Risk and Return Analysis of Equities listed in NSE Nifty with reference to Karvy Stock Exchange Limited

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Abstract

The risk and return relationship is a fundamental concept in not only financial analysis, but in every aspect of life. If decisions are to lead to benefit maximization, it is necessary that individuals/institutions consider the combined influence on expected (future) return or benefit as well as on risk/cost. The requirement that expected return/benefit is commensurate with risk/ cost is known as the "risk return trade-off in finance. A company which has a higher intrinsic worth, is not necessarily the best stock to buy. It may have no growth prospects or it may be overpriced. Similarly, a company that performs well during any one year may not be the best to buy. On the contrary,a company which has been badly for sometime might have turn the corner and it may be the best to buy, as its shares may be under priced and it has good prospects of growth, hence an analysis of risk or return guides an investor in proper profitable investment. Return expressses the amount which an investor actually earned on an investment during a certain period . Return includes the interest,dividend and capital gains; while risk represents the uncertainity associated with a particular task. In financial terms, risk is the chance or probability that a certain investment may or may not deliver the actual expected return.

Keywords:

Risk, Return, NSE, Stock Market, Investor, Index, Beta

Introduction

Stock market is the area where one will not be able to predict the future in a right way. A stock market may vary to either side due to a simple corporate decision. The investors are really worried with these variations in the market. Once he invests in stock market, a number of questions will arise in his mind. Will the stock price go up? Is it a good time to buy or sell the stock? What would be the risk and return of the stock? The line of questions goes on like this.

Normally an investor in stock market will be aware of the risk that he has to bear and the return for that. But up to what extent? To answer this question he has to get into the depth of trading of stocks. By analyzing and knowing the importance of these trading activities he will be more

aware and will be able to control the risk and cope up with the volatility happening in the market. Security analysis is built around the idea that investors are concerned with two principal properties inherent in securities: the return that can be expected from building a security, and risk that the return achieved will be less than the return that was expected. The primary purpose of this study is to focus upon return and risk and how they are measured.

Investors want to maximize expected returns subjected to their tolerance for risk. Return is the motivating force and the principle reward in the investment process and it is the key method available to investors in comparing alternative investment. Measuring historical return allows investors to assess how well investment has been done and it plays a part in the estimation of future unknown returns.

Investment: Investment is the employment of funds on assets with the aim of earning income or capital appreciation. Investment has two attributes namely time and risk. Present consumption is sacrificed to get a return in the future. The risk is undertaken with a view to reap some return from the investment. Financial investment is the allocation of money to assets that are expected to yield some gain over a period of time. It is an exchange of financial claims such as stocks and bonds for money. They are expected to yield returns and experience capital growth over the years.The main investment objectives are increasing the rate of return and reducing the risk.

Return : Investors always expect a good rate of return from their investments. Rate of return could be defined as the total income the investor receives during the holding period stated as a perceentage of the purchasing price at the beginning of the holding period.

Risk: Risk of holding securities is related with the probability of actual return becoming less than the expected return. The word risk is synonymous with the phrase variability of return. Investment's risk is just as important as measuring its expected rate of return because minimising risk and maximising the rate of return are interrelated objectives in the investment management. An investment whose rate of return varies widely from period to period is risky than whose return that does not change much. Every investor likes to reduce the risk of his investment by proper combination of different securities.

Need of The Study

Investment decisions are influenced by various motives. Some people invest in a business to acquire control and enjoy the prestige associated with it. Some people invest in expensive yachts and famous villas to display their wealth. Most investors however are largely guided by the pecuniary motive of earning a return on their investment.

Return is the primary motivating force that drives investment. It represents the reward for undertaking investment. Since the game of investing is about returns (after allowing for risk), measurement of realized (historical) returns is necessary to access how well the investment manager has done. In addition, historical returns are often used as an important input in estimating future (prospective) returns.

Scope of The Study

The scope of the study is confined to only NSE Nifty 50 companies.

Importance of The Study

Stock market is unpredictable and its movement is influenced by number of factors. An investor can reduce unsystematic risk by investing in a number of securities rather than in a single security. This study helps to identify the stocks yielding maximum returns with minimum risk. It also helps in identifying the systematic risks involved in each stock. Industry wise analysis also helps to understand which industry is yielding higher returns.

Objectives of The Study

- To analyze the risk and return of the 50 companies from Nifty Index.
- To measure the actual returns of these companies for 6 years (2008-2013).
- To study volatality of companies in comparison with the market
- To guide the investors of various investment opportunities.
- To get good return on investement made in differen avenues by investors.

Sources of Data

Primary Data

For a study of this nature primary data is collected through interaction with manager and staff members.

Secondary Data

The secondary data which is collected from various secondary sources like internet, journals & other publications. The stock price & market index were collected from the National Stock Exchange official website (www.nseindia.com). Apart from that, data have been taken from different company websites.

Tools for Analysis

- Beta is used to indicate percentage change in company's

stock return, when there is one percent change in NSE index return.

- Beta is used to calculate the total risk.

- MS Excel is used in order to calculate Return and Beta.

The other kinds of formulae used are:

Rate of return= [(closing price-opening price)/opening price]*100

Computation of Beta

Stock Return (Ri) = [(closing price-opening price)/opening price]*100

Stock Return (Rm) = [(closing price-opening price)/opening price]*100

Beta $(\beta) = [\sum(Ri\text{-}Ri)(Rm\text{-}Rm)] / [\sum(Rm\text{-}Rm)^2]$

Where, RI = $(\sum RI)/5$ & Rm = $(\sum Rm)/5$

Computation of Alpha

Alpha $(\alpha) = RI - \beta Rm$

Beta (β) represents the Systematic Risk.

Alpha (α) represents the Unsystematic Risk.

Methodology

- Analysis of return and beta's of 50 companies using SPSS and statistical tools in excel.

Data Analysis and Interpretation

Risk is an important consideration in holding any portfolio. The risk in holding securities is generally associated with the possibility that realised returns will be less than the returns expected. Risks can be classified as Systematic risks and Unsystematic risks. 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 returns in relation to that of the market return. For all practical purposes, the market returns are measured by the returns on the index (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 Nifty Index, Beta's of 50 companies are calculated and analysed.

In the following table		
Y represents= Year OP represents= Opening Price CP= Closing Price		
Rm= Return from Market Ri= Return from particular stock		
RI= Average of Ri RM= Average of Rm Ri-RI is denoted as A		
Rm-RM is denoted as B		

Table 1: Table showing calculation of Beta of Nifty Index

Year	OP	CP	Rm	RM	B	B^2
2008	6136.75	2959.15	-51.78	8.33	-60.11	3613.21
2009	2963.30	5201.05	75.52	8.33	67.19	4514.50
2010	5200.90	6134.50	17.95	8.33	9.62	92.54
2011	6177.45	4624.30	-25.14	8.33	-33.47	1120.24
2012	4640.20	5905.10	27.26	8.33	18.93	358.34
2013	5937.65	6304	6.17	8.33	-2.16	4.67
		∑=	49.98			9703.5

Market Beta=β= +1.00

Table 2: Table showing calculation of Beta of ACC Ltd.

