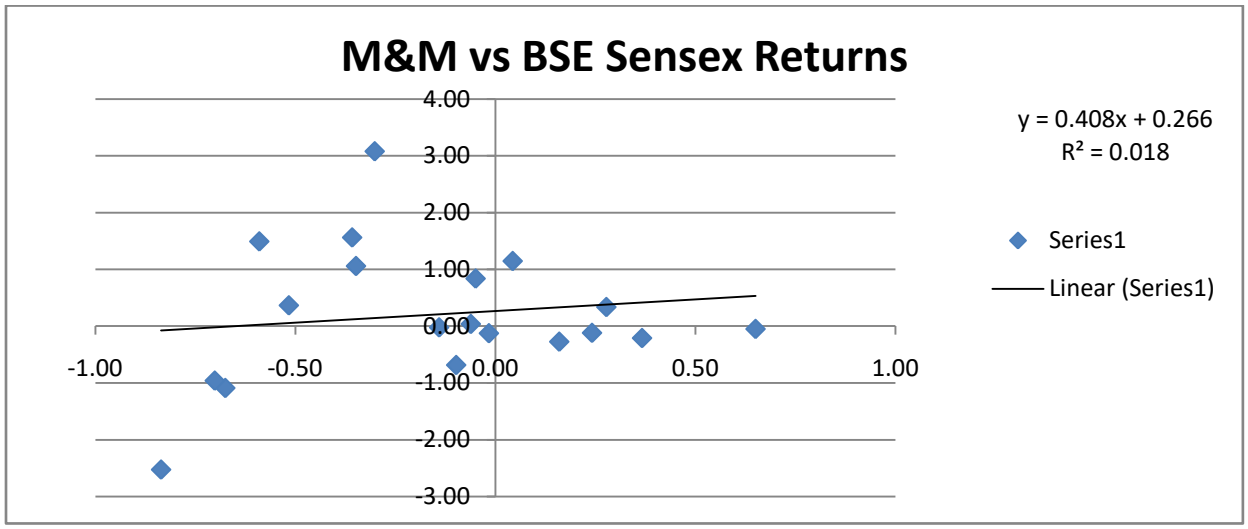
Hero Motocorp Ltd.

Hero Motocorp Ltd. is the least risky securities out of all the securities with almost zero risk yet offers a return of 5.23%. It follows the market and appears to be an attractive opportunity given that it has an almost negligible risk.



Mahindra & Mahindra Ltd

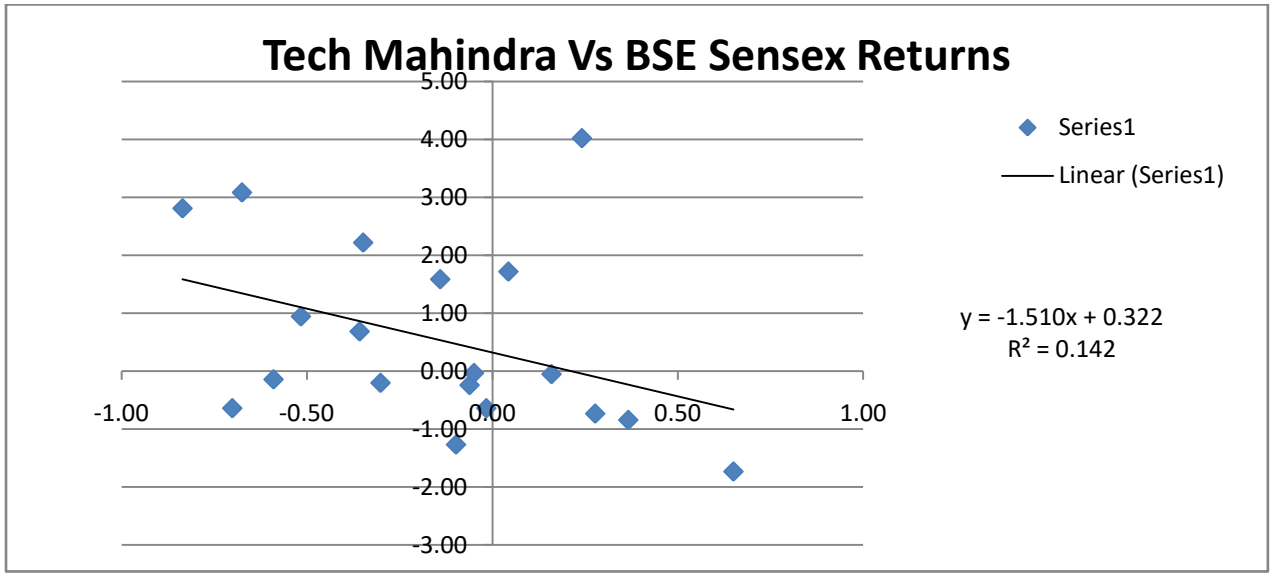
With a good return of 5.01% and moderate risk of B= 0.408 , the security moves with the market and beats the market with alpha of 0.266.



