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Risk & return analysis of nifty stock in Indian capital market

Ruchi Nityanand Prabhu
MMS (Finance), Dr. VN Bedekar Institute of Management Studies, Mumbai University, Mumbai, Maharashtra, India

Abstract
India is one of the emerging economies, which has witnessed significant developments in the stock markets during the liberalization policy initiated by the government. However, investing in shares include high risks which can be guided but not controlled. Most of these risks affect the market or the economy and require investors to adjust portfolios or ride out the storm. This paper analyzes the risk and return in banking sector taking Nifty Index as the benchmark. The study compares the performance of the 50 stocks in the NSE. Indian banking industry, the backbone of the country's economy has always played a positive key role in prevention the economic disaster from reaching horrible volume in the country. Risk & Return is a concept that denotes a potential negative impact to an asset or some characteristic of value that may arise from some present process or future event. It has achieved enormous appreciation for its strength, particularly in the wake of some of the worldwide economic disasters. NSE Shares have proved to be more volatile than the pure diversified equity funds which make some of them a high-risk proposition. The study evaluates the performance of stocks mainly to identify the required rate of return and risk of a particular stock based upon different risk elements prevailing in the market and other economic factors.

Keywords: risk, return, benchmark, banking sector nifty & performance

Introduction
An investment return is characterized by two important factors that are risk and return. Risk implies future uncertainty about deviation from expected earnings or expected outcome. Risk measures the uncertainty that an investor is willing to take to realize gain from an investment. Usually risk and return have a direct relationship higher the risk, higher the return. Risk is associated with the holding of an investment over the period. There are various types of risk but two important risk is systematic risk and unsystematic risk which cannot be diversified. It is caused by factor which are beyond the control of the company. E.g. Inflation rate, interest rate and govt. policy. It is measured by Beta coefficient. Unsystematic risk can be diversified, these risk is within the control of the company such as management issues, operational issues, labor condition and other risks are interest risk, business risk, financial a credit risk and inflation risk. Returns which we earn can be CAPM return, abnormal return, actual return and so on. The Equity Markets across the world are volatile but India has a higher level of volatility. Stock market risk is the tendency of stock prices to decrease due to the change in value of the market risk factors. Value of units or shares is directly related to the market value of those investments held by the stock market. Though banking and financial services sector funds have accelerated on generating superior risk adjusted returns until now, they suffer from the risk of portfolio concentration as a single stock accounts for equity portfolio in some gear.The market value of those investments will go up and down depending on the financial performance of the issuers and general economic, political, tax and market conditions. Standard market risk factors are stock prices, interest rates, foreign exchange rates, and commodity prices Banks play an important role in supporting economic growth and have proved to be more volatile than the pure diversified equity funds which make some of them a high-risk proposition. Equity investment includes high risk at the same time it earns higher return unusually high returns may not be sustainable. Since the banking industry is under the control of Reserve Bank of India (RBI), it is adversely used as the tool to control the external problems like inflation, interest rate, and money supply. Because of this, there is a high instability in the share price that reduces the real investor's interest. This study is structured to analyze the relationship between performance of the market and volatility of market in a particular period of time. The study was conducted to analyze the nifty movement behavior from 2010 to 2015. It also evaluates the performance of Top 50 stock mainly the identification of return and risk of a particular stock based upon different risk elements prevailing in the market and other economic factors. This study is structured to analyze the performance of the market and its volatility. This study is designed to find the relation between returns and volatility of the market within specific time period.

Objectives of the study
- To analyze the risk and return of the 50 stocks listed in Nifty of NSE.
- To find the relationship between returns and volatility with Beta and Standard Deviation.
- To study out market return of all stock with their individual return.