Year	OP	CP	Ri	Rm	A	B	(A*B)	(B) ^2
2008	1035.00	480.15	-53.61	-51.78	-71.5	-60.11	4297.87	3613.21
2009	480.15	872.45	81.70	75.52	63.81	67.19	4287.39	4514.50
2010	870.00	1075.60	23.63	17.95	5.74	9.62	55.22	92.54
2011	1078.00	1136.90	5.46	-25.14	-12.43	-33.47	416.03	1120.24
2012	1145.00	1432.20	25.08	27.26	7.19	18.93	159.61	358.34
2013	1145	1432.20	25.08	6.17	7.19	-2.16	15.53	4.67
		$\sum$ =	107.34	49.98			9231.65	9703.5

Average Stock Return =(107.34)/6 =17.89, β = 0.95 **Beta = + 0.95**
One percent change in NSE index return causes 0.95% change in ACC Ltd. stock return. The   stock moves along with the market index.

Table 5.3: Table showing calculation of Beta of Ambuja Cements Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	146.50	70.05	-52.18	-51.78	-62.16	-60.11	3736.48	3613.21
2009	70.25	104.25	48.40	75.52	38.82	67.19	2608.32	4514.50
2010	105.40	143.20	35.86	17.95	25.88	9.62	248.97	92.54
2011	143.20	155.35	8.48	-25.14	-1.5	-33.47	50.21	1120.24
2012	156.00	200.90	28.78	27.26	18.8	18.93	355.88	358.34
2013	201.75	182.65	-9.47	6.17	-19.45	-2.16	42.01	4.67
		$\sum$ =	59.87	49.98			7041.87	9703.5

Average Stock Return=(59.87)/6= 9.98, β = 0.73 **Beta = +0.73**
One percent change in NSE index return causes 0.73 % change in Ambuja Cements Ltd. stock return. The stock is less volatile compared to the market.

Table 4: Table showing calculation of Beta of Asian Paints Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1139	894.95	-21.43	-51.78	-57.45	-60.11	3453.32	3613.21
2009	881.10	1797.20	103.97	75.52	67.95	67.19	4565.56	4514.50
2010	1791	2878.70	60.73	17.95	24.71	9.62	443.54	92.54
2011	2898	2592.35	-10.55	-25.14	-46.57	-33.47	1558.70	1120.24
2012	2560	4432.55	73.15	27.26	37.13	18.93	702.87	358.34
2013	444.50	490	10.24	6.17	-25.78	-2.16	55.68	4.67
		$\sum$ =	216.11	49.98			10779.67	9703.5

Average Stock Return = (216.11)/6=36.02, β = 1.11 Beta = **+1.11**
One percent change in NSE index return causes 1.11 % change in Asian Paints Ltd. stock return. The stock moves along with the market.

Table 5: Table showing calculation of Beta of Axis Bank Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	970.30	504.70	-47.99	-51.78	-65.31	-60.11	3925.78	3613.21
2009	508.50	989.20	94.53	75.52	77.21	67.19	5187.74	4514.50
2010	993.90	1350.10	35.84	17.95	18.52	9.62	178.16	92.54
2011	1365.00	808.10	-40.80	-25.14	-58.12	-33.47	1945.28	1120.24
2012	810.00	1356.55	67.48	27.26	50.16	18.93	949.53	358.34
2013	1369.70	1299.55	-5.12	6.17	-22.44	-2.16	48.47	4.67
		$\sum =$	103.94	49.98			12234.96	9703.5

Average Stock Return=(103.94)/6=17.32 ,β=1.26 **Beta = +1.26**
One percent change in NSE index return causes 1.26% change in Axis Bank Ltd. stock return. The stock is more volatile compared to the market.

Table 6: Table showing calculation of Beta of Bajaj Auto Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	898.00	391.10	-56.45	-51.78	-104	-60.11	6262.86	3613.21
2009	407.00	1754.80	331.15	75.52	283.41	67.19	19042.32	4514.50
2010	1765.00	1541.00	-12.69	17.95	-60.43	9.62	-581.34	92.54
2011	1557.00	1591.40	2.21	-25.14	-45.53	-33.47	1523.89	1120.24
2012	1600.00	2131.15	33.20	27.26	-14.54	18.93	-275.24	358.34
2013	2147	1910.85	-11	6.17	-58.74	-2.16	126.88	4.67
		$\sum =$	286.42	49.98			26099.37	9703.5

Average Stock Return = (286.42)/6=47.74, β=2.69 **Beta = +2.69**
One percent change in NSE index retu rn causes 2.69 % change in Bajaj Auto Ltd. stock return. The stock is more volatile compared to the market. This stock is considered to be more risky because the Beta value is more than +2.00.

Table 7:Table showing calculation of Beta of Bank of Baroda

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	459.60	280.00	-39.08	-51.78	57.73	-60.11	-3470.15	3613.21
2009	262.05	513.95	96.13	75.52	77.48	67.19	5205.88	4514.50
2010	505.55	896.70	77.37	17.95	58.72	9.62	564.88	92.54
2011	897.20	665.35	-25.84	-25.14	-44.49	-33.47	1489.08	1120.24
2012	670.10	866.45	29.30	27.26	10.65	18.93	201.60	358.34
2013	872	645.55	-25.96	6.17	-44.61	-2.16	96.36	4.67
		$\sum =$	111.92	49.98			4087.65	9703.5

Average Stock Return= (111.92)/6=18.65, β=0.42**Beta = +0.42**
One percent change in NSE index return causes 0.42 change in Bank of Baroda stock return.

Table 8: Table showing calculation of Beta of Bharat Heavy Electricals Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	2580.00	1362.60	-47.19	-51.78	-31.64	-60.11	1901.88	3613.21
2009	1372.00	2403.30	75.17	75.52	90.72	67.19	6095.48	4514.50
2010	2410.00	2323.70	-3.58	17.95	33.5	9.62	322.27	92.54
2011	2325.00	238.85	-89.73	-25.14	-74.18	-33.47	2482.80	1120.24
2012	239.70	228.25	-4.78	27.26	10.77	18.93	203.88	358.34
2013	230.25	176.90	-23.17	6.17	-7.62	-2.16	16.46	4.67
		∑ =	-93.28	49.98			11022.77	9703.5

Average Stock Return = (-93.28)/6–(-15.55), β–1.14 **Beta = +1.14**
One percent change in NSE index return causes 1.14 % change in Bharat heavy Electricals Ltd. stock return. The stock is more volatile compared to the market.

Table 9: Table showing calculation of Beta of Bharat Petroleum Corporation Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	529.70	376.10	-29.00	-51.78	-34.61	-60.11	2080.41	3613.21
2009	377.00	635.55	68.58	75.52	62.97	67.19	4230.95	4514.50
2010	635.55	658.40	3.60	17.95	-2.01	9.62	-19.34	92.54
2011	662.00	477.80	-27.82	-25.14	-33.43	-33.47	1118.90	1120.24
2012	484.90	356.35	-26.51	27.26	-32.12	18.93	-608.03	358.34
2013	449	347.90	-22.52	6.17	-28.13	-2.16	60.76	4.67
		∑ =	-33.67	49.98			6863.65	9703.5

Ri = (-33.67)/6 = (-5.61), β=0.71 **Beta = + 0.71**
One percent change in NSE index return causes 0.71 % change in Bharat Petroleum Corporation Ltd. stock return. The stock is less volatile compared to the market.

