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Risk Return Analysis of Bank Nifty Stocks with Special Reference to Public and Private Sector Banks in India

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Abstract

Risk and return analysis plays a key role in most individual decision making process. Every investor wants to avoid risk and maximize return. In general, risk and return go hand in hand. If an investor wishes to earn higher returns then, the investor must appreciate that this will only be achieved by accepting a commensurate increase in risk. Banking sector is the backbone of country's economy. This sector has given very good return to the investors in the past. The Risk and Return are the two faces of the Investment coin. This paper studies the Market risk analysis of twelve Nationalized Banks and private banks in terms of Beta coefficient for the period from 7th December 2015 to 8th February 2016. The betas of State Sank of India, Industrial Development Bank of India & Syndicate Bank were negative which implies that these stocks moved against the market and less affected by market risk. On the other hand the betas of Punjab National Bank & Bank of Baroda were more than one. It indicates that these stocks were exposed to high market risk; i.e., any small changes in the market will directly impact on these stocks. The study based on secondary data collected from NSE. The data on weekly market prices of banking sector listed in Bank Nifty have been collected. In addition the other sources are also used for data collection like newspaper and internet (www. nseindia.com). Published data are available in newspapers, websites, journals, books, reports by management, scholars, researchers, brokers etc.., The reason behind choosing the weekly prices is that short term fluctuations in the market prices of the stocks due to internal and external factors. Though it is possible to make much an analysis using daily prices; collection of data for long period of time is not possible. Hence the weekly prices are considered.

Keywords: *Risk, Return, Beta, Market Risk, Nifty, NSE*

Introduction

Risk and return analysis plays a key role in most individual decision making process. Every investor wants to avoid risk and maximize return. In general, risk and return go hand in hand. If an investor wishes to earn higher returns then, the investor must appreciate that this will only be achieved by accepting a commensurate increase in risk. Based on risk and return analysis, high risk gives high returns while low risk gives low return, based on this concept in banking and automobile sector high risk gives low return, and in information technology, fast moving consumer goods, and pharmaceutical sector low risk gives high return.

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Objectives of the Study

1. To study the bank's stock movement with respect to Bank Nifty.
2. To analyze the Market Risk of selected banking stocks in terms of Beta.
3. To compare the Market Risk of selected banking stocks.
4. To find out the relation between individual bank stocks and bank nifty
5. To find out the factors influencing changes in stock prices of banks.

Scope of the Study

- Study about banking industry, which is an important sector in India and aiding other industries.
- This study also aims at guidance to investors for future investment.

Research Methodology

Sources of Data

The study based on secondary data collected from NSE. The data on weekly market prices of banking sector listed in Bank Nifty have been collected. In addition the other sources are also used for data collected from newspaper and internet (www.nseindia.com). Published data will be available in news papers, websites, journals, books, reports by management, scholars, researchers, brokers etc.., The reason behind choosing the weekly prices is that short term fluctuations in the market prices of the stocks due to internal and external factors can be catch hold off. Through it is possible to make much an analysis using daily prices; collection of data for long period of time is not possible. Hence the weekly prices are considered.

Tools for Data Analysis

➢ Arithmetic mean

The arithmetic mean is a measure of central tendency. The arithmetic mean is obtained by adding all the observations and dividing the sum by the number of observations.

$$Mean(\bar{x}) = \frac{\sum x}{n}$$

➢ Correlation

Correlation is a statistical tool which is used for finding out the relationship between two variables. The correlation may be positive, zero or negative.

$$Correlation(r) = \frac{n\sum xy - \sum x * \sum y}{\sqrt{(n\sum x^2 - (\sum x)^2 * (n\sum x^2 - (\sum y)^2}}$$

Where, 'n' is the number of observations. Here the number of share prices.

'x' and 'y' are the two variables. Here, 'x' is market return and 'y' is the individual stock return.

➢ Moving average

Moving average is used to identify the trend of movement of data.

$$\text{3 weeks mooving average} = \frac{First\ value + Second\ value + Third\ value}{3}$$

❖ Return

$$Return = \frac{P1 - P0}{Po} * 100$$

Where, P_0 is the price at which the stock is bought and P_1 is the price at which the stock is sold.

❖ Risk

Risk is the possibility of loss. Risk may be of two types; Systematic risk and unsystematic risk.

➢ Systematic risk

Systematic risk is the risk which cannot be controlled. It can be found out by calculating beta.

$$Beta(\beta) = \frac{n\sum xy - \sum x * \sum y}{(n\sum x^2 - (\sum x)^2}$$

Where, 'n' is the number of observations. Here the number of share prices; 'x' and 'y' are the two variables. Here, 'x' is market return and 'y' is the individual stock return.

➢ Unsystematic risk

Unsystematic risk is the risk which can be controlled by the business. It is found out by calculating Standard deviation.

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{\Sigma(y - \bar{y})^2}{n}}$$

Where, 'n' is the number of observations and 'x' is the individual stock return.

Period of the Study

The proposed study covers a period of 2 monthsfrom 7th December 2015 to 8th February 2016(weekly basis) has been considered for analysis of Bank Nifty stocks.

Limitations of the Study

As every study has its own limitations, this study also has few limitations. They are;

- The data collected from NSE website on weekly basis of price movements.
- Only based on the Bank Nifty shares.

Short period of time selected for the study

Sample Size

The stocks which are taken for the study are the bank stocks listed in Bank Nifty.

No.	Bank Name	No.	Bank Name
1	Axis Bank	7	ICICI Bank
2	Bank of Baroda	8	IndusInd Bank
3	Bank of India	9	Kotak Mahindra Bank
4	Canara Bank	10	Punjab National Bank
5	Federal Bank	11	State Bank of India
6	HDFC Bank	12	Yes Bank

Calculation of Return

In this section, the returns of each bank shares are calculated in percentage using the weekly closing prices of 10 consecutive weeks.

$$Return = \frac{P1 - P0}{Po} * 100$$

Table1: Returns of Selected Public and Private Sector Banks

	AXIS BANK		BANK OF BARODA		BANK OF INDIA		CANARA BANK	
Date	Weekly Close	Return in %	Weekly Close	Return in %	Weekly Close	Return in %	Weekly Close	Return in %
07-Dec-15	440.65	0	155.25	0	115.4	0	241.95	0
14-Dec-15	432.55	-1.84	159	2.42	117.45	1.78	242.6	0.27
21-Dec-15	450.75	2.29	158.3	1.96	117.6	1.9	240.45	-0.62
28-Dec-15	449.9	2.1	159.05	2.45	117.1	1.47	238.3	-1.51
04-Jan-16	413.7	-6.12	140.45	-9.53	110.2	-4.51	219.7	-9.2
11-Jan-16	374.25	-15.07	126.15	-18.74	94.05	-18.5	179.7	-25.73
18-Jan-16	424.15	-3.74	130.2	-16.14	100.75	-12.7	186.25	-23.02
25-Jan-16	408.4	-7.32	125.4	-19.23	100.05	-13.3	194	-19.82
01-Feb-16	399.55	-9.33	126.95	-18.23	97.8	-15.25	192.95	-20.25
08-Feb-16	391.1	-11.24	130.65	-15.85	102.15	-11.48	196.7	-18.7