Literature Review

- **Anju Bala (July 2013)**

Stock Market is one of the most important sectors in the financial system, marking an important contribution to economic development. Stock Market is a place where buyers and sellers of securities can enter into transactions to purchase and sell shares, bonds, debentures etc. Today long-term investors are interested to invest in the Stock market rather than invest anywhere. The Bombay Stock Exchange (BSE), the National Stock Exchange (NSE) and the Calcutta Stock Exchange (CSE) are the three large stock exchanges of Indian Stock Market. As a part of the process of economic liberalization, the stock market has been giving an important place in financing the Indian corporate sector. The main attraction of the stock markets is that they provide for entrepreneurs and governments a means of mobilizing resources directly from the investors, and to the investors they offer liquidity. It has also been suggested that liquid markets improve the allocation of resources and enhance prospects of long term economic growth. Stock Market is the mitigation of risk through the sreading of investment across multiple entities, which is achieved by the group of a number of small investments into a large bucket. Stock Market is the most suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed portfolio at a relatively low cost.

- **Lettau and Ludvigson (2001)**

This Paper show that a conditional (consumption) CAPM that uses the consumption-wealth ratio as the scaling variable explains these cross-section returns very well. Lettau and Ludvigson explain that small-size or low book-to-market ratio stocks have higher (consumption) betas in bad times or when the consumption-wealth ratio is high than they have in good times or when the consumption-wealth ratio is low.

- **MunyaChawana(December 2001)**

The risk return trade-off for investing in the stocks is the possibility of a return greater than that of a risk-free asset versus the increase risk off holding stocks over a risk-free asset. In this paper takes a new look at Merton (1973), focusing on the trade-off between conditional variance and conditional mean of the stock market return. In support we find a positive and significant relation between risk and return. This relation is robust in subsamples, does not change when the conditional variance is allowed to react asymmetrically to positive and negative returns.

- **Raghavan. R. S (2000)**

The Paper commented on the risk perceptions and the risk measure parameters. He opined that risk measures are related to the return measurements. While risks can only be contained and cannot be eliminated altogether, there is no doubt that some risks have to be taken to get adequate returns. Returns can be increased or made quicker by taking more financial and operating risks. But the environmental risks typically do not increase returns but serve as constraints on return and risk decisions. He concluded that the process of retaining the levels of risks within the desirable levels must be practiced in the daily operations.

- **Shrikumar HD (Mar 2015)**

Risk and return analysis of stocks helps the investor to pick up the securities based on their choice. Stock with more systematic risk is not favorable for investment because it has highest market risk. Thus, to construct an efficient portfolio it is better to avoid such stocks. More specifically, most investors are concerned about the actual outcome being less than the expected outcome as the wider the range at possible outcome the greater the risk in fact valuation and on understanding of the trade of between risk & return from the foundation for maximizing shareholders wealth. The study is undertaken with the main objective of determining the risk return profile of 30 listed stock of NSE. Only top 30 companies share listed on NSE are considered.

- **Vijay Soodd (2000)**

It is revealed the risks faced by banks and financial institutions and the degree of risk faced by them. According to him, risk management is gathering momentum at a time when there is increasing pressure on banks and financial institutions to better manage their assets and improve their balance sheet. He opined that the greater the volatility of expected returns, the higher is the risk. The essence of risk management is to reduce the volatility.

Scope of the study

The sample for the study is 50 stocks listed under Nifty. The study is limited to only these selected stocks and covers the year wise performance of the stocks for the study for the period of 5 years i.e. from 2011 to 2015.

Research Methodology

The risk and return trade of stocks says that the potential return rises with an increase in risk. It is important for an investor to decide on a balance between the desire for the lowest possible risk and highest possible return. This study is purely based on secondary date extracted from reliable sources.

Annual Returns of nifty are directly taken from internet. For the purpose of calculating volatility Nifty Index data was taken from NSE website. For data analysis here the descriptive statistics with regard to daily closing index prices are used. Volatility is explained using standard deviation. The NIFTY index returns and volatility returns have been correlated to see the relationship.

To calculate volatility daily returns of nifty are calculated. To measure daily returns of the NIFTY index as a percentage between any two days, the difference between closing index value of two days divided by the first day is taken. Then daily standard deviation is calculated and then annualized it for that year. In this report we are using bi-variate distribution, we are looking for the answers of the following question.

Is there an association between the two variables? If so, to what extent? The concept of relationship between two variables is denoted by correlation. Correlation can tell you something about the relationship between variables. It is used to understand:

1. Whether the relationship is positive or negative.
2. The strength of relationship.

Covariance provides a measure of the strength of the correlation between two or more sets of random variants.

