A Study on Risk & Return analysis of Automobile industry in India (2004-2007)

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Abstract

Automobile Industry is a symbol of technical marvel by humankind. Automobile industry is considered to be one of the fastest growing sectors in any developing and even in a developed country. Due to its deep forward and backward linkages with several key segments of the economy, the automobile industry is having a strong multiplier effect on the growth of a country and hence is capable of being the driver of economic growth. Even automobile industry plays a major role as a catalyst in developing the transport sector in one hand and helps industrial sector on the other thereby even facilitates in the growth of the economy and increases the employment opportunities. The risk and return analysis linked with any industry reveals the intricacies involved with the particular industry. A close watch on these values throws light on a clear understanding and facilitates in decision making about the investment in securities. While making the decisions regarding investment and financing, one seeks to achieve the right balance between risk and return, in order to optimize the value of the firm. Risk and return go together in investments. Everything an investor (be it the firm or the investor in the firm) does is tied directly or indirectly to return and risk. The objective of any investor is to maximize expected returns from his investments, subject to various constraints, primary risk. Return is the motivating force, inspiring the investor in the form of rewards, for undertaking the investment. The importance of returns in any investment decision can be traced to the factors: it enables investors to compare alternative investments in terms of what they have to offer the investor, it helps in measuring of historical returns which enables the investors to assess how well they have done, it facilitates in measuring of the historical returns also helps in estimation of future returns.

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Objective

To Identify the Risk and Return involved in the investment of securities in the market specifically with the Indian automobile industry.(2004 -2007)

Going about it

This article is based on the literature study of risk and return conducted during the period of 2004 to 2007. The study in the analysis of the return expected based on the performance of the selected companies is purely based on the individualistic knowledge and understanding of the Indian automobile industry. The values involved with the probability percentage of the expected return in future are based of the researchers' individual discretion. Even though the data that has been analyzed are obtained from the secondary sources since, these are historic data and might be obsolete.

Concept

This article deals with studying the risk analysis involved in the investments in the Indian automobile industry and the expected returns from these firms. The Indian automobile industry is highly dependant on the Indian economy for its growth and this study also covers the recent scenario in these firms and further futuristic perspective. An attempt has been made to provide recommendations for the investors to overcome the challenges.

Literature Review

Syndey C. Ludvigson, Serena Ng "The empirical risk-return relation: a factor analysis approach" National bureau of economic research 1050 Massachusetts Avenue, Cambridge, MA 02138

A key criticism of the existing empirical literature on the risk-return relation relates to the relatively small amount of conditioning information used to model the conditional mean and conditional volatility ox excess stock market returns. To the extent that financial market participants have information not reflected in the chosen conditioning variables, measures of conditional mean and conditional volatility - and ultimately the risk-return relation itself - will be mis-specified and possibly highly misleading. We consider one remedy to these problems using the methodology of dynamic factor analysis for large datasets, whereby a large amount of economic information can be summarized by a few estimated factors. We find that three new factors, a "volatility", "risk premium", and "real" factor, contain important information about one-quarter ahead excess returns and volatility that is not contained on commonly used predictor variables. Moreover, the factor augmented specifications we examine predict and unusual 16-20 percent of the one-quarter ahead variation in excess stock market returns, and exhibit remarkably stable and strongly statistically significant out-of-sample forecasting power. Finally, in contrast to several pre-existing studies that rely on a small number of conditioning variables, we find a positive conditional correlation between risk and return that is strongly statistically significant, whereas the unconditional correlation is weakly negative and statistically insignificant.

K.C. John Wei and Feixue Xie, Financial Analysts Journal accruals, capital investments, and stock returns

The evidence from this study shows that the "accruals anomaly" and the "capital investment anomaly" are distinct, even though capital investments and accruals may be related in a certain way. The results also indicate that, after adjustment for the Fama–French three risk factors, investors earn substantially higher returns by using a strategy that exploits both anomalies at the same time than by exploiting either anomaly alone. Using current accruals as the measure of accruals produced similar results to using total accruals, and the results are robust to various measures of return. The evidence suggests that managers in companies ranked highest in both accruals and capital investments may be overly optimistic about future demand for their products

Dale L. Domian, CFA, David A. Louton, and Marie D. Racine

Diversification in portfolios of individual stocks:

Standard investment methodology suggests much of the benefit from diversification is achieved with a portfolio of between 8 and 20 stocks. Investors with a long-term investment horizon, however, might be concerned with shortfall risk that could result in ending wealth levels significantly below target. Using a 20-year return series for 1,000 large common stocks and a Safety First criterion, the authors conclude that even 100 stocks may not be enough to alleviate significant levels of shortfall risk. Although portfolios with a small number of stocks can further reduce risk by diversifying across industries, even greater risk reduction is achieved by simply increasing the number of stocks in the portfolio.

Research Methodology

Research Design

This research article study has adopted descriptive research design.

These data were drawn from the historic data from the NSE (National Stock Exchange) – both the S&P CNX NIFTY and the Stock Return of the individual firms

(TATA, M&M, HINDUSTAN, ASHOK LEYLAND & MARUTHI). Internet is used as the primary source to draw the data for the analysis of the risk in the securities of these firms in the automobile industry.