	FEDERAL BANK		HDFC BANK		ICICI BANK		INDUSIND BANK		KOTAK MAHINDRA BANK	
Date	Weekly Close	Return in %	Weekly Close	Return in %	Weekly Close	Return in %	Weekly Close	Return in %	Weekly Close	Return in %
07-Dec-15	54.4	0	1046.35	0	249.3	0	916.15	0	667.7	0
14-Dec-15	55.1	1.29	1073	2.55	250.1	0.32	935.05	2.06	702.45	5.2
21-Dec-15	56.2	3.31	1074	2.64	257.95	3.47	945.4	3.19	701.35	5.04
28-Dec-15	56.95	4.69	1088.75	4.05	263	5.5	963.85	5.21	727.25	8.92
04-Jan-16	52.6	-3.31	1062.35	1.53	245.05	-1.7	947.05	3.37	695.1	4.1
11-Jan-16	47.95	-11.86	1042.15	-0.4	224.45	-9.97	921.55	0.59	675.6	1.18
18-Jan-16	48.6	-10.66	1030.3	-1.53	232.75	-6.64	898	-1.98	683.05	2.3
25-Jan-16	46.15	-15.17	1049.85	0.33	230.15	-7.68	928.8	1.38	683.6	2.38
01-Feb-16	45.8	-15.81	1055.25	0.85	209.4	-16	911.85	-0.47	692	3.64
08-Feb-16	46.1	-15.26	1035.85	-1	208.55	-16.35	882.95	-3.62	673.1	0.81

	PUNJAB NATIONAL BANK		STATE BANK OF INDIA		YES BANK	
Date	Weekly Close	Return in %	Weekly Close	Return in %	Weekly Close	Return in %
07-Dec-15	123	0	227.3	0	680.6	0
14-Dec-15	122	-0.81	226.5	-0.35	718.7	5.6
21-Dec-15	120.1	-2.36	228.3	0.44	724.35	6.43
28-Dec-15	117.6	-4.39	227.8	0.22	732.45	7.62
04-Jan-16	105.1	-14.55	208.95	-8.07	693.7	1.92
11-Jan-16	92.2	-25.04	184.3	-18.92	663.7	-2.48
18-Jan-16	92.5	-24.8	184.6	-18.79	684	0.5
25-Jan-16	91.3	-25.77	179.9	-20.85	746.8	9.73
01-Feb-16	94.7	-23.01	168.2	-26	777.05	14.17
08-Feb-16	94.3	-23.33	172.15	-24.26	768.35	12.89

Measurement of Average Return and Risk

The average return is calculated using arithmetic mean. The risk is measured using Beta and Standard deviation. Average return of the stocks during the period is also calculated.

Table2: Average Return and Risk of Axis Bank

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	440.65	0.00	0.00	16947.00	0.00	0	0
14-Dec-15	432.55	-1.84	3.38	16350.65	-3.52	12.38	6.47
21-Dec-15	450.75	2.29	5.25	16825.15	-0.72	0.52	-1.65
28-Dec-15	449.90	2.10	4.41	16979.15	0.19	0.04	0.40
4-Jan-16	413.70	-6.12	37.41	16599.15	-2.05	4.21	12.55

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
11-Jan-16	374.25	-15.07	227.06	16016.25	-5.49	30.16	82.76
18-Jan-16	424.15	-3.74	14.02	15020.80	-11.37	129.19	42.56
25-Jan-16	408.40	-7.32	53.56	15561.15	-8.18	66.87	59.85
1-Feb-16	399.55	-9.33	87.00	15314.45	-9.63	92.80	89.85
8-Feb-16	391.10	-11.24	126.44	15046.80	-11.21	125.72	126.08
Total		-50.27			-51.98	461.89	418.87

Source: Collected data-Compiled and calculated

$Mean(\bar{y}) = \frac{\Sigma y}{n}$ = -5.03

$Correlation(r) = \frac{n\Sigma xy - \Sigma x * \Sigma y}{\sqrt{(n\Sigma x^2 - (\Sigma x)^2 * (n\Sigma x^2 - (\Sigma y)^2}} = 0.65$

Standard Deviation(σ)$= \sqrt{\frac{\Sigma(y-\bar{y})^2}{n}}$ = -5.53

$Beta(\beta) = \frac{n\Sigma xy - \Sigma x * \Sigma y}{(n\Sigma x^2 - (\Sigma x)^2} = 0.82$

Interpretation

The average return of the Axis Bank share is -5.03. The standard deviation is 5.53. So the return is varying from -10.56 to 0.5. The Axis Bank share is highly positively correlated with the Nifty Bank. The beta is 0.82. If the market is grows by 1, the stock will increase by 0.82.

Table 3: Average Return and Risk of Bank of Baroda

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	155.25	0.00	0.00	16947.00	0.00	0.00	0.00
14-Dec-15	159.00	2.42	5.83	16350.65	-3.52	12.38	-8.50
21-Dec-15	158.30	1.96	3.86	16825.15	-0.72	0.52	-1.41
28-Dec-15	159.05	2.45	5.99	16979.15	0.19	0.04	0.46
4-Jan-16	140.45	-9.53	90.88	16599.15	-2.05	4.21	19.57
11-Jan-16	126.15	-18.74	351.34	16016.25	-5.49	30.16	102.94
18-Jan-16	130.20	-16.14	260.35	15020.80	-11.37	129.19	183.39
25-Jan-16	125.40	-19.23	369.68	15561.15	-8.18	66.87	157.23
1-Feb-16	126.95	-18.23	332.28	15314.45	-9.63	92.80	175.60
8-Feb-16	130.65	-15.85	251.08	15046.80	-11.21	125.72	177.67
		-90.89	1671.29		-51.98	461.89	806.96

$Mean(\bar{y})$ = -16.52 *Standard Deviation* (σ) = 9.46 $Correlation(r)$= 0.83 $Beta$ (β)= 1.75

Interpretation

The average return of the Bank of Baroda share is -16.52. The standard deviation is 9.46. So the return is varying from -25.98 to -7.06. The Bank of Baroda share is highly positively correlated with the Nifty Bank. The beta is 1.75. If the market is increased by 1, the stock will increase by 1.75. So this is highly volatile share.

Table 4: Average Return and Risk of Bank of India

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	115.40	0.00	0.00	16947.00	0.00	0.00	0.00
14-Dec-15	117.45	1.78	3.16	16350.65	-3.52	12.38	-6.25
21-Dec-15	117.60	1.91	3.63	16825.15	-0.72	0.52	-1.37
28-Dec-15	117.10	1.47	2.17	16979.15	0.19	0.04	0.28
4-Jan-16	110.20	-4.51	20.30	16599.15	-2.05	4.21	9.25
11-Jan-16	94.05	-18.50	342.28	16016.25	-5.49	30.16	101.61
18-Jan-16	100.75	-12.69	161.16	15020.80	-11.37	129.19	144.29
25-Jan-16	100.05	-13.30	176.93	15561.15	-8.18	66.87	108.77
1-Feb-16	97.80	-15.25	232.60	15314.45	-9.63	92.80	146.92
8-Feb-16	102.15	-11.48	131.83	15046.80	-11.21	125.72	128.74
		-70.58	4981.62		-51.98	461.89	632.24

$Mean(\bar{y})$ = -12.83 *Standard Deviation* (σ) = 7.79 $Correlation(r)$= 0.80 $Beta\ (\beta)$= 1.38

Interpretation

The average return of the Bank of India share is -12.83. The standard deviation is 7.79. So the return is varying from -20.62 to -5.04. The Bank of India share is highly positively correlated with the Nifty Bank. The beta is 1.38. If the market is increased by 1, the stock will increase by 1.38. So this share is very much elastic.