Table 10: Table showing calculation of Beta of Bharti Airtel Ltd

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1000.00	715.50	-28.45	-51.78	-14.67	-60.11	881.81	3613.21
2009	715.00	329.75	-53.88	75.52	-40.10	67.19	-2694.32	4514.50
2010	329.85	358.80	8.78	17.95	22.56	9.62	217.03	92.54
2011	360.90	343.50	-4.82	-25.14	8.96	-33.47	-299.89	1120.24
2012	344.50	317.10	-7.95	27.26	5.83	18.93	110.36	358.34
2013	318.55	330.25	3.67	6.17	17.45	-2.16	37.69	4.67
		∑=	-82.65	49.98			-1747.32	9703.5

Average Stock Return= (-82.65)/6= (-13.78), β= (-0.18) **Beta = -0.18**
One percent change in NSE index return causes negative movement in Bharti Airtel Ltd. stock return. This indicates that the stock return moves in the op posite direction to the market return. Here the market return moves in the positive direction whereas stock return moves in the negative direction.

Table 11: Table showing calculation of Beta of Cairn India Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	259.90	172.05	-33.80	-51.78	-40.77	-60.11	2450.68	3613.21
2009	175.50	282.15	60.77	75.52	53.8	67.19	3614.82	4514.50
2010	283.10	332.75	17.54	17.95	10.57	9.62	101.77	92.54
2011	333.50	314.25	-5.77	-25.14	-12.74	-33.47	426.41	1120.24
2012	315.00	319.10	1.30	27.26	-5.67	18.93	-107.33	358.34
2013	318.10	323.75	1.78	6.17	-5.19	-2.16	11.21	4.67
		$\sum$ =	41.82	49.98			6497.56	9703.5

Average Stock Return=41.82/6=6.97, β=0.67**Beta = + 0.67**
One percent changes in NSE index return causes 0.67% change in Cairn India   Ltd. stock return. The stock is less volatile compared to the market.

Table 12: Table showing calculation of Beta of Cipla Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	215.00	186.60	-13.21	-51.78	-27.72	-60.11	1666.25	3613.21
2009	187.00	335.05	79.17	75.52	64.66	67.19	4344.51	4514.50
2010	338.00	369.80	9.41	17.95	-5.1	9.62	-49.06	92.54
2011	370.90	319.90	-13.75	-25.14	-28.26	-33.47	945.86	1120.24
2012	320.90	414.25	29.09	27.26	14.58	18.93	276.00	358.34
2013	416	400.80	-3.65	6.17	-18.16	-2.16	39.23	4.67
		$\sum$=	87.06	49.98			7222.79	9703.5

Average Stock Return=87.06/6=14.51, β=0.74 **Beta = + 0.74**
One percent changes in NSE index return causes 0.74% change in Cipla Ltd. stock return. The stock is less volatile compared to the market.

Table 13: Table showing calculation of Beta of Coal India Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
2010	291.00	314.75	8.16	17.95	3.07	13.58	41.69	184.42
2011	315.50	300.65	-4.71	-25.14	-9.8	-29.51	289.20	870.84
2012	303.00	354.80	17.10	27.26	12.01	22.89	274.91	523.95
2013	356.05	290.00	-0.19	6.17	-5.28	1.8	9.50	3.24
		$\sum$=	20.36	26.24			615.3	1582.45

Average Stock Return=20.36/4=5.09, β=0.39**Beta = + 0.39**
One percent changes in NSE index return causes 0.39   % change in Coal India Ltd. stock return. The stock is less volatile compared to the market.

Table 14: Table showing calculation of Beta of DLF Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1076.00	282.15	-73.78	-51.78	-60.91	-60.11	3661.30	3613.21
2009	279.85	361.20	29.07	75.52	41.94	67.19	2817.95	4514.50
2010	361.00	291.95	-19.13	17.95	-6.26	9.62	-60.22	92.54
2011	295.00	183.10	-37.93	-25.14	-25.06	-33.47	838.76	1120.24
2012	184.70	230.60	24.85	27.26	37.72	18.93	714.04	358.34
2013	233.65	166.70	-0.29	6.17	12.58	-2.16	-27.17	4.67
		∑=	**-77.21**	**49.98**			**7944.66**	**9703.5**

Average Stock Return= (-77.21)/6= (-12.87), β=0.82 **Beta = + 0.82**
One percent changes in NSE index return causes 0.82 % change in DLF Ltd. stock return. The stock is less volatile compared to the market.

Table 15:Table showing calculation of Beta of Dr. Reddy's Laboratories Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	720.00	468.65	-34.91	-51.78	-68.44	-60.11	4113.93	3613.21
2009	473.90	1146.60	141.95	75.52	108.42	67.19	7284.74	4514.50
2010	1140.00	1662.85	45.86	17.95	12.33	9.62	118.61	92.54
2011	1671.00	1577.95	-5.57	-25.14	-39.1	-33.47	1308.68	1120.24
2012	1584.95	1829.75	15.45	27.26	-18.08	18.93	342.25	358.34
2013	1831.60	2534.60	38.38	6.17	4.85	-2.16	-10.48	4.67
		∑=	**201.16**	**49.98**			**13157.73**	**9703.5**

Average Stock Return=201.16/6=33.53, β=1.36**Beta = +1.36**
One percent changes in NSE index return causes 1.36 % change in Dr. Reddy's Laboratories Ltd. stock return. The stock is more volatile compared to the market.

Table 16: Table showing calculation of Beta of GAIL (India) Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	536.05	206.25	-61.52	-51.78	-65.52	-60.11	3938.41	3613.21
2009	208.50	413.30	98.23	75.52	94.23	67.19	6331.31	4514.50
2010	413.00	512.65	24.13	17.95	20.13	9.62	193.65	92.54
2011	512.05	383.65	-25.08	-25.14	-29.08	-33.47	973.30	1120.24
2012	384.00	356.75	-7.10	27.26	-11.10	18.93	-210.12	358.34
2013	359	342.30	-4.65	6.17	-8.65	-2.16	18.68	4.67
		∑=	**24.01**	**49.98**			**11245.23**	**9703.5**

Average Stock Return=24.01/6=4.00, β=1.16 **Beta = +1.16**
One percent changes in NSE index return causes 1.16% change in GAIL (India) Ltd. stock return. The stock is more volatile compared to the market.

Table 17: Table showing calculation of Beta of Grasim Industries Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	3630.00	1219.85	-66.40	-51.78	-74.83	-60.11	4498.03	3613.21
2009	1220.00	2475.05	102.87	75.52	94.44	67.19	6345.42	4514.50
2010	2487.05	2342.70	-5.80	17.95	-14.23	9.62	-136.89	92.54
2011	2342.70	2488.75	6.23	-25.14	-2.2	-33.47	73.63	1120.24
2012	2474.00	3169.50	28.11	27.26	19.68	18.93	372.54	358.34
2013	3173.50	2714.60	-14.46	6.17	-22.89	-2.16	49.44	4.67
		∑=	50.55	49.98			11202.17	9703.5

Average Stock Return=50.55/6=8.43, β=1.15**Beta = +1.15**
One percent changes in NSE index return causes 1.15% change in Grasim Industries Ltd. stock return. The stock is more volatile compared to the market.