Tech Mahindra Ltd.

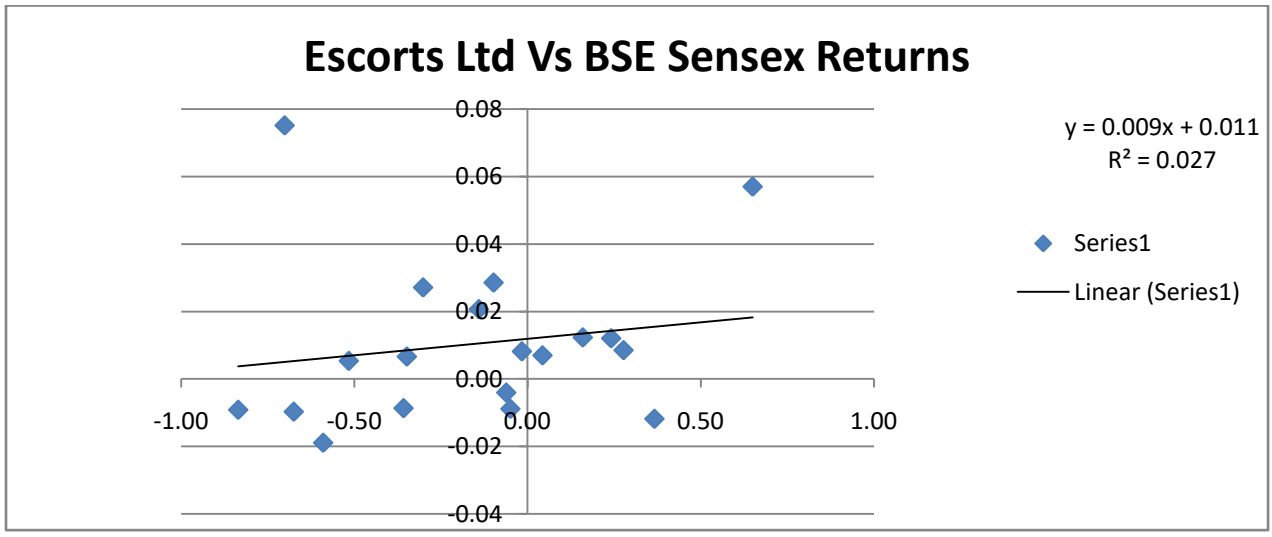
With a high return of almost 8% , it has been ranked below Infosys since its alpha at 0.32 is smaller than Infosys's meaning that it does outperform the market but not as much as Infosys. It

has risk at B=-1.150 and moves opposite to market. Investment is recommended for ambitious investors when market is in "Bullish" phase or support level.



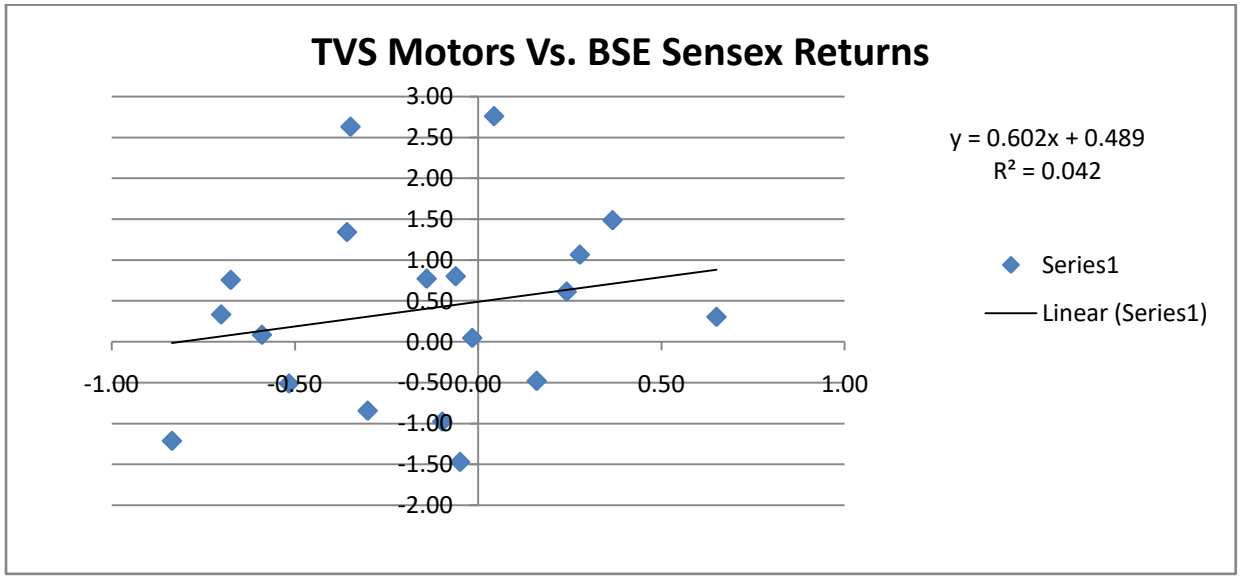
Escorts Ltd.