Table 5: Average Return and Risk of Canara Bank

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	241.95	0.00	0.00	16947.00	0.00	0.00	0.00
14-Dec-15	242.60	0.27	0.07	16350.65	-3.52	12.38	-0.95
21-Dec-15	240.45	-0.62	0.38	16825.15	-0.72	0.52	0.45
28-Dec-15	238.30	-1.51	2.28	16979.15	0.19	0.04	-0.29
4-Jan-16	219.70	-9.20	84.57	16599.15	-2.05	4.21	18.88
11-Jan-16	179.70	-25.73	661.95	16016.25	-5.49	30.16	141.30
18-Jan-16	186.25	-23.02	529.98	15020.80	-11.37	129.19	261.66
25-Jan-16	194.00	-19.82	392.76	15561.15	-8.18	66.87	162.06
1-Feb-16	192.95	-20.25	410.15	15314.45	-9.63	92.80	195.09
8-Feb-16	196.70	-18.70	349.77	15046.80	-11.21	125.72	209.70
		-118.58	2431.91		-51.98	461.89	987.91

$Mean(\bar{y})$ = -11.86 *Standard Deviation* (σ) = 10.13 $Correlation(r)$ = 0.84 $Beta\ (\beta)$ =1.94

Interpretation

The average return of the Canara Bank share is -11.86. The standard deviation is 10.13. So the return is varying from -21.99 to -1.73. The Canara Bank share is highly positively correlated with the Nifty Bank. The beta is 1.94. If the market is increased by 1, the stock will increase by 1.94. So this is highly risky share.

Table 6: Average Return and Risk of Federal Bank

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	54.40	0.00	0.00	16947.00	0.00	0.00	0.00
14-Dec-15	55.10	1.29	1.66	16350.65	-3.52	12.38	-4.53
21-Dec-15	56.20	3.31	10.95	16825.15	-0.72	0.52	-2.38
28-Dec-15	56.95	4.69	21.97	16979.15	0.19	0.04	0.89
4-Jan-16	52.60	-3.31	10.95	16599.15	-2.05	4.21	6.79
11-Jan-16	47.95	-11.86	140.58	16016.25	-5.49	30.16	65.12
18-Jan-16	48.60	-10.66	113.67	15020.80	-11.37	129.19	121.18
25-Jan-16	46.15	-15.17	229.99	15561.15	-8.18	66.87	124.02
1-Feb-16	45.80	-15.81	249.92	15314.45	-9.63	92.80	152.29
8-Feb-16	46.10	-15.26	232.79	15046.80	-11.21	125.72	171.07
		-62.78	1012.47		-51.98	461.89	634.46

Source: Compiled and calculated

$Mean(\bar{y})$ = -6.28 *Standard Deviation* (σ) = 7.86 $Correlation(r)$ = 0.89 $Beta\ (\beta)$ = 1.61

Interpretation

The average return of the Federal Bank share is -6.28. The standard deviation is 7.86. So the return is varying from -14.14 to 1.58. The Federal Bank share is highly positively correlated with the Nifty Bank. The beta is 1.61. If the market is growing by 1, the stock will increase by 1.61. So this is highly volatile share.

Table 7: Average Return and Risk of HDFC Bank

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	1046.35	0.00	0.00	16947.00	0.00	0.00	0.00
14-Dec-15	1073	2.55	6.49	16350.65	-3.52	12.38	-8.96
21-Dec-15	1074	2.64	6.98	16825.15	-0.72	0.52	-1.90
28-Dec-15	1088.75	4.05	16.42	16979.15	0.19	0.04	0.77
4-Jan-16	1062.35	1.53	2.34	16599.15	-2.05	4.21	-3.14
11-Jan-16	1042.15	-0.40	0.16	16016.25	-5.49	30.16	2.20
18-Jan-16	1030.3	-1.53	2.35	15020.80	-11.37	129.19	17.43
25-Jan-16	1049.85	0.33	0.11	15561.15	-8.18	66.87	-2.74
1-Feb-16	1055.25	0.85	0.72	15314.45	-9.63	92.80	-8.19
8-Feb-16	1035.85	-1.00	1.01	15046.80	-11.21	125.72	11.25
		9.02	36.58		-51.98	461.89	6.73

$Mean(\bar{y})$ = -0.90 *Standard Deviation* (σ) = 1.69 $Correlation(r)$ = 0.73 $Beta\ (\beta)$ = 0.28

Interpretation

The average return of the HDFC Bank share is -0.90. The standard deviation is 1.69. So the return is varying from -2.59 to 0.79. The HDFC Bank share is highly positively correlated with the Nifty Bank. The beta is 0.28. If the market is growing by 1, the stock will increase by 0.28. So this is less risky share.

Table 8: Average Return and Risk of ICICI Bank

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	249.30	0.00	0.00	16947.00	0.00	0.00	0.00
14-Dec-15	250.10	0.32	0.10	16350.65	-3.52	12.38	-1.13
21-Dec-15	257.95	3.47	12.04	16825.15	-0.72	0.52	-2.49
28-Dec-15	263.00	5.50	30.20	16979.15	0.19	0.04	1.04
4-Jan-16	245.05	-1.70	2.91	16599.15	-2.05	4.21	3.50
11-Jan-16	224.45	-9.97	99.36	16016.25	-5.49	30.16	54.74
18-Jan-16	232.75	-6.64	44.07	15020.80	-11.37	129.19	75.45
25-Jan-16	230.15	-7.68	59.01	15561.15	-8.18	66.87	62.82
1-Feb-16	209.40	-16.00	256.15	15314.45	-9.63	92.80	154.18
8-Feb-16	208.55	-16.35	267.18	15046.80	-11.21	125.72	183.28
		-49.06	771.02		-51.98	461.89	531.39

$Mean(\bar{y})$ = -4.91 *Standard Deviation* (σ) = 7.28 $Correlation(r)$ = 0.87 $Beta\ (\beta)$ = 1.44

Interpretation

The average return of the ICICI Bank share is -4.91. The standard deviation is 7.28. So the return is varying from -12.19 to 2.37. The ICICI Bank share is highly positively correlated with the Nifty Bank. The beta is 1.44. If the market is growing by 1, the stock will increase by 1.44. So this shows that it is highly elastic.

Table 9: Average Return and Risk of Indusind Bank

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	916.15	0.00	0.00	16947.00	0.00	0.00	0.00
14-Dec-15	935.05	2.06	4.26	16350.65	-3.52	12.38	-7.26
21-Dec-15	945.40	3.19	10.19	16825.15	-0.72	0.52	-2.30
28-Dec-15	963.85	5.21	27.11	16979.15	0.19	0.04	0.99
4-Jan-16	947.05	3.37	11.38	16599.15	-2.05	4.21	-6.92
11-Jan-16	921.55	0.59	0.35	16016.25	-5.49	30.16	-3.24
18-Jan-16	898.00	-1.98	3.92	15020.80	-11.37	129.19	22.52
25-Jan-16	928.80	1.38	1.91	15561.15	-8.18	66.87	-11.29
1-Feb-16	911.85	-0.47	0.22	15314.45	-9.63	92.80	4.52
8-Feb-16	882.95	-3.62	13.13	15046.80	-11.21	125.72	40.63
		9.73	72.46		-51.98	461.89	37.65

$Mean(\bar{y})$ = -0.97 *Standard Deviation* (σ) = 2.51 $Correlation(r)$ = 0.80 $Beta\ (\beta)$ = 0.46

Interpretation

The average return of the Indusind Bank share is -0.97. The standard deviation is 2.51. So the return is varying0 from -3.48 to 1.54. The Indusind Bank share is highly positively correlated with the Nifty Bank. The beta is 0.46. If the market is growing by 1, the stock will increase by 0.46. So this is comparatively less risky.