Research Tools used

Excel

Data Analysis

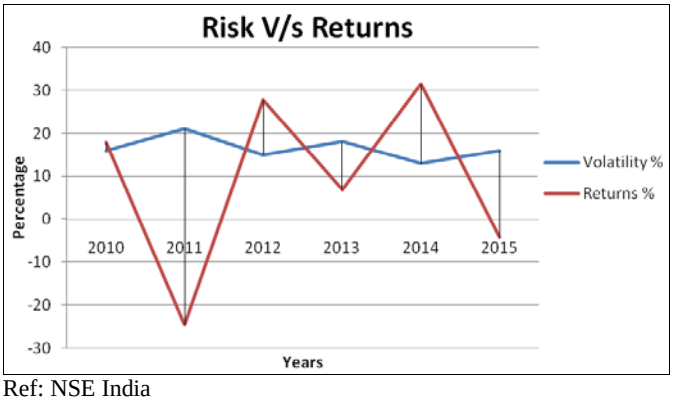
Daily return= (closing value of 2nd day- closing value of 1st day)/closing value of 1st day

Standard Deviation

Table 1: Risk & Returns of 5 years

Year	Volatility %	Returns %
2010	16	17.9
2011	21	4.6
2012	15	27.7
2013	18	6.8
2014	13	31.4
2015	16	-4.1

$$SD=\sqrt{\frac{\sum(x-\bar{x})^2}{n}}$$



Ref: NSE India

Fig 1

Covariance

Covariance is a measure of the degree to which returns on two risky assets move in tandem. A positive covariance means that asset returns move together, while a negative covariance means returns move inversely. Covariance is calculated by analyzing at return surprises (standard deviations from expected return), or by multiplying the correlation between the two variables by the standard deviation of each variable.

Statistical correlation is measured by what is called coefficient of correlation (r). Its numerical value ranges from +1.0 to -1.0. It gives us an indication of the strength of relationship.

In general, r > 0 indicates positive relationship, r < 0 indicates negative relationship while r = 0 indicates no relationship (or that the variables are independent and not related). Here r = +1.0 describes a perfect positive correlation and r = -1.0 describes a perfect negative correlation.

Closer the coefficients are to +1.0 and -1.0, greater is the strength of the relationship between the variables

Coefficient of correlation

Coefficient of correlation	-0.89394
Co variance	-51.77

Results

The degree, to which different portfolios are affected by these systematic risks as compared to the effect on the market as a whole, is different and is measured by Beta. To put it differently, the systematic risks of various securities differ due to their relationships with the market. The Beta factor describes the movement in a stock's or a portfolio's return in relation to that of the market returns. For all practical purposes, the market returns are measured by the returns on the index (Bank Nifty), since the index is a good reflector of the market. In order to find out the movement in the stock return in relation to the Bank Nifty Index, mean returns, standard deviation and Beta's of 50 Stocks are calculated and analyzed along with the correlated coefficients.

Beta & Standard deviation of top 50 companies

Table 2: Top 50 companies and beta with standard deviation

Sr. No.	Company Name	Beta	Standard Deviation
1	ACC Ltd.	1.18	7.57
2	Adani Ports & Special Economic Zone Ltd.	1.32	10.01
3	Ambuja Cements Ltd.	1.33	8.06
4	Asian Paints Ltd.	0.886	7.94
5	Aurobindo Pharma Ltd.	0.467	10.09
6	Axis Bank Ltd.	1.9	9.60
7	Bajaj Auto Ltd.	0.83	6.14
8	Bank of Baroda	0.941	9.80
9	Bharat Petroleum Corporation Ltd.	1.52	9.5
10	Bharti Airtel Ltd.	0.628	6.54
11	Bharti Infratel	0.436	7.68
12	Bosch Ltd.	1.42	9.56
13	Cipla Ltd.	0.690	7.70
14	Coal India Ltd	1.02	7.76
15	Dr. Reddy's Laboratories Ltd.	0.239	8.06

