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A Critique of Beta Estimation Through Selected Information Technology (It) Stocks

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ABSTRACT

This research paper attempts to measure the volatility or systematic risk of selected IT sector shares under beta estimation. Beta is the statistical measure of stocks volatility compared with the overall market. Beta is also referred to as financial elasticity or correlated relative volatility, and can be referred to as a measure of the sensitivity of the assets returns to market returns. The impact of beta towards individual security and the portfolio may not be same all the times.

KEYWORDS: 1. Volatility, 2. Risk, 3. Portfolio, 4. Market Return

INTRODUCTION

Beta is the statistical measure of a stock's volatility compared with the overall market. Beta is also referred to as financial elasticity or correlated relative volatility, and can be referred to as a measure of the sensitivity of the asset's returns to market returns, its non-diversifiable risk, its systematic risk or market risk. On an individual asset level, measuring beta can give clues to volatility and liquidity in the market place. On a portfolio level, measuring beta is thought to separate a manager's skill from his or her willingness to take risk. Beta is a measurement of a stock's volatility in relation to the market. When the return on the portfolio is more than the return on the market, beta measure is greater than one and those portfolios are referred to as aggressive. When the return on portfolio is less than the return on market, beta measure is less than one and those portfolios are termed as defensive.

OBJECTIVE OF THE STUDY

To identify the level of volatility between market return and selected IT sector stock return.

RESEARCH METHODOLOGY

Since this paper is analytical in nature, authorized secondary source information were used.

1. SOURCE OF DATA: The data was collected from National Stock Exchange website.
2. TOOLS USED FOR THE STUDY: Standard deviation and simple linear regression.

BETA ANALYSIS

Beta is the slope of the characteristic regression line. Beta describes the relationship between the stock's return and the index return.

Beta=+ 1.0

One percent change in market index returns causes exactly one percent change in the stock return. It indicates that the stock moves in tandem with the market.

Beta=+ 0.5

One percent changes in market index return causes 0.5 percent change in the stock return. The Stock is less volatile compared to the market.

Beta=+ 2.0

One percent change in market index return causes 2 percent change in the stock return. The Stock return is more volatile. When there is decline 10 percent in the market return, the stock with a beta of 2 would give a negative return of 20 percent. The stock with more than 1 beta value is considered to be risky.

Beta= - ve value

Negative beta value indicates that the stock return moves in the opposite direction to the Market return. A stock with a negative beta of -1 would provide a return of -1 would provide a Return of 10 percent, if the market return declines by 10 percent and vice versa.

3. PERIOD OF ANALYSIS: The analysis of IT stocks was done between 4.1.2010 to 26.02.2013.

4. SAMPLE SIZE: Ten IT companies were considered from the IT sector to describe the relationship between the stock's return and the index return.

ANALYSIS AND INTERPRETATION

The analysis part of this research paper has been done through 784 days market index return and stock return.

Daily Market Nifty Price considered evaluating the variable X

X = Opening Value – Closing Value X 100
Closing Value

Average Nifty Price = Sum of Nifty Price
784
Nifty Deviation = Today's Nifty Price –
Average Nifty Price

Nifty Deviation Squared = Deviation X
Deviation

Daily stock Price considered as variable Y

Y = Opening Value – Closing Value X 100
Closing Value

Average Stock Price = Sum of Stock Price
784

Stock Deviation = Today's Stock price –
Average Stock Price

Stock Deviation Squared = Deviation X
Deviation

$$\beta = \frac{Cov(x, y)}{Var(x)}$$

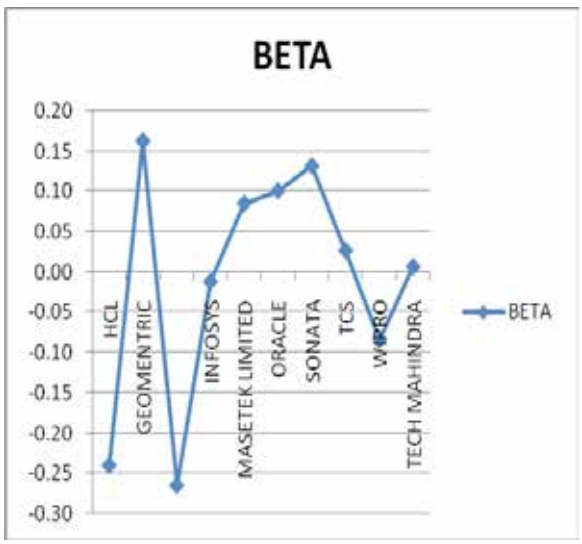
Table 1: Beta (β) value as per computation

#	Name of the Company	β
1	Infosys	-0.01
2	HCL Technologies	-0.24
3	Geomentric Software Solutions	0.16
4	Hexaware Technologies	-0.26
5	Masetek Limited	0.09
6	Oracle IT Solutions	0.10

7	Sonata	0.13
8	TCS	0.03
9	Wipro	-0.08
10	Tech Mahindra	0.01

Source: Computation based on NSE data

CHART 1: BETA REPRESENTAION



Source: Computation based on NSE data

FINDINGS AND INTERPRETATION

The above chart shows the responsiveness of stock with market movement of ten IT companies. The beta (β) values are as follows: HCL Technologies -0.24, Geomentric Software Solutions 0.16, Hexaware Technologies -0.26, Infosys -0.01, Masetek limited 0.09, Oracle IT Solutions 0.10, Sonata 0.13, TCS 0.03, Wipro -0.08, Tech Mahindra 0.01.

Negative beta - A beta less than 0 - which would indicate an inverse relation to the market - is possible but highly unlikely. Some investors used to believe that gold and gold stocks should have negative betas because they tended to do better when the stock market declined, but this hasn't proved to be true over the long term.

Beta of 0 - Basically, cash has a beta of 0. In other words, regardless of which way the market moves, the value of cash remains unchanged (given no inflation).

Beta between 0 and 1 - Companies with volatilities lower than the market have a beta of less than 1 (but more than 0). As we mentioned earlier, many utilities fall in this range.

SUGGESTIONS

After knowing the importance and impact of beta on stock, the investor could take stock under two basic paradigms like short term investment perspective and long term investment perspective. When an investor wants long term return means even he can accept the stock which has positive beta, on the other hand for short term investment perspective the investor would accept the investment which has beta level of 1 and less than that only.

CONCLUSION

The most important caveat for using beta to make investment decisions is that beta is a historical measure of a stock's volatility. Past beta figures or historical volatility does not necessarily predict future beta or future volatility. In other words, if a stock's beta is 1 right now, there is no guarantee that in a year the beta will be the same. An interesting finding in this study is that betas seem to revert back to the mean. This means that higher betas tend to fall back towards 1 and lower betas tend to rise towards 1. The second caveat for using beta is that it is measure of systematic risk, which is the risk that the market as a whole faces. The market index to which a stock is being compared is affected by market-wide risks. So, as beta is found by comparing the volatility of a stock to the index, beta only takes into account the effects of market-wide risks on the stock. The other risks the company faces are firm-specific risks, which are not grasped fully in the beta measure. So, while beta will give investors a good idea about how changes in the market affect the stock, it does not look at all the risks the company alone faces.

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