Table 10: Average Return and Risk of Kotak Mahindra Bank

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	667.70	0.00	0.00	16947.00	0.00	0.00	0.00
14-Dec-15	702.45	5.20	27.09	16350.65	-3.52	12.38	-18.31
21-Dec-15	701.35	5.04	25.40	16825.15	-0.72	0.52	-3.62
28-Dec-15	727.25	8.92	79.54	16979.15	0.19	0.04	1.69
4-Jan-16	695.10	4.10	16.84	16599.15	-2.05	4.21	-8.42
11-Jan-16	675.60	1.18	1.40	16016.25	-5.49	30.16	-6.50
18-Jan-16	683.05	2.30	5.29	15020.80	-11.37	129.19	-26.13
25-Jan-16	683.60	2.38	5.67	15561.15	-8.18	66.87	-19.47
1-Feb-16	692.00	3.64	13.24	15314.45	-9.63	92.80	-35.06
8-Feb-16	673.10	0.81	0.65	15046.80	-11.21	125.72	-9.07
		33.58	175.12		-51.98	461.89	-124.90

$Mean(\bar{y}) = \frac{\Sigma y}{n}$ = -3.36 *Standard Deviation* (σ) = 2.50 $Correlation(r) = 0.45$ $Beta\ (\beta) = 0.26$

Interpretation

The average return of the Kotak Mahindra Bank share is 3.36. The standard deviation is 2.50. So the return is varying from 0.86 to 5.86. The Kotak Mahindra Bank share is moderately positively correlated with the Nifty Bank. The beta is 0.26. If the market is growing by 1, the stock will increase by 0.26. So this is less volatile.

Table 11: Average Return and Risk of Punjab National Bank

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	123.00	0.00	0.00	16947.00	0.00	0.00	0.00
14-Dec-15	122.00	-0.81	0.66	16350.65	-3.52	12.38	2.86
21-Dec-15	120.10	-2.36	5.56	16825.15	-0.72	0.52	1.70
28-Dec-15	117.60	-4.39	19.27	16979.15	0.19	0.04	-0.83
4-Jan-16	105.10	-14.55	211.79	16599.15	-2.05	4.21	29.87
11-Jan-16	92.20	-25.04	627.03	16016.25	-5.49	30.16	137.53
18-Jan-16	92.50	-24.80	614.88	15020.80	-11.37	129.19	281.84
25-Jan-16	91.30	-25.77	664.21	15561.15	-8.18	66.87	210.75
1-Feb-16	94.70	-23.01	529.37	15314.45	-9.63	92.80	221.64
8-Feb-16	94.30	-23.33	544.44	15046.80	-11.21	125.72	261.63
		-144.07	3217.23		-51.98	461.89	1146.99

$Mean(\bar{y}) = \frac{\Sigma y}{n}$ = -16.1 *Standard Deviation* (σ) = 10.06 $Correlation(r) = = 0.99$ $Beta\ (\beta) = 2.08$

Interpretation

The average return of the Punjab National Bank share is -16.01. The standard deviation is 10.06. So the return is varying from -26.07 to -5.95. The Punjab National Bank share is highly positively correlated with the Nifty Bank. The beta is 2.08. If the market is growing by 1, the stock will increase by 2.08. So this is highly risky.

Table 12: Average Return and Risk of State Bank of India

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	227.30	0.00	0.00	16947.00	0.00	0.00	0.00
14-Dec-15	226.50	-0.35	0.12	16350.65	-3.52	12.38	1.24
21-Dec-15	228.30	0.44	0.19	16825.15	-0.72	0.52	-0.32
28-Dec-15	227.80	0.22	0.05	16979.15	0.19	0.04	0.04
4-Jan-16	208.95	-8.07	65.17	16599.15	-2.05	4.21	16.57
11-Jan-16	184.30	-18.92	357.88	16016.25	-5.49	30.16	103.90
18-Jan-16	184.60	-18.79	352.90	15020.80	-11.37	129.19	213.52
25-Jan-16	179.90	-20.85	434.87	15561.15	-8.18	66.87	170.53
1-Feb-16	168.20	-26.00	676.05	15314.45	-9.63	92.80	250.47
8-Feb-16	172.15	-24.26	588.70	15046.80	-11.21	125.72	272.05
		-116.59	2475.94		-51.98	461.89	1028.01

$Mean(\bar{y}) = \frac{\Sigma y}{n}$ = -11.66 *Standard Deviation* (σ) = 10.57 $Correlation(r)$ = 0.91 $Beta\ (\beta)$ = 2.2

Interpretation

The average return of the State Bank of India share is -11.66. The standard deviation is 10.57. So the return is varying from -22.23 to -1.09. The State Bank of India share is highly positively correlated with the Nifty Bank. The beta is 2.20. If the market is growing by 1, the stock will increase by 2.20. So this is highly risky.

Table 13: Average Return and Risk of Yes Bank

Date	Weekly Close	Return Y	Y2	Nifty Bank	Return X	X2	XY
7-Dec-15	680.60	0.00	0.00	16947.00	0.00	0.00	0.00
14-Dec-15	718.70	5.60	31.34	16350.65	-3.52	12.38	-19.70
21-Dec-15	724.35	6.43	41.32	16825.15	-0.72	0.52	-4.62
28-Dec-15	732.45	7.62	58.04	16979.15	0.19	0.04	1.45
4-Jan-16	693.70	1.92	3.70	16599.15	-2.05	4.21	-3.95
11-Jan-16	663.70	-2.48	6.17	16016.25	-5.49	30.16	13.64
18-Jan-16	684.00	0.50	0.25	15020.80	-11.37	129.19	-5.68
25-Jan-16	746.80	9.73	94.61	15561.15	-8.18	66.87	-79.54
1-Feb-16	777.05	14.17	200.83	15314.45	-9.63	92.80	-136.52
8-Feb-16	768.35	12.89	166.23	15046.80	-11.21	125.72	-144.56
		56.38	602.48		-51.98	461.89	-379.49

$Mean(\bar{y})$ = 5.64 *Standard Deviation* (σ) = .34 $Correlation(r)$ = -0.37 $Beta\ (\beta)$ = 0.4

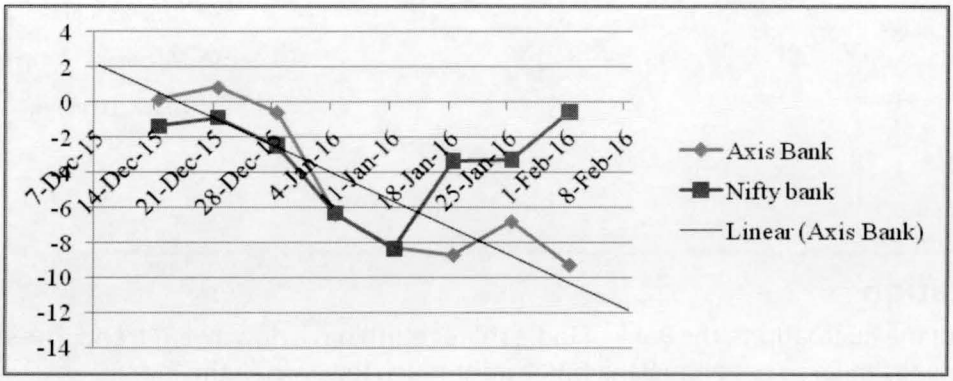
Interpretation

The average return of the Yes Bank share is 5.64. The standard deviation is 5.34. So the return can be deviated from 0.3 to 10.98. The Yes Bank share has low negative correlation with the Nifty Bank. The beta is -0.4. If the market is increased by 1, the stock will increase by -0.4. So this is less risky share.