Table 18: Table showing calculation of Beta of HCL Technologies Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	332.00	115.30	-65.27	-51.78	-118.73	-60.11	7136.86	3613.21
2009	116.50	371.30	218.71	75.52	165.25	67.19	11103.15	4514.50
2010	374.25	456.25	21.91	17.95	-31.55	9.62	-303.22	92.54
2011	460.00	387.95	-15.66	-25.14	-69.12	-33.47	2313.45	1120.24
2012	389.00	618.70	59.05	27.26	5.59	18.93	105.82	358.34
2013	624.90	1262.55	102.04	6.17	48.58	-2.16	-104.93	4.67
		∑=	320.78	49.98			20251.13	9703.5

Average Stock Return = 320.78/6=53.46, β = 2.09 **Beta = +2.09**
One percent change in NSE index return causes 2.09 % change in HCL Technologies Ltd. stock return. The stock is more volatile compared to the market. This stock   is considered to be more risky because the Beta value is more than +2.00.

Table 19: Table showing calculation of Beta of HDFC Bank Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1730.00	998.35	-42.29	-51.78	-49.04	-60.11	2947.79	3613.21
2009	996.00	1702.25	70.91	75.52	64.16	67.19	4310.91	4514.50
2010	1700.00	2346.35	38.02	17.95	31.27	9.62	300.82	92.54
2011	2370.00	426.85	-81.99	-25.14	-88.74	-33.47	2970.13	1120.24
2012	428.90	678.60	58.22	27.26	51.47	18.93	974.33	358.34
2013	682.10	665.85	-2.38	6.17	-9.13	-2.16	19.72	4.67
		∑=	40.49	49.98			11523.7	9703.5

Average Stock Return=40.49/6=6.75, β=1.19 **Beta = +1.19**
One percent changes in NSE index return causes 1.19% change in HDFC Bank Ltd. stock return. The stock is more volatile compared to the market.

Table 20: Table showing calculation of Beta of Hero MotoCorp Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	697.70	803.65	15.19	-51.78	-9.32	-60.11	560.23	3613.21
2009	801.40	1717.70	114.34	75.52	89.83	67.19	6035.68	4514.50
2010	1732.90	1988.15	14.73	17.95	-9.78	9.62	-94.08	92.54
2011	2014.00	1905.15	-5.40	-25.14	-29.91	-33.47	1001.09	1120.24
2012	1914.80	1900.60	-0.74	27.26	-25.25	18.93	-477.98	358.34
2013	1905.35	2075.30	8.92	6.17	-15.59	-2.16	33.67	4.67
		$\sum=$	147.04	49.98			7058.61	9703.5

Average Stock Return=147.04/6=24.51, β=0.73 **Beta = + 0.73**
One percent changes in NSE index return causes 0.73 % change in Hero MotoCorp Ltd. stock return. The stock is less volatile compared to the market.

Table 21: Table showing calculation of Beta of Hindalco Industries Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	216.00	51.40	-76.20	-51.78	-98.85	-60.11	5941.87	3613.21
2009	52.40	160.85	206.97	75.52	184.52	67.19	12397.90	4514.50
2010	162.00	247.00	52.47	17.95	30.02	9.62	288.79	92.54
2011	248.00	115.85	-53.29	-25.14	-75.74	-33.47	2535.02	1120.24
2012	117.00	130.50	11.54	27.26	-10.91	18.93	-206.53	358.34
2013	131.50	122.60	-6.77	6.17	-29.22	-2.16	63.12	4.67
		$\sum=$	134.72	49.98			21020.17	9703.5

Average Stock Return=134.72/6=22.45, β=2.17 **Beta = +2.17**
One percent change in NSE index return causes 2.17 % change in Hindalco Industries Ltd. stock return. The stock is more volatile compared to the market. This stock i   s considered to be more risky because the Beta value is more than +2.00.

Table 22: Table showing calculation of Beta of Hindustan Unilever Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	213.25	250.30	17.37	-51.78	-0.90	-60.11	54.10	3613.21
2009	251.00	264.80	5.50	75.52	-12.77	67.19	-858.02	4514.50
2010	264.80	312.90	18.16	17.95	-0.11	9.62	-1.06	92.54
2011	310.05	407.40	31.40	-25.14	13.13	-33.47	-439.46	1120.24
2012	408.15	524.85	28.59	27.26	10.32	18.93	195.36	358.34
2013	525.55	570.65	8.58	6.17	-9.69	-2.16	20.93	4.67
		$\sum=$	109.6	49.98			-1028.15	9703.5

Average Stock Return=109.6/6=18.27, β= (-0.106) **Beta = -0.106**
One percent change in NSE index return causes negative movement in Hindustan Unilever Ltd. stock return. This indicates that the stock retur n moves in the opposite direction to the market return. Here the market return moves in the positive direction whereas stock return moves in the negative direction.

Table 23: Table showing calculation of Beta of Housing Development Finance Corporation Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	2912.00	1486.40	-48.96	-51.78	-43.55	-60.11	2617.80	3613.21
2009	1500.00	2675.80	78.39	75.52	83.8	67.19	5630.52	4514.50
2010	2694.80	728.35	-72.97	17.95	-67.56	9.62	-649.93	92.54
2011	737.90	652.05	-11.63	-25.14	-6.22	-33.47	208.18	1120.24
2012	650.00	828.85	27.52	27.26	32.93	18.93	623.36	358.34
2013	834.65	794.65	-4.79	6.17	0.62	-2.16	-1.34	4.67
		$\sum$ =	-32.44	49.98			8428.59	9703.5

Average Stock Return= (-32.44)/6= (-5.41), β=0.87**Beta = + 0.87**
One percent changes in NSE index return causes 0.87% change in Housing Development Finance Corporation Ltd. stock return. The stock is less volatile compared to the market.

Table 24: Table showing calculation of Beta of ITC Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	212.00	171.70	-19.01	-51.78	-29.69	-60.11	1784.67	3613.21
2009	172.30	250.80	45.56	75.52	34.88	67.19	2343.59	4514.50
2010	253.00	174.65	-30.97	17.95	-41.65	9.62	-400.67	92.54
2011	175.95	201.30	14.41	-25.14	3.73	-33.47	-124.84	1120.24
2012	201.85	286.80	42.09	27.26	31.41	18.93	594.59	358.34
2013	287.35	321.85	12.01	6.17	1.33	-2.16	-2.87	4.67
		$\sum$=	64.09	49.98			4194.47	9703.5

Average Stock Return−64.09/6−10.68, β−0.43 **Beta = + 0.43**
One percent changes in NSE index return cause s 0.43% change in I T C Ltd. stock return. The stock is less volatile compared to the market

Table 25: Table showing calculation of Beta of ICICI Bank Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1240.00	448.10	-63.86	-51.78	-77.48	-60.11	4657.32	3613.21
2009	450.00	877.00	94.89	75.52	81.27	67.19	5460.53	4514.50
2010	877.00	1145.10	30.57	17.95	16.95	9.62	163.06	92.54
2011	1154.00	684.65	-40.67	-25.14	-54.29	-33.47	1817.09	1120.24
2012	690.15	1138.25	64.93	27.26	51.31	18.93	971.30	358.34
2013	1146.40	1098.75	-4.16	6.17	-17.78	-2.16	38.40	4.67
		$\sum$=	81.7	49.98			13107.7	9703.5

Average Stock Return=81.7/6=13.62, β=1.35**Beta = +1.35**
One percent changes in NSE index return causes 1.35% change in   ICICI Bank Ltd. stock return. The stock is more volatile compared to the market.