16	Eicher Motors Ltd.	1.21	9.30
17	GAIL (India) Ltd.	0.841	8.09
18	Grasim Industries Ltd.	1.15	7.69
19	HCL Technologies Ltd.	0.246	7.01
20	HDFC Bank Ltd.	1.00	4.77
21	Hero MotoCorp Ltd.	1.08	6.83
22	Hindalco Industries Ltd.	1.42	10.57
23	Hindustan Unilever Ltd.	0.875	6.39
24	Housing Development Finance Corporation Ltd.	1.15	6.08
25	I T C Ltd.	0.524	6.40
26	ICICI Bank Ltd.	1.5	8.42
27	Indiabulls Housing Finance	1.56	10.66
28	Indian Oil Corporation Ltd.	1.31	10.31
29	IndusInd Bank Ltd.	1.44	7.33
30	Infosys Ltd.	0.313	6.22
31	Kotak Mahindra Bank Ltd.	1.08	6.14
32	Larsen & Toubro Ltd.	1.81	9.28
33	Lupin Ltd.	0.246	8.64
34	Mahindra & Mahindra Ltd.	1.06	6.72
Sr. No.	Company Name	Beta	Standard Deviation
35	Maruti Suzuki India Ltd.	1.20	7.38
36	NTPC Ltd.	1.24	9.19
37	Oil & Natural Gas Corporation Ltd.	1.21	9.30
38	Power Grid Corporation of India Ltd.	0.918	6.31
39	Reliance Industries Ltd.	0.961	8.07
40	State Bank of India	1.78	10.05
41	Sun Pharmaceutical Industries Ltd.	0.490	8.87
42	Tata Consultancy Services Ltd.	0.337	6.18
43	Tata Motors (DVR)	1.48	9.66
44	Tata Motors Ltd.	1.24	9.05
45	Tata Power Co. Ltd.	1.68	9.85
46	Tata Steel Ltd.	1.20	11.83
47	Tech Mahindra Ltd.	0.48	7.23
48	UltraTech Cement Ltd.	1.25	8.13
49	Wipro Ltd.	0.417	6.46
50	Yes Bank Ltd.	1.83	10.22
51	Zee Entertainment Enterprises Ltd.	0.992	7.07