Suitable for risk averse investors. It offers a low return of 3.38% for a negligible risk of 0.010 and also slightly beats the market with alpha =0.012. Suitable to invest in when market is bearish.



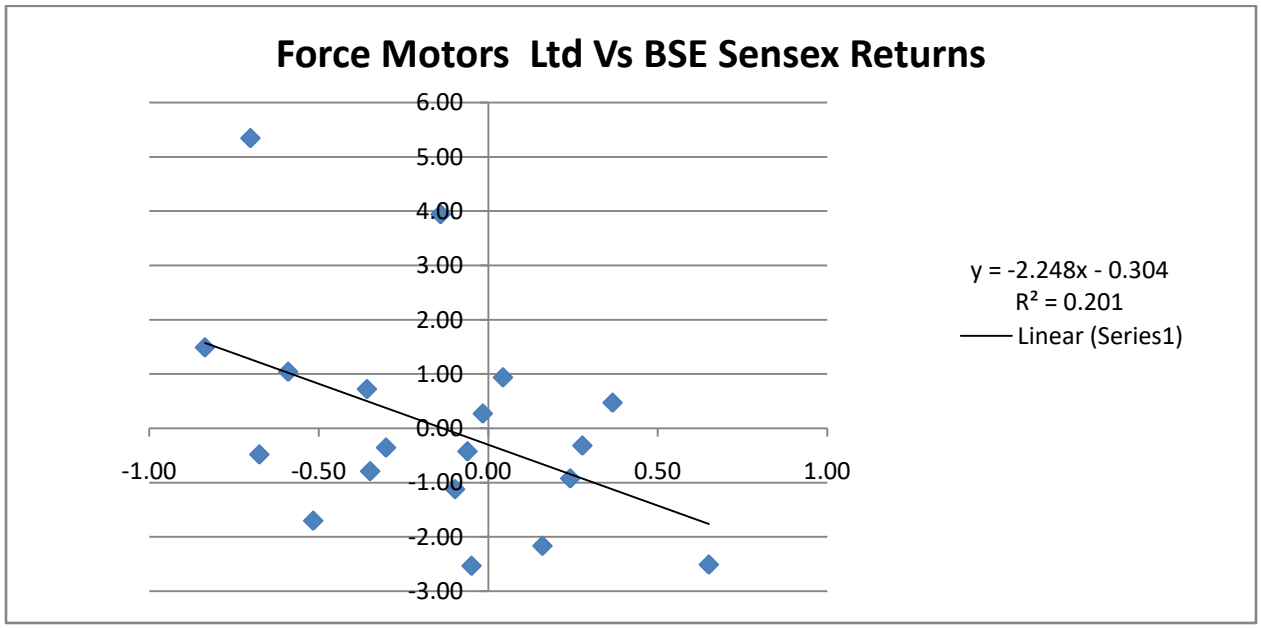
TVS Motors Ltd.

Offers a return of 2.87% with less volatility – Beta = 0.6 . It also beats the market fairly decently with an alpha of almost 0.5. Suitable for inclusion in a risk averse investor's portfolio of securities. Suitable for a bearish market period.