Table 26: Table showing calculation of Beta of IDFC Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	205.10	66.80	-67.43	-51.78	-80.46	-60.11	4836.45	3613.21
2009	67.50	154.30	128.59	75.52	115.56	67.19	7764.48	4514.50
2010	155.00	182.60	17.81	17.95	4.78	9.62	45.98	92.54
2011	184.05	91.65	-50.20	-25.14	-63.23	-33.47	2116.31	1120.24
2012	92.00	171.30	86.20	27.26	73.17	18.93	1385.11	358.34
2013	173.35	109.60	-36.78	6.17	-49.81	-2.16	107.59	4.67
		$\sum=$	78.19	49.98			16255.92	9703.5

Average Stock Return=78.19/6=13.03, β=1.68**Beta = +1.68**
One percent changes in NSE index return causes 1.68 % change in IDFC Ltd. stock return. The stock is more volatile compared to the market.

Table 27: Table showing calculation of beta of IndusInd Bank

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	129.5	37	-71.4286	-51.78	-119.504	-60.11	7183.407	3613.212
2009	44.1	138.25	213.4921	75.52	165.4163	67.19	11114.32	4514.496
2010	143	265.45	85.62937	17.95	37.55358	9.62	361.2654	92.5444
2011	248.3	231.35	-6.82642	-25.14	-54.9022	-33.47	1837.577	1120.241
2012	242.95	416	71.22865	27.26	23.15285	18.93	438.2835	358.3449
2013	435.4	419.55	-3.64033	6.17	-51.7161	-2.16	111.7068	4.6656
			288.45	8.33			21046.56	9703.504

Average Stock Return=288.45/6=48.075,   β=2.16 **Beta=+2.16**

Y	op	cp	Ri	Rm	A	B	(A*B)	(B)^2
2008	129.5	37	-71.43	-51.78	-119.50	-60.11	7183.41	3613.21
2009	44.1	138.25	213.49	75.52	165.42	67.19	11114.32	4514.50
2010	143	265.45	85.63	17.95	37.55	9.62	361.27	92.54
2011	248.3	231.35	-6.83	-25.14	-54.90	-33.47	1837.58	1120.24
2012	242.95	416	71.23	27.26	23.15	18.93	438.28	358.34
2013	435.4	419.55	-3.64	6.17	-51.72	-2.16	111.71	4.67
			48.08	8.33			21046.56	9703.50

One percent change in the NSE index causes 2.16% change in the IndusInd Bank stock return. The stock is more aggressive because beta is more than 2.

Table 28: Table showing calculation of Beta of Infosys Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1766.60	1115.45	-36.86	-51.78	-60.57	-60.11	3640.86	**3613.21**
2009	1116.00	2601.10	133.07	75.52	109.36	67.19	7347.90	4514.50
2010	2610.00	3442.75	31.91	17.95	8.2	9.62	78.88	92.54
2011	3444.00	2767.65	-19.64	-25.14	-43.35	-33.47	1450.92	1120.24
2012	2759.20	2318.70	-15.96	27.26	-39.67	18.93	-750.95	358.34
2013	2327.60	3485.65	49.75	6.17	26.04	-2.16	-56.25	4.67
		∑=	**142.27**	**49.98**			**11711.36**	**9703.5**

Average Stock Return=142.27/6=23.71, β= 1.21**Beta = +1.21**
One percent changes in NSE index return causes 1.21% change in Infosys Ltd. stock return. The stock is more volatile compared to the market.

Table 29: Table showing calculation of Beta of Jindal Steel & Power Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	15390	911.25	-94.08	-51.78	-61.1	-60.11	3672.72	3613.21
2009	915.00	703.30	-23.14	75.52	9.84	67.19	661.15	4514.50
2010	710.55	712.05	0.21	17.95	33.19	9.62	319.29	92.54
2011	722.90	453.15	-37.31	-25.14	-4.33	-33.47	144.93	1120.24
2012	454.20	447.85	-1.40	27.26	31.58	18.93	597.81	358.34
2013	451	261	-42.13	6.17	-9.15	-2.16	19.76	4.67
		∑=	**-197.85**	**49.98**			**5415.56**	**9703.5**

Average Stock Return= (-197.85)/6= (-32.98), β=0.56**Beta = + 0.56**
One percent changes in NSE index return causes 0.56% change in Jindal Steel & Power Ltd. stock return. The stock is less volatile compared to the market.

Table 30: Table showing calculation of Beta of Kotak Mahindra Bank Ltd

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1350.00	357.50	-73.52	-51.78	-98.61	-60.11	5927.45	3613.21
2009	360.00	806.95	124.15	75.52	99.06	67.19	6655.84	4514.50
2010	813.10	453.65	-44.21	17.95	-69.3	9.62	-666.67	92.54
2011	457.90	430.55	-5.97	-25.14	-31.06	-33.47	1039.58	1120.24
2012	432.90	650.05	50.16	27.26	25.07	18.93	474.58	358.34
2013	652.95	728.25	11.53	6.17	-13.56	-2.16	29.29	4.67
		∑=	**150.56**	**49.98**			**13460.07**	**9703.5**

Average Stock Return=150.56/6=25.09, β=1.39**Beta = +1.39**
One percent changes in NSE index return causes 1.39% change in Kotak Mahindra Bank Ltd. stock return. The stock is more volatile compared to the market.

Table 31: Table showing calculation of Beta of Larsen& Toubro Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	4183.00	773.75	-81.50	-51.78	-91.36	-60.11	5491.65	3613.21
2009	785.00	1677.60	113.71	75.52	103.85	67.19	6977.68	4514.50
2010	1683.00	1979.25	17.60	17.95	7.74	9.62	74.46	92.54
2011	1985.35	994.65	-49.90	-25.14	-59.76	-33.47	2000.17	1120.24
2012	1002.00	1607.15	60.39	27.26	50.53	18.93	956.53	358.34
2013	1082.85	1070.25	-1.16	6.17	-11.02	-2.16	23.80	4.67
		∑=	**59.14**	**49.98**			**15524.29**	**9703.5**

Average Stock Return=59.14/6=9.86, β=1.60**Beta = +1.60**
One percent changes in NSE index return causes 1.60 % change in Larsen & Toubro Ltd. stock return. The stock is more volatile compared to the market.

Table 32: Table showing calculation of Beta of Lupin Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	630.00	617.85	-1.93	-51.78	-26.09	-60.11	1568.27	3613.21
2009	618.00	1474.10	138.53	75.52	114.37	67.19	7684.52	4514.50
2010	1480.00	482.85	-67.38	17.95	-91.54	9.62	880.61	92.54
2011	486.00	447.85	-7.85	-25.14	-32.01	-33.47	1071.37	1120.24
2012	451.55	613.85	35.94	27.26	11.78	18.93	223.00	358.34
2013	615.15	908.15	47.63	6.17	23.47	-2.16	-50.70	4.67
		∑=	**144.94**	**49.98**			**11377.07**	**9703.5**

Average Stock Return=144.94/6=24.16, β=1.17**Beta = +1.17**
One percent changes in NSE index returns causes exactly 1.17 % changes in Lupin Ltd. stock return. The stock is more volatile compared to the market.