Ref: NSE India

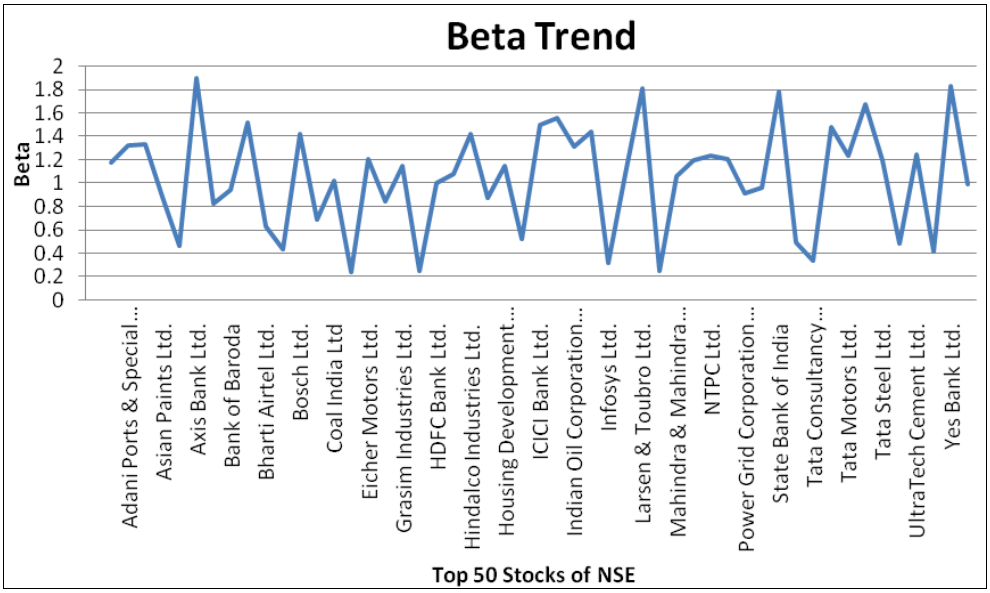


Fig 2

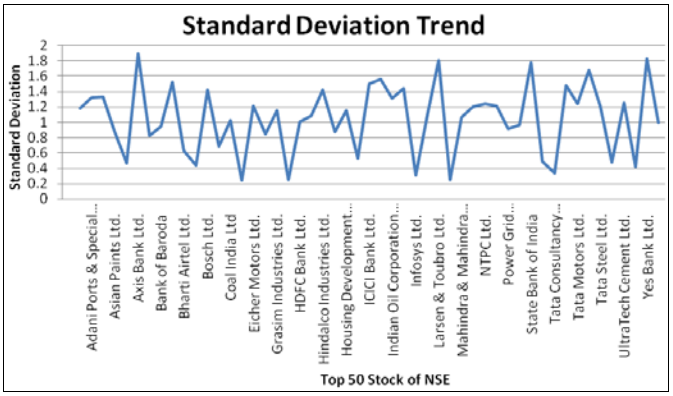


Fig 3

Findings

Beta describes the relationship between the stock returns and the index returns. From the Betas of 50 stocks, it is found that some stocks move in the opposite direction to the market, some stocks move along with the market, some stocks are less volatile compared to the market and some stocks are more volatile compared to the market. From the study following major findings are made:

All the top stocks have a positive beta values according to which the stock values move as per the movement of the market index. The stocks of Aurobindo Pharma Ltd., Bank of Baroda, Power Grid Corporation of India Ltd., Tech Mahindra Ltd. Etc. are less volatile in nature. This is mainly because their beta values are comparatively lesser than the markets beta value.

The stocks of Zee Entertainment Enterprises Ltd., Wipro Ltd., Lupin Ltd. etc. are moderately volatile in nature. This is because their values are comparatively closer to the markets beta value.

The stocks of Yes bank and Axis bank have high volatility. This is because of the fact that their beta values are more than the markets beta value.

During 2010-2015 the Market Returns & Market Volatility are negatively Co-related to the Degree of -0.51. That is, they are inversely proportional to each other. We can see in the Table of Volatility & Return that if one variable increases and other decreases and vice versa.

Conclusion

As a whole the stock market is sometimes highly volatile. It depends upon the investors how he can make use of this in order to get the money which he has put in the market. An investor should be in a position to analyze the various investment options available to him and thus minimize the risk and maximize the returns. Beta is useful for comparing the relative systematic risk of different stocks & in practice; it is used by investors to judge a stock's riskiness. The investor should keep the risk associated with the return proportional as risk is directly correlated with return. It is generally believed that higher the risk, the greater the reward but seeking excessive risk does not ensure excessive return. At a given level of return, each security has a different degree of risk. Based on the calculations the investor can come to a conclusion that investors should analyze the market on a continuous basis which will help them to pick the right companies to invest their funds.

References

1. Avadhani VA. Financial services in India first edition, Himalaya Publishing House- Mumbai. 2009.
2. Boss M. A macroeconomic credit risk model for stress testing the Austrian credit portfolio. Financial Stability Report of the Austrian National Bank, 2002; 4:64-82.
3. Frey AJ. McNeil. Quantitative risk management: concepts, techniques and tools. Princeton: Princeton University Press, 2005.
4. Gourieroux CA. Monfort. Econometric specification of stochastic discount factor models. Journal of Econometrics, 2007; 136:509-530.
5. Hayden ED, Porath N, von Westernhagen. Does diversification improve the performance of German banks? Evidence from individual bank loan portfolios. Journal of Financial Services Research. 2007; 32:123-140.
6. Jim´enez GV Salas J Saurina. Determinants of collateral. Journal of Financial Economics, 2006; 81:255-281.
7. Mencia E Sentana. Parametric properties of semi-nonparametric distributions, with applications to option valuation. Forthcoming Journal of Business and Economic Statistics, 2007.
8. Santa-Clara R, Valkanov. There is a risk-return trade-off after all. Journal of Financial Economics, 2005; 76:509-548.