Formulas used

Systematic Risk $= \dfrac{n\sum xy - (\sum x)(\sum y)}{n\sum x^2 - (\sum x)^2}$

Unsystematic Risk $= \sqrt{\sum P[r - \sum(r)]^2}$

Market return $= \dfrac{\text{Today's Index Value} - \text{Yesterday's Index price}}{\text{Yesterday's index price}} \times 100$

Stock return $= \dfrac{\text{Today's Stock price} - \text{Yesterday's Stock price}}{\text{Yesterday's Stock price}} \times 100$

Observation

The outcome of the calculations for the Alpha (the return Indicator) and the Beta (Systematic risk) of the 5 different firms during the period of Jan 2004 – Dec 2007 is as follows:

Indian automobile industry comparison						
Year		**TATA**	**M&M**	**Hindustan**	**Ashok leyland**	**Maruthi**
2004		0.02	0.15	4.65	-0.43	0.06
2005		-0.04	0.03	0.98	0.00	0.02
2006		0.02	0.26	0.20	0.03	0.02
2007	**ALPHA**	-0.24	-0.02	-0.04	-0.06	-0.14
2004		1.27	0.34	1.22	0.86	1.20
2005		1.13	0.17	-0.25	1.09	1.10
2006		1.17	0.10	-0.02	1.09	1.19
2007	**BETA**	0.89	-0.01	0.05	0.83	0.98

Based on the Alpha (Return indicator) and the Beta (Systematic Risk) for the major players in the Indian automobile industry the analysis could be made on the degree of risk involved in the investment of the securities of these firms. This will further enhance the analysis to calculate the Expected return, E [r] for the investors on these firms in future.

The Expected Return % and the Expected Risk% during the period of 2004-2007

Expected return %		Expected risk %	
TATA	-8.60	TATA	119.99
M&M	7.50	M&M	97.33
Hindustan	128.29	Hindustan	2092.79
Ashok leyland	-13.84	Ashok leyland	200.71
Maruthi	1.06	Maruthi	65.19

Probability of Return %

Year	TATA	Prob %	M&M	Prob %	HINDUSTAN	Prob %	ASHOK LEYLAND	Prob %	MARUTHI	Prob %
2004	0.02	20.00	0.15	20.00	4.65	20.00	-0.43	30.00	0.06	35.00
2005	-0.04	25.00	0.03	35.00	0.98	35.00	0.00	35.00	0.02	25.00
2006	0.02	20.00	0.26	15.00	0.20	15.00	0.03	15.00	0.02	25.00
2007	-0.24	35.00	-0.02	30.00	-0.04	30.00	-0.06	20.00	-0.14	15.00

Probability of Return % is allocated purely based on the knowledge of the industry and experience

Findings

Based on the calculated values of Alpha (the return Indicator) and the Beta (Systematic risk) for the five different firms between the periods of 2004- 2007 the Expected Return and risk involved in the investments made in these firms have been found. These calculations can help in certain analysis that could be made for a clear understanding about the investment decisions on these firms.

Expected Return

From the calculated values of Expected Return, E [r] it is clear that HINDUSTAN MOTORS has given phenomenal return of 128.29% compared to other firms in the same industry. Following that is the MAHINDRA & MAHINDRA is with 7.5%. The negative result of ASHOK LEYLAND and TATA motors proves that these firms failed to give the possible positive outcome during the period of 2004-2007.

Expected Risk

Using the expected return values, the possible outcome could be predicted. The chance of the actual outcome from an investment will vary. The width of a probability distribution of rates of return is a measure of risk. The wider the probability distribution, the greater the risk or greater the variability of return the greater is the variance. Here, among the five leading automobile players in India MARUTHI offers a lesser variability of risk i.e. 65.19% following which is MAHINDRA & MAHINDRA with a risk of 97.33%

Conclusion

The objective of maximizing return can be pursued only at the cost of incurring risk. While selecting the firm for investment, the investor has to consider both the return potential and the risk involved. The empirical evidence shows that generally there is a high correlation between risk and return over longer periods of time. This relationship is known as risk-return trade-off. Among the five leading company in the Indian automobile industry, based on the risk-return trade-off MAHINDRA & MAHINDRA Motors could be considered to be the best company to invest in its shares. MAHINDRA Motors & MAHINDRA has a risk of 97.33% and return of about 7.5%. Even though TATA Motors and ASHOK LEYLAND has a higher risk level of 119.99% and 200.17% as an overall for the period of 4 years (2004-2007); then as per the Risk-return trade-off these companies should be producing a consolidated higher return but surprisingly the consolidated Expected return % is in negative as -8.6% and -13.84%. In the case of HINDUSTAN Motors, the expected return is around 128.29% with a relatively high risk level of 2092%, which is above normal. Thereby, an investor cannot be lured by these values. A thorough study of the firms in terms of their capital structure, share holding pattern, knowledge of the financial market, its intricacies involved in it is needed for an investor to make the right decision about their investment. Beta is the measure of relative sensitivity, volatility, risk of a security vis-à-vis the market risk. The security with a beta value of more than 1 for the particular year or a period is considered to be more risky than the market, and the asset with a lower than 1 beta is less risky than the market.

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