Table 33: Table showing calculation of Beta of Mahindra& Mahindra Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	862.90	274.50	-68.19	-51.78	-104.38	-60.11	6274.28	3613.21
2009	276.00	1080.85	291.61	75.52	255.42	67.19	17161.67	4514.50
2010	1085.50	778.20	-28.31	17.95	-64.5	9.62	-620.49	92.54
2011	794.75	681.80	-14.21	-25.14	-50.4	-33.47	-1686.89	1120.24
2012	687.80	931.65	35.45	27.26	-0.74	18.93	-14.00	358.34
2013	937.00	944.20	0.77	6.17	-35.42	-2.16	76.51	4.67
		∑=	**217.12**	**49.98**			**21191.08**	**9703.5**

Average Stock Return = 217.12/6−36.19, β−2.18**Beta = +2.18**
One percent change in NSE index return causes 2.18 % change in Mahindra & Mahindra Ltd. stock return. The stock is more volatile compared to the market. This stock is considered to be more risky because the Beta value is more than +2.00.

Table 34: Table showing calculation of Beta of Maruti Suzuki India Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1000.00	520.20	-47.98	-51.78	-78.95	-60.11	4745.68	3613.21
2009	521.00	1560.10	199.44	75.52	168.47	67.19	11319.50	4514.50
2010	1565.00	1421.60	-9.16	17.95	-40.13	9.62	386.05	92.54
2011	1430.00	918.30	-35.78	-25.14	-66.75	-33.47	2234.12	1120.24
2012	923.00	1490.05	61.44	27.26	30.47	18.93	576.80	358.34
2013	1497	1763.90	17.83	6.17	-13.14	-2.16	28.38	4.67
		$\sum=$	185.79	49.98			19290.53	9703.5

Average Stock Return=185.79/6=30.97, β=1.99 **Beta = +1.99**
One percent changes in NSE index return causes 1.99 % change in Maruti Suzuki India Ltd. stock return. The stock is more volatile compared to the market.

Table 35: Table showing calculation of Beta of NMDC Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	483.81	165.9	-65.71	-51.78	-61.01	-60.11	3667.38	3613.212
2009	184	422.7	129.73	75.52	134.43	67.19	9032.14	4514.496
2010	426	274.6	-35.54	17.95	-30.84	9.62	-296.69	92.5444
2011	284.9	156.25	-45.16	-25.14	-40.46	-33.47	1354.12	1120.241
2012	155.15	160.05	3.16	27.26	7.86	18.93	148.73	358.3449
2013	166.3	141.9	-14.67	6.17	-9.97	-2.16	21.54	4.6656
			-4.70	8.33			13927.21	9703.504

Average Stock Return=-28.19/6=-4.69, β=1.44, **Beta= +1.44**
One percent changes in NSE index return causes 1. 44% change in NMDC Ltd. stock return. The stock is more volatile compared to the market.

Table 36: Table showing calculation of Beta of NTPC Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	253.00	180.60	-28.62	-51.78	-20.42	-60.11	1227.45	3613.21
2009	180.60	235.65	30.48	75.52	38.68	67.19	2598.91	4514.50
2010	237.40	200.65	-15.48	17.95	-7.28	9.62	-70.03	92.54
2011	201.40	160.85	-20.13	-25.14	-11.93	-33.47	399.30	1120.24
2012	160.85	156.45	-2.74	27.26	5.46	18.93	103.36	358.34
2013	156.90	137.00	-12.68	6.17	-4.48	-2.16	9.68	4.67
		$\sum=$	-49.17	49.98			4268.67	9703.5

Average Stock Return= (-49.17)/6= (-8.20), β=0.44**Beta = + 0.44**
One percent changes in NSE index return causes 0.44% change in NTPC Ltd. stock return. The stock is less volatile compared to the market.

Table 37: Table showing calculation of Beta of Oil& Natural Gas Corporation Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1240	667.10	-46.20	-51.78	-41.36	-60.11	2486.15	3613.21
2009	667	1178.00	76.61	75.52	81.45	67.19	5472.63	4514.50
2010	1177	1288.20	9.45	17.95	14.29	9.62	137.47	92.54
2011	1304	256.60	-80.32	-25.14	-75.48	-33.47	2526.32	1120.24
2012	257.50	268.00	4.08	27.26	8.92	18.93	168.86	358.34
2013	269.10	288.90	7.36	6.17	12.2	-2.16	-26.35	4.67
		$\sum$=	-29.02	49.98			10765.08	9703.5

Average Stock Return= (-29.02)/6= (-4.84), β=1.11**Beta = +1.11**
One percent changes in NSE index return causes 1.11% change in Oil & Natural Gas Corporation Ltd. stock return. The stock is more volatile compared to the market.

Table 38: Table showing calculation of Beta of Power Grid Corporation of India Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	144.7	83.15	-42.54	-51.78	-38.95	-60.11	2341.28	3613.21
2009	85.9	110.15	28.23	75.52	31.82	67.19	2137.99	4514.50
2010	110.2	98.3	-10.80	17.95	-7.21	9.62	-69.36	92.54
2011	98.45	100.1	1.68	-25.14	5.27	-33.47	-176.39	1120.24
2012	99.65	114.75	15.15	27.26	18.74	18.93	3547.48	358.34
2013	115.15	99.90	-13.24	6.17	-9.65	-2.16	20.84	4.67
		$\sum$=	-21.52	49.98			7801.84	9703.5

Average Stock Return= (-21.52)/6= (-3.59), β=0.47**Beta = + 0.47**
One percent changes in NSE index return causes 0.47% change in Power Grid Corporation of India Ltd. stock return. The stock is less volatile compared to the market.

Table 39: Table showing calculation of Beta of Punjab National Bank

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	667.00	526.70	-21.03	-51.78	-36.33	-60.11	2183.80	3613.21
2009	528.10	906.20	71.60	75.52	56.3	67.19	3782.80	4514.50
2010	900.00	1222.00	35.78	17.95	20.48	9.62	197.02	92.54
2011	1235.00	780.80	-36.78	-25.14	-52.08	-33.47	1743.12	1120.24
2012	784.90	871.30	11.01	27.26	-4.29	18.93	-81.21	358.34
2013	879.70	626.45	-28.79	6.17	-44.09	-2.16	95.23	4.67
		$\sum$=	31.79	49.98			7920.76	9703.5

Average Stock Return=31.79/6=5.30, β=0.82**Beta = + 0.82**
One percent changes in NSE index return causes 0.82 % change in Punjab National Bank Ltd. stock return. The stock is less volatile compared to the market.

Table 40: Table showing calculation of Beta of Reliance Industries Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	2890.00	1232.75	-57.34	-51.78	-43.88	-60.11	2637.63	3613.21
2009	1240.00	1090.55	-12.05	75.52	1.41	67.19	94.74	4514.50
2010	1091.10	1058.70	-2.97	17.95	10.49	9.62	100.91	92.54
2011	1065.00	692.95	-34.93	-25.14	-21.47	-33.47	718.61	1120.24
2012	696.80	839.55	20.49	27.26	33.95	18.93	642.67	358.34
2013	844	895.20	6.07	6.17	19.53	-2.16	-42.18	4.67
		∑=	-80.73	49.98			4152.38	9703.5

Average Stock Return= (-80.73)/6= (-13.46), β=0.43**Beta = + 0.43**
One percent changes in NSE index return causes 0.43% change in Reliance Industries Ltd. stock return. The stock is less volatile compared to the market.