THREE WEEKS MOVING AVERAGE

Moving average is used to identify the trend of data.

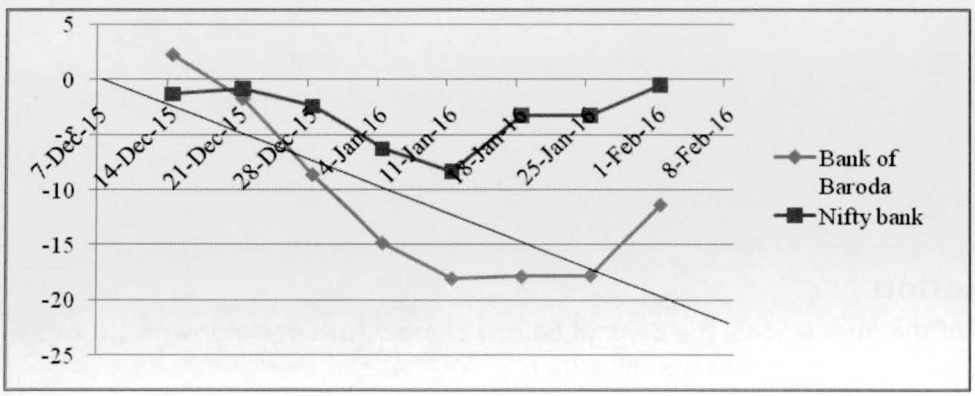
Graph 1: Three Weeks Moving Average of Axis Bank



Interpretation

Irrespective of the fluctuations, the Axis bank share return has a downward trend. The share return has a movement similar to the Nifty Bank.

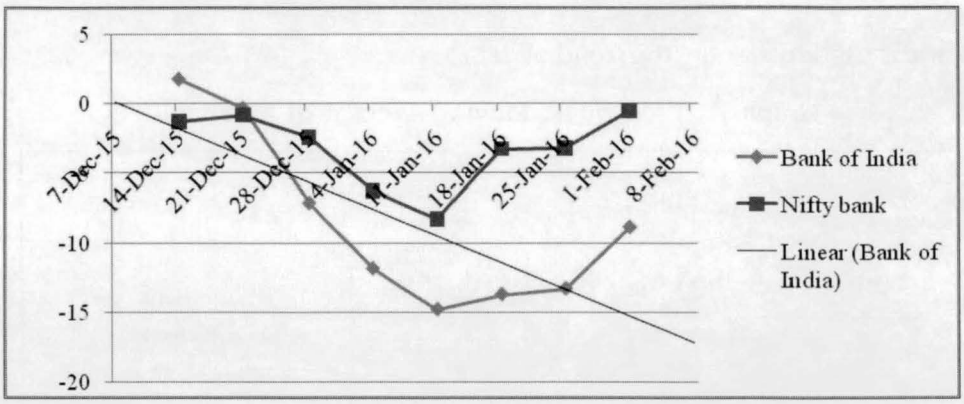
Graph 2: Three Weeks Moving Average of Bank of Baroda



Interpretation

Irrespective of the fluctuations, the Bank of Baroda share return has a downward trend. The share return has a movement similar to the Nifty Bank.

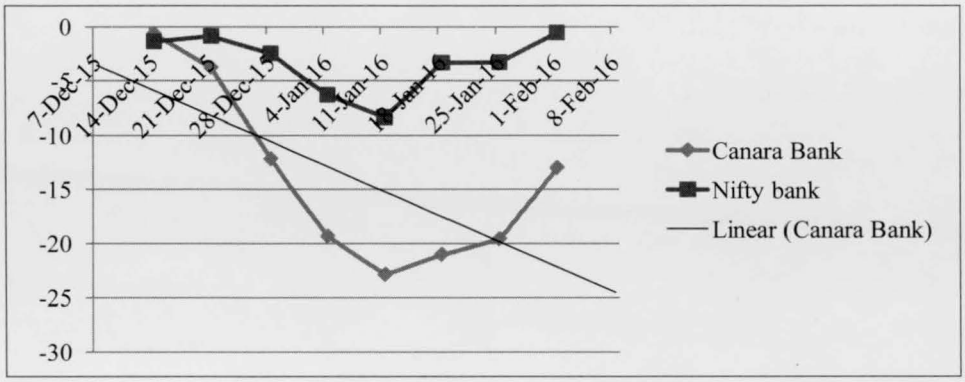
Graph 3: Three Weeks Moving Average of Bank of India



Interpretation

Irrespective of the fluctuations, the Bank of India share return has a downward trend. The share return has a movement similar to the Nifty Bank but it went much lower than the index.

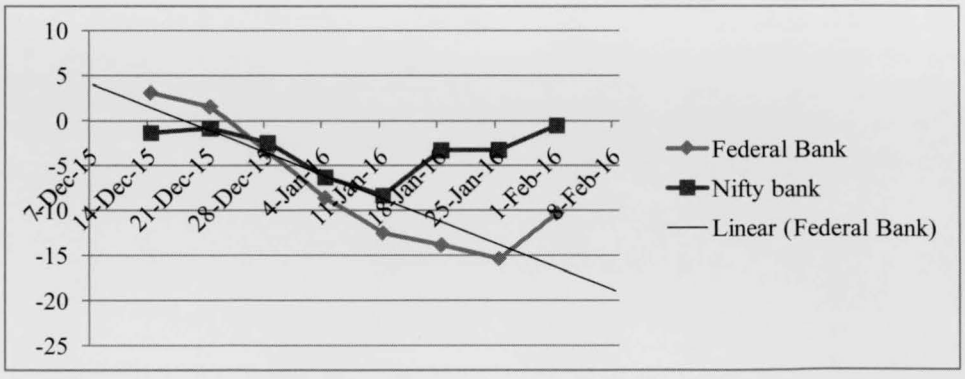
Graph 4: Three Weeks Moving Average of Canara Bank



Interpretation

Irrespective of the fluctuations, the Bank of Baroda share return has a downward trend. The share return has a movement similar to the Nifty Bank.