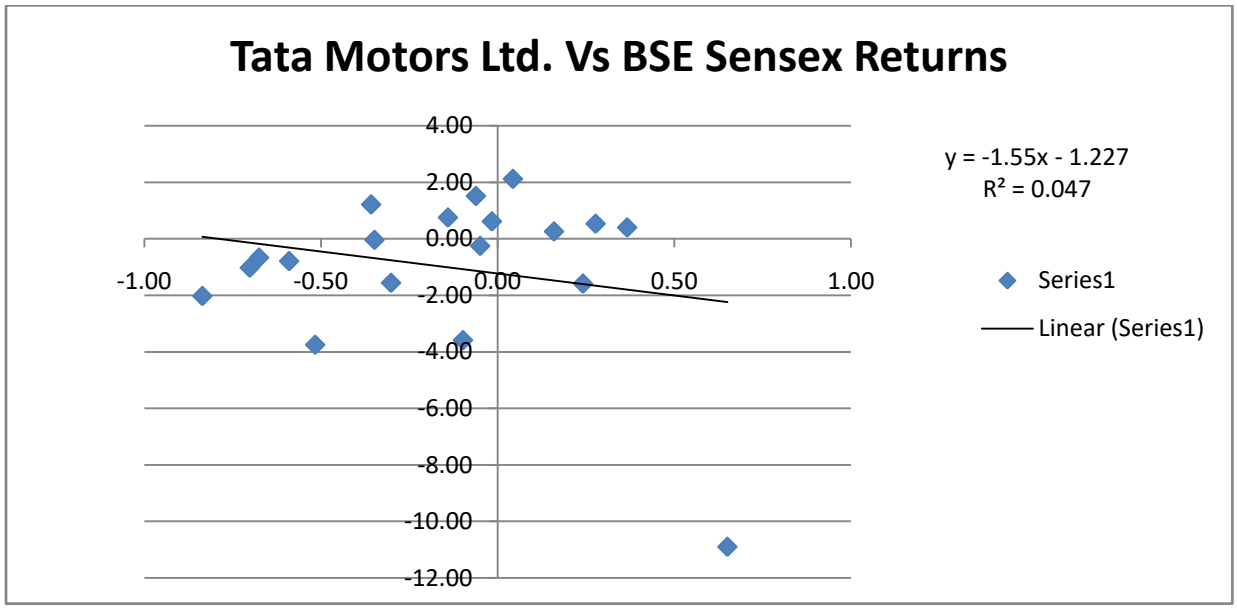
Force Motors Ltd

Also highly volatile with beta = -2.25 and low returns (3.29%). This security is very risky, not worth the risk and moves opposite to market making it difficult to predict/monitor.



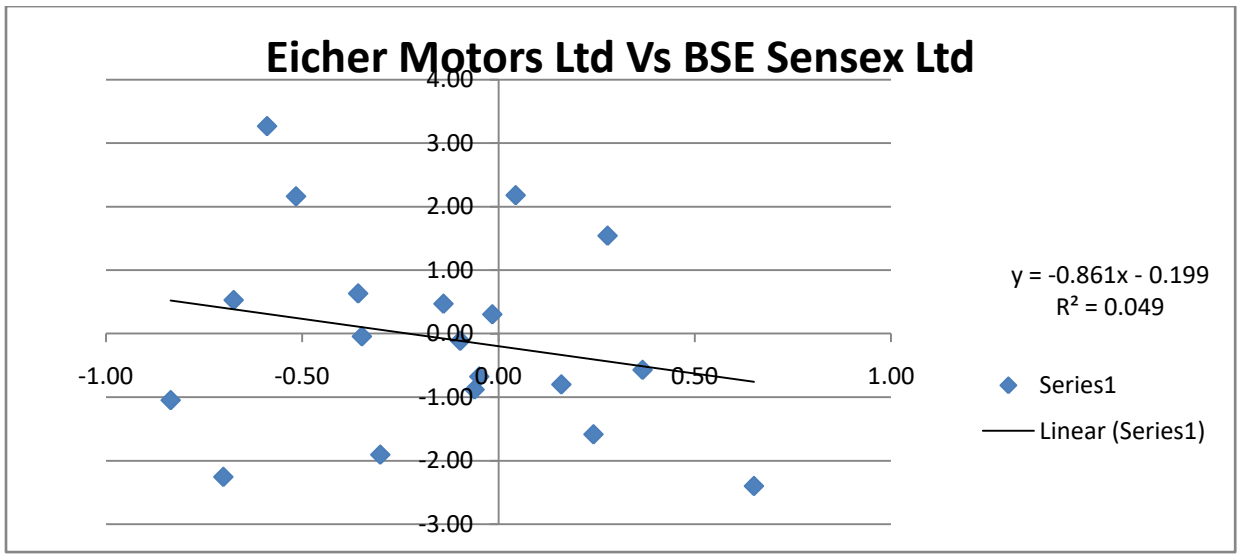
Tata Motors Ltd.

Quite risky with beta = -1.55 and low returns = 3.89% , this share grossly underperforms than the market with a negative alpha of -1.227. Not recommended for investment.



Eicher Motors Ltd.

This security offers the lowest returns out of the 20 securities analysed. It offers a meagre return of 2.15 % with a moderate risk complexion where beta is almost -0.9. It moves opposite to the market and underperforms it. (Alpha= -0.199)



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