Table 41: Table showing calculation of Beta of Sesa Goa Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	3820.00	85.85	-97.75	-51.78	-136.18	-60.11	8185.78	3613.21
2009	86.25	410.80	376.29	75.52	337.86	67.19	22700.81	4514.50
2010	411.10	328.55	-20.08	17.95	-58.51	9.62	-562.87	92.54
2011	333.40	163.40	-50.99	-25.14	-89.42	-33.47	2992.89	1120.24
2012	162.05	195.45	20.61	27.26	-17.82	18.93	-337.33	358.34
2013	197	201.95	2.51	6.17	-35.92	-2.16	77.59	4.67
		∑=	230.59	49.98			33056.87	9703.5

Average Stock Return=230.59/6=38.43, β=3.41**Beta = +3.41**
One percent change in NSE index return causes 3.41% change in Sesa Goa Ltd. stock return. The stock is more volatile compared to the market. This stock is considere d to be more risky because the Beta value is more than +2.00.

Table 42: Table showing calculation of Beta of State Bank of India

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	2380.00	1288.80	-45.85	-51.78	-50.11	-60.11	3012.11	3613.21
2009	1329.00	2269.00	70.73	75.52	66.46	67.19	4465.45	4514.50
2010	2275.00	2811.90	23.60	17.95	19.34	9.62	186.05	92.54
2011	2832.70	1619.05	-42.84	-25.14	-47.10	-33.47	1576.44	1120.24
2012	1629.00	2385.50	46.44	27.26	42.18	18.93	798.47	358.34
2013	2404.90	1766.50	-26.55	6.17	-30.81	-2.16	66.55	4.67
		∑=	25.53	49.98			10105.07	9703.5

Average Stock Return=25.53/6=4.26, β=1.04**Beta = +1.04**
One percent changes in NSE index return causes 1.04% change in State Bank of India Ltd. stock return. The stock moves along with the market index.

Table 43: Table showing calculation of Beta of Sun Pharmaceutical Industries Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1226.90	1064.15	-13.27	-51.78	-23.1	-60.11	1388.54	3613.21
2009	1078.00	1508.80	39.96	75.52	30.13	67.19	2024.43	4514.50
2010	1538.00	484.95	-68.47	17.95	-78.3	9.62	-753.25	92.54
2011	495.00	497.65	0.54	-25.14	-9.29	-33.47	310.94	1120.24
2012	500.00	736.25	47.25	27.26	37.42	18.93	708.36	358.34
2013	369.55	567.45	53.55	6.17	43.72	-2.16	-94.44	4.67
		∑=	**58.96**	**49.98**			**3584.98**	**9703.5**

Average Stock Return=58.96/6=9.83, β=0.37**Beta = + 0.37**
One percent   changes   in NSE index return causes 0.37   % change in Sun Pharmaceutical Industries Ltd. stock return. The stock is less volatile compared to the market.

Table 44: Table showing calculation of Beta of Tata Consultancy Services Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1077.00	477.90	-55.63	-51.78	-77.99	-60.11	4687.98	3613.21
2009	480.00	750.25	56.30	75.52	33.94	67.19	2280.43	4514.50
2010	754.80	1165.65	54.43	17.95	32.07	9.62	308.51	92.54
2011	1167.00	1160.65	-0.54	-25.14	-22.9	-33.47	766.46	1120.24
2012	1161.00	1255.85	8.17	27.26	-14.19	18.93	-268.62	358.34
2013	1266.95	2172.05	71.44	6.17	49.08	-2.16	-106.01	4.67
		∑=	**134.17**	**49.98**			**7668.75**	**9703.5**

Average Stock Return=134.17/6=22.36, β=0.79 **Beta = + 0.79**
One percent changes in NSE index return causes 0.79 % change in Tata Consultancy Services Ltd. stock return. The stock is less volatile compared to the market.

Table 45: Table showing calculation of Beta of Tata Motors Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	742.00	159.85	-78.46	-51.78	-142.51	-60.11	8566.28	3613.21
2009	160.95	791.55	391.80	75.52	327.75	67.19	22021.52	4514.50
2010	789.90	1308.35	65.63	17.95	1.58	9.62	15.20	92.54
2011	1327.70	178.70	-86.54	-25.14	-150.59	-33.47	5040.25	1120.24
2012	180.95	312.65	72.78	27.26	8.73	18.93	165.26	358.34
2013	316	376.40	19.11	6.17	-44.94	-2.16	97.07	4.67
		∑ =	**384.32**	**49.98**			**35905.58**	**9703.5**

Average Stock Return=384.32/6=64.05, β=3.70 **Beta = +3.70**
One percent change in NSE index return causes 3.70 % change in Tata Motors Ltd. stock return. The stock is more volatile compared to the market. This stock is considered to be more risky because the Beta value is more than +2.00.

Table 46: Table showing calculation of Beta of Tata Power Co. Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1450.00	749.15	-48.33	-51.78	-39.50	-60.11	2374.35	3613.21
2009	755.00	1381.45	82.97	75.52	91.8	67.19	6168.04	4514.50
2010	1386.00	1365.55	-1.48	17.95	7.35	9.62	70.70	92.54
2011	1384.00	87.25	-93.70	-25.14	-84.87	-33.47	2840.60	1120.24
2012	88.00	110.35	25.40	27.26	34.23	18.93	647.97	358.34
2013	107.31	88.15	-17.85	6.17	-9.02	-2.16	19.48	4.67
		∑=	**-52.99**	**49.98**			**12121.14**	**9703.5**

Average Stock Return= (-52.99)/6= (-8.83), β=1.25 **Beta = +1.25**
One percent changes in NSE index return causes 1.25% change in Tata Power Co. Ltd. stock return. The stock is more volatile compared to the market.

Table 47: Table showing calculation of Beta of Tata Steel Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	939.00	217.20	-76.87	-51.78	-91.93	-60.11	5525.91	3613.21
2009	218.00	617.70	183.35	75.52	168.29	67.19	11307.41	4514.50
2010	622.00	680.40	9.39	17.95	-5.67	9.62	-54.55	92.54
2011	685.20	335.35	-51.06	-25.14	-66.12	-33.47	2213.04	1120.24
2012	337.90	428.50	26.81	27.26	11.75	18.93	222.43	358.34
2013	431.90	424.40	-1.74	6.17	-16.80	-2.16	36.29	4.67
		∑=	**90.38**	**49.98**			**19250.53**	**9703.5**

Average Stock Return=90.38/6=15.06, β=1.98 **Beta = +1.98**
One percent changes in NSE index return causes 1.98% change in Tata Steel Ltd. stock return. The stock is more volatile compared to the market.

Table 48: Table showing calculation of Beta Tech Mahindra Ltd.

Y	op	Cp	Ri	Rm	A	B	A*B	B^2
2008	1145	247.65	-78.3712	-51.78	-125.635	-60.11	7551.9	3613.212
2009	272	990.9	264.3015	75.52	217.038	67.19	14582.78	4514.496
2010	1035	690.3	-33.3043	17.95	-80.5678	9.62	-775.063	92.5444
2011	713.55	572.8	-19.7253	-25.14	-66.9888	-33.47	2242.115	1120.241
2012	599.15	920.75	53.67604	27.26	6.412549	18.93	121.3895	358.3449
2013	933	1838.05	97.00429	6.17	49.74079	-2.16	-107.44	4.6656
			47.26349	**8.33**			**23615.68**	**9703.504**

Average Stock Return=288.58/6=47.26, β=2.43, **Beta= +2.43**
One percent change in NSE index return causes 2.43% change in Tech Mahindra Ltd. stock return. The stock is more volatile compared to the market.