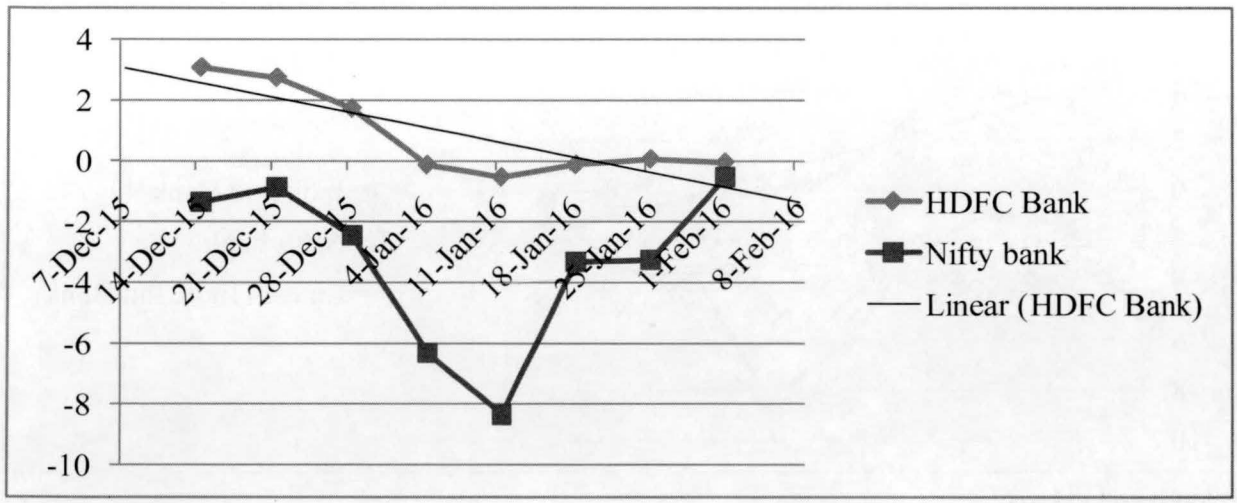
Graph 5: Three Weeks Moving Average of Federal Bank



Interpretation

Irrespective of the fluctuations, the Federal Bank share return has a downward trend. The share return has a movement similar to the Nifty Bank.

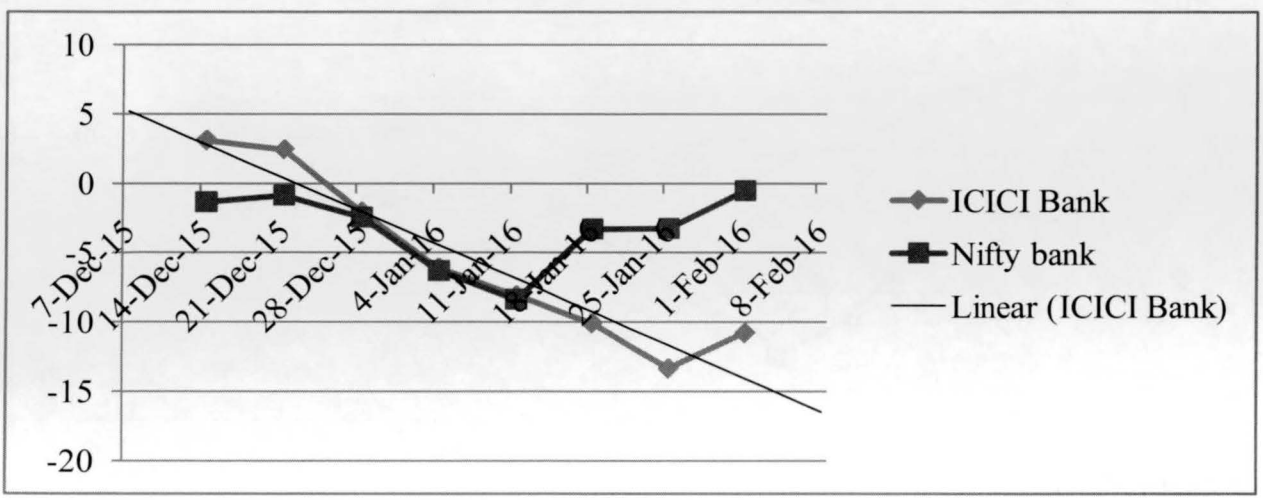
Graph 6: Three Weeks Moving Average of HDFC Bank



Interpretation

Irrespective of the fluctuations, the HDFC Bank share return has a downward trend. The share return has a movement similar to the Nifty Bank.

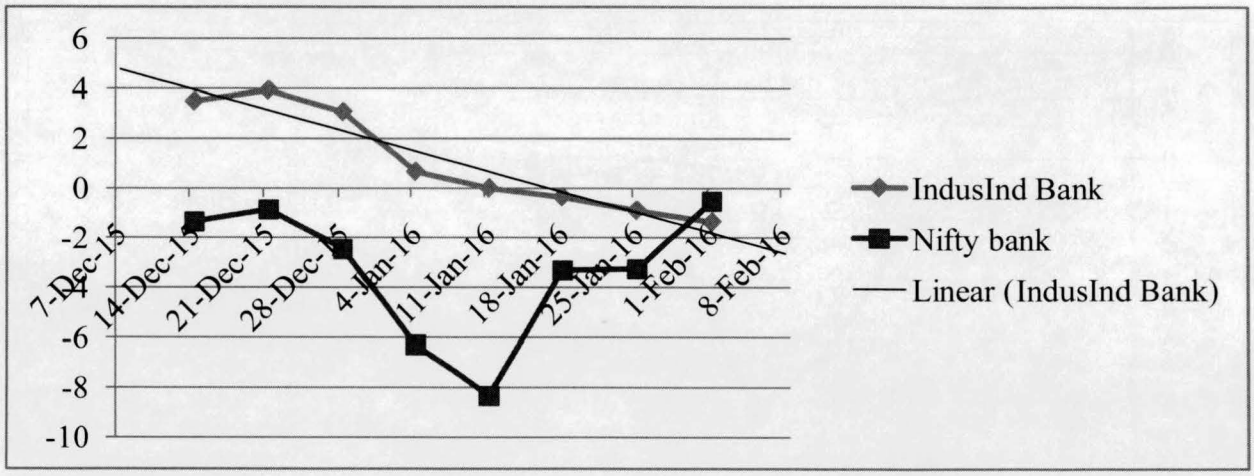
Graph 7: Three Weeks Moving Average of ICICI Bank



Interpretation

Irrespective of the fluctuations, the ICICI Bank share return has a downward trend. The share return has a movement similar to the Nifty Bank.

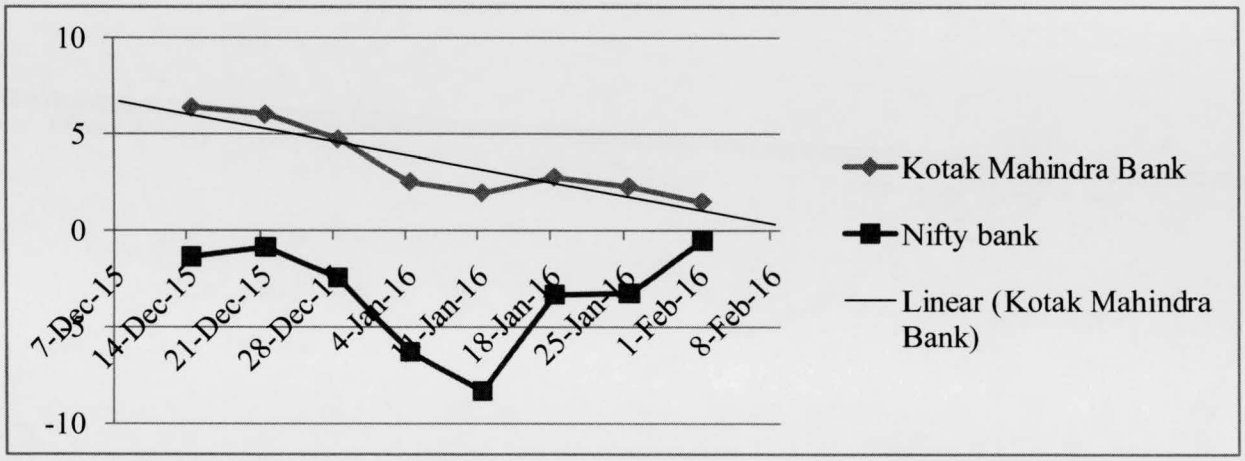
Graph 8: Three Weeks Moving Average of Indus Ind Bank



Interpretation

Irrespective of the fluctuations, the IndusInd Bank share return has a downward trend. The share return has a movement similar to the Nifty Bank.