Table 49: Table showing calculation of Beta of UltraTech Cement Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	1020.00	385.50	-62.21	-51.78	-88.38	-60.11	5312.52	3613.21
2009	390.00	914.20	134.41	75.52	108.24	67.19	7272.65	4514.50
2010	914.20	1084.25	18.60	17.95	-7.57	9.62	-72.82	92.54
2011	1085.00	1166.50	7.51	-25.14	-18.66	-33.47	624.55	1120.24
2012	1166.50	1986.30	70.28	27.26	44.11	18.93	835.00	358.34
2013	1995	1764.10	-11.57	6.17	-37.74	-2.16	81.52	4.67
		∑=	157.02	49.98			14053.42	9703.5

Average Stock Return=157.02/6=26.17, β=1.45 **Beta = +1.45**
One percent changes in NSE index return causes 1.45% change in Ultra Tech Cement Ltd. stock return. The stock is more volatile compared to the market.

Table 50: Table showing calculation of Beta of United spirits Ltd

Y	op	cp	Ri	Rm	A	B	A*B	B^2
2008	2009.7	893.85	-55.5232	-51.78	-94.6934	-60.11	5692.018	3613.212
2009	935.7	1258.9	34.54099	75.52	-4.62917	67.19	-311.034	4514.496
2010	1400	1460.55	4.325	17.95	-34.8452	9.62	-335.21	92.5444
2011	1416	574.85	-59.4032	-25.14	-98.5734	-33.47	3299.252	1120.241
2012	500	1899.05	279.81	27.26	240.6398	18.93	4555.312	358.3449
2013	1986	2607.05	31.2714	6.17	-7.89875	-2.16	17.06131	4.6656
			39.17015	8.33			12917.4	9703.504

Average Stock Return=39.17, β=1.33, **Beta= +1.33**
One percent changes in NSE index return causes 1.33% change in United Spirits Ltd. stock return. The stock is more volatile compared to the market.

Table 51: Table showing calculation of Beta of Wipro Ltd.

Y	OP	CP	Ri	Rm	A	B	A*B	B^2
2008	529.05	233.40	-55.88	-51.78	-77.13	-60.11	4636.28	3613.21
2009	233.40	680.00	191.35	75.52	170.1	67.19	11429.02	4514.50
2010	685.00	491.25	-28.28	17.95	-49.53	9.62	-476.48	92.54
2011	496.80	398.70	-19.75	-25.14	-41	-33.47	1372.27	1120.24
2012	399.00	394.50	-1.13	27.26	-22.38	18.93	-423.65	358.34
2013	396.05	559.20	41.19	6.17	19.94	-2.16	-43.07	4.67
		∑=	127.5	49.98			16494.37	9703.5

Average Stock Return=127.5/6=21.25, β=1.70**Beta = +1.70**
One percent changes in NSE index return causes 1.70 % change in Wipro Ltd. stock return. The stock is more volatile compared to the market.

Findings

- Beta describes the relationship between the stock's return and the index returns. From the beta's of 50 companies, it is found that some stocks move in the opposite direction to the market, some stock's move along with the market, some stocks are less volatile compared to the market and some stocks are more volatile compared to the market. Some stocks are considered to be more risky, whose Beta is greater than +2.00.

- Stocks of Bharti Airtel Ltd. & Hindustan Unilever Ltd. have shown the negative movement. When the market moves in the positive direction, these stocks have moved in the opposite direction.

- Stocks of Ambuja cements Ltd, Bharath Petroleum Corporation Ltd, Cairn India Ltd, Cipla Ltd, Coal India Ltd, DLF Ltd, Hero Motocorp Ltd, HDFC Ltd, ITC Ltd, Jindal Steel & Power Ltd, NTPC Ltd, Power Grid Corporation of India ltd, Punjab National Bank Ltd, Reliance Industries Ltd, Sun Pharmaceutical Industries Ltd, Tata Consultancy Ltd. are less volatile compared to the market. These stocks are considered to be less risky. These stocks have yielded the negative returns. Some stocks have low returns & moderate returns.

- Stocks of Axis Bank Ltd., Bank of baroda, BHEL Ltd, Gail (India) Ltd, Grasim Industries Ltd, HDFC Bank Ltd, ICICI Bank Ltd, IDFC Ltd, Infosys Ltd, Kotak Mahindra Bank Ltd, Larsen & Toubro Ltd, Maruti Suzuki India Ltd, ONGC Ltd, Ranbaxy Laboratories Ltd, Tata Power Co. Ltd, Tata Steel Ltd, Ultra tech Cement Ltd, Wipro Ltd. are more volatile compared to market. These stocks are considered to be more risky & have yielded the high returns.

- Stocks of Bajaj Auto Ltd, HCL Technologies Ltd, Hindalco Industries Ltd, Mahindra & Mahindra Ltd., Sesa Goa Ltd., and Tata Motors Ltd. are more risky. These stocks have Beta Value greater than +2.00. Hence these stocks are considered to be more risky & they yield the higher return compared to the market return.

- The total market index (Nifty) return is 43.80 for 5 years. Stocks of ACC Ltd., Ambuja Cements Ltd., Asian Paints Ltd., Bajaj Auto Ltd., HCL Technologies Ltd., Mahindra & Mahindra Ltd., Sesa Goa Ltd.,Cipla Ltd., Grasim Industries Ltd., ITC Ltd., ICICI bank Ltd., Infosys Ltd., Kotak Mahindra, Larsen & Toubro Ltd., Lupin Ltd., Punjab National Bank, Ranbaxy Laboratories Ltd., State Bank of India, Tata Consultancy Services Ltd., Tata Steel Ltd., Wipro Ltd., Axis Bank Ltd., Bank of Baroda, Dr. Reddy's Laboratories Ltd., Hero Motocorp Ltd., Hindalco Industries Ltd., Hindustan Unilever Ltd., IDFC Ltd., Maruti Suzuki India Ltd., Ultra tech Cement Ltd., have yielded higher returns than the Index returns & has shown positive movement of returns. The risks represented by these stocks are also higher than that of the market risk.

- The stocks of HDFC Bank Ltd., BHEL Ltd, Bharath Petroleum Corporation Ltd., Sun Pharmaceutical Industries Ltd., Coal India Ltd., DLF Ltd, Jindal Steel & Power Ltd., NTPC Ltd., Oil & Natural Gas Corporation Ltd., HDFC Ltd., Gail (India) Ltd., Power Grid Corporation of India ltd., Reliance Industries Ltd., Reliance Infrastructure Ltd., Tata Power Co. Ltd. stocks have yielded the lower returns than the market returns and hence, their risk is also low compared to the market risk.

- Tata Motors Ltd. stock has yielded the highest returns during the five years & Jindal Power & Steel Ltd. stock has yielded the lowest returns (i.e., negative returns).

Conclusion

Risk & Return are inseparable. To ignore risk & only expect returns is an out-dated approach to investments. The investment process must be considered in terms of both aspects – risk & return. For earning returns investors have to almost invariably bear some risk. While investors like returns, they abhor risk. Investment decisions therefore involve a trade-off between risk & return. 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 analyse the various investment option 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 analyse the market on a continuous basis which will help them to pick the right companies to invest their funds. The return, Beta value will help the investors in arriving at the right decision. The investors should be in a position to interpret the data in the right manner to arrive at important conclusions and investment decisions. Long term investment gives more returns with minimum risk compared to the short term investment. Long term investment gives

not only good returns but also gives a tax benefit because investors have tax exemptions in long term capital gains.

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