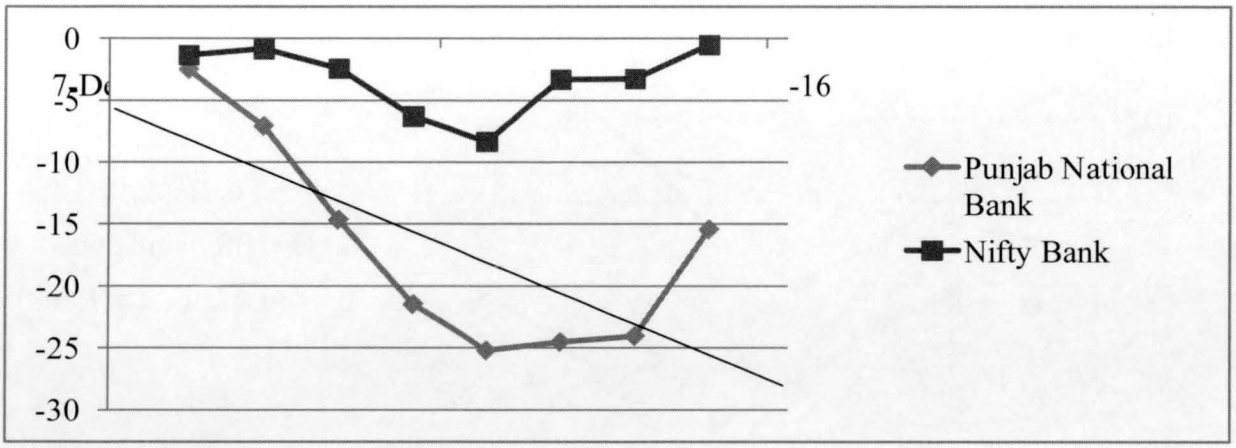
Graph 9: Three Weeks Moving Average of Kotak Mahindra Bank



Interpretation

Irrespective of the fluctuations, the Kotak Mahindra Bank share return has a downward trend. The share return has a movement opposite to the Nifty Bank

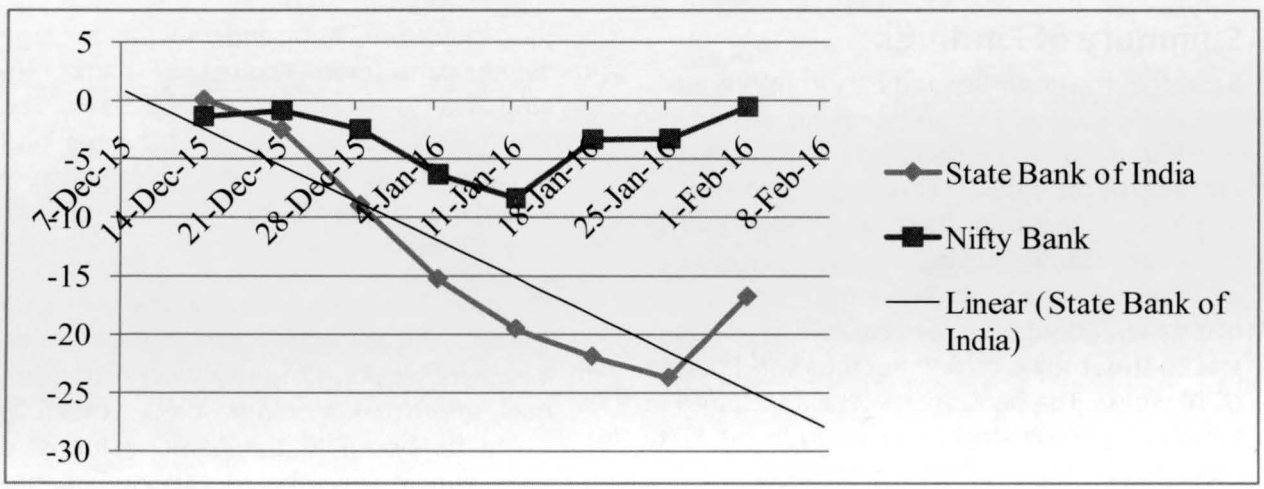
Graph 10: Three Weeks Moving Average of Punjab National Bank



Interpretation

Irrespective of the fluctuations, Punjab National Bank share return has a downward trend. The share return has a movement similar to the Nifty Bank.

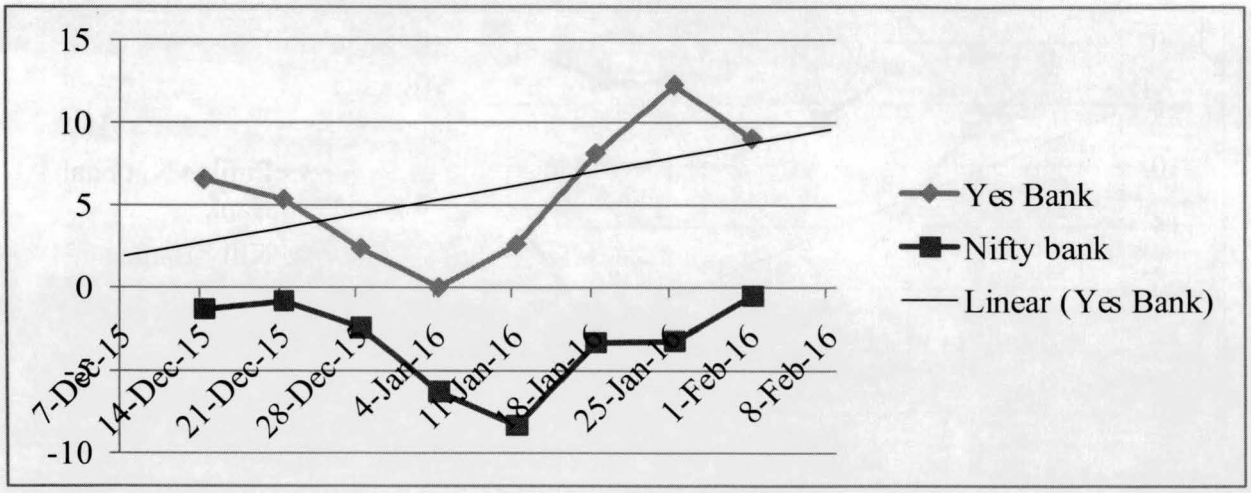
Graph 11: Three Weeks Moving Average of State Bank of India



Interpretation

Irrespective of the fluctuations, the State Bank of India share return has a downward trend. The share return has a movement similar to the Nifty Bank.

Graph 12: Three Weeks Moving Average of Yes Bank



Interpretation

Irrespective of the fluctuations, the Yes Bank share return has a slightly upward trend. However the share return has an opposite trend of Nifty Bank.

Summary of Findings

Banking is the important industry in any country. The study is done on stock analysis of banking sector in India with reference to National Stock Exchange.It mainly aims at measuring the return and risk of the important banks shares. The secondary data regarding the share prices from websites constitutes the most important source of data for judging the performance of the bank stocks. The study is carried out for a short period of 10 weeks. The bank shares which included in the study are the stocks consisting in the Nifty Bank index in National Stock Exchange.

For analysis of stocks, return and risk measurement tools such as average return, standard deviation, beta and moving average are being considered. Almost all banks are showing falling returns except Yes bank. The study revealed a small picture of the banking sector performance in stock exchange. In these days, banking is one of the most competitive industry in India.

Main finding from this project is that, banking sector had a dissatisfactory performance in the stock exchange during the study period, except Yes bank and Kotak Mahindra bank. Hopefully there will be boom in the banking industry. Because banking is the backbone of any economy and RBI is coming up with new reforms to revitalize the industry.

Table 14: Summary of Findings

Stock	Highest return	Lowest return	Average return(Mean)	Standard deviation	Beta	Correlation with Bank Nifty
Bank of Baroda	2.45	-19.23	-16.52	9.46	1.75	0.83
Punjab National bank	-0.81	-25.77	-16.01	10.06	2.08	0.99
Bank of India	1.9	-18.5	-12.83	7.79	1.38	0.80
Canara Bank	0.27	-25.73	-11.86	10.13	1.94	0.84
State bank of India	0.22	-26	-11.66	10.57	2.20	0.91
Federal Bank	4.69	-15.81	-6.28	7.86	1.61	0.89
Axis Bank	2.29	-15.07	-5.03	5.53	0.82	0.65
ICICI Bank	5.5	-16.35	-4.91	7.28	1.44	0.87
IndusInd Bank	5.21	-3.62	-0.97	2.51	0.46	0.80
HDFC Bank	4.05	-1	-0.9	1.69	0.28	0.73
Kotak Mahindra Bank	8.92	0.81	3.36	2.50	0.26	0.45
Yes Bank	14.17	0.5	5.64	5.34	-0.4	-0.37

- During the period of study, the Yes Bank had the highest return and Punjab National Bank had the lowest return.
- In terms of average return, Yes Bank is the highest and Bank of Baroda is the lowest.
- State Bank of India had the highest standard deviation and Kotak Mahindra Bank had the lowest standard deviation or unsystematic risk.
- State Bank of India had the highest beta and Yes Bank had the lowest beta or systematic risk.
- Punjab National Bank had the highest positive correlation and Kotak Mahindra Bank had the lowest positive correlation with Nifty Bank.
- The only bank having negative correlation with Nifty Bank is the Yes Bank.

Important Factors affecting the movement of share prices of banks:

- **Government policies**

Any government policy regarding any sector, whether banking sector other sectors will make an impact in the share prices of banks, because banking is the only industry which has a great exposure to other industries. The Union budget presented by Finance minister is a major government policy in this regard. The minister announced that the government will inject Rs. 250 billion into Public sector banks for making them strong in terms of capital. This announcement made by him made investors confident and the Bank Nifty went up and most of the banks share prices increased. SBI share price increased by 5%, Bank of Baroda by 3.5%, Punjab National Bank by 3.38%.

- **Foreign economies**

Foreign economies sometimes act as an influencing factor to the bank shares. The recent foreign economies changes which affected the Indian banks shares are the reforms in China. Chinese government depreciated their currency Yuan by 4.7% to boost their exports. However this resulted in a slowdown of Chinese economy. The exchange rate of Yuan against US dollar became 118. This created worries in the minds of investors. They speculated loss in iron and steel industries. As a result of this, the share prices of the banks which lent a large amount to these sectors also went down. The share prices

of the banks like State Bank of India, Axis bank, and Punjab National Bank came to 52 weeks low due to China fear. Similarly the day when the US Federal Reserve policy came, investors expected a hike in the interest rate. It occurred in the same manner in which they expected. So when the US Federal Reserve increased interest rate by 25 basis points, the Bank Nifty and bank shares showed a growth in the market.

- **Profits of banks**

Profit is another major factor which affects the banks stock prices. Usually when the profit of a bank announced is more than expected, we can see an increase in that bank's share price. Similarly the loss announced will lead to decrease in share prices. However it is not necessary that high profits will result in increase of the share price.

During the period of study, many of the banks' Q3 results were announced.

Examples:

Axis bank's Q3 result was announced on 21 Jan 2016. Profit increased 14.5% from Rs.1899.76 crores to Rs.2175.30 crores. But the share price was closed at Rs.388.65 down 113% due to high NPA.

Bank of Baroda 'sQ3 result was announced on 11 Feb 2016. The bank revealed a massive loss of Rs.1510 crores. The scrip of Bank of India was quoting at Rs.84.55 down 6.68%.

Bank of India's Q3 result was announced on 3 Feb 2016. The Net profit went down by 21.5% to Rs 1012 crores. The scrip of the bank closed at Rs. 816 by 5.9% loss.

Bank of Baroda Q3 result was announced on 15 Feb 2016. The bank posted a net loss of Rs. 3342 crores. Shares lost 6% and reached Rs.816.

Canara bank's Q3 result was announced on 12 Feb 2016. Profit went down to Rs.85 crores. Shares lost 0.75% and reached Rs.171.95.

- **Non Performing Assets (NPA)**

"The banking system which is dominated by the public sector is facing huge problems on the non-performing loans front, partly due to recalcitrant borrowers not repaying their loans. A whopping Rs. 1.14 lakh crores of bad loans have been written off by 27 public sector banks during financial years 2012-15, with 53% rise in written offs as a part of balance sheet clean up during last fiscal alone. For the fiscal ended March 2015, PSBs written off loans amounting to Rs. 52,542 crores, an increase of 52.6 % over the previous fiscal." (Business Line, 2016). NPA is a major factor affecting the profitability of the bank as well as share price of bank. Examples:

As per Q3 results, Axis bank's NPA amounted to Rs. 2514 crores during the period which is very high and it resulted in the decrease of share price of Axis bank by 1.13% and closed at Rs.388.65.

In Q3 result of Bank of India, the NPA of the bank increased to Rs.19, 978 crores which is really huge. The scrip of Bank of India was quoting at Rs.84.55 down 6.68%.

As per the Q3 result Bank of Baroda, net NPA rose 70% to Rs.21806 crores. Shares lost 6% and reached Rs.816.

Canara bank showed a gross NPA increase of 87% to Rs.19814 crores. Shares lost 0.75% and reached Rs.171.95

- **Interest rates changes**

Changes in interest rates such as bank rate, repo rate, and reverse repo rate will affect the bank share prices. In addition to this, revisions in Cash Reserve Ratio, Statutory Liquidity Ratio also affect the prices.

- **Other factors**

Other factors such as banks' mergers and acquisitions, new agreements with other industries, news regarding bank's new actions or strategies will also affect the bank share prices.

Conclusion

India's banking sector is sufficiently capitalized and well organized. The economic and monetary environment in the country is far better than any other country. Market risk, liquidity risk and credit risk studies suggest that banks in India are normally flexible and have coped up with the global recessions in a healthy manner. Banking industry in India is expected to grow greatly in 2016 as a sense of optimism resulting from the government's actions towards boosting up the growth of industries in India. In addition, Reserve Bank India's new actions may help in the renovation of the banking industry in India.

Banking sector is going through hard times recently due to many macro and micro economic factors. From the study it is found out that, most of the banks had a bad performance in terms of return in share prices in the National Stock Exchange except Yes bank. Let's hope the new reforms by RBI governor will reduce the NPAs, increase the income and profits,boost the performance of banks in India. This will result in improvement in share prices and will fetch more returns for investors.

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