

NEXUS BETWEEN EXCHANGE RATE AND STOCK MARKET INDEX: A STUDY ON NSE AND BSE

¹Mahesh Ku Bagarti,²Subhajit Raul

¹Research Scholar,²Assistant Professor

Dept. of Professional Courses

G.M University , Sambalpur

Abstract : Exchange rate is one of an important aspect in international financial environment. Exchange rate has a far reaching impact on macroeconomic variables of a particular country. Exchange rate being regulated by interactive forces of demand and supply mechanism is always fluctuating in nature. The amount of foreign exchange reserve earned by a specific country is largely being influenced by exchange rate determination. Foreign exchange reserve is an integral part in international economic scenario. In this particular study a casual relationship between exchange rate and stock market index is being examined through correlation and regression analysis. The period of study has been taken from 2008-2017 using average closing indices of NSE & BSE respectively. The study reveals that exchange rate do have a positive impact on stock market indices.

Keywords: Exchange Rate, Correlation, Regression Analysis.

I. INTRODUCTION

Exchange rate is the main financial base that affects the decisions made by foreign investors, traders, banks, businesses, economic institutions, policy makers and tourists in developed and developing countries. Fluctuating exchange rate affects the importance of global investment portfolios, competition for sales and foreign reserve value, debt reserves value, and cost of visitors for their value. Therefore, the movement of exchange rate is essential to the development of economic, trade and flowing business, and therefore it is important to understand financial development and changes in the trade and industry policy. The Stock Market and the exchange of other countries play an important part in the development of the country. During this time, the consolidation market has been experiencing depreciating exchange rate and thus resulted in falling prices. So from this point, it is understood that although trade trading has a direct impact on the company's capital value, the main source of revenue comes from foreign exchange. Many issues have shown that there is a good relationship between the exchange rate and the stock price. The decline in local currency contributes to increased demand in other countries, leading to a sharp increase in shareholder prices and stocks. The same increase in the amount of the property makes small profit thus leading to a reduction in external demand. The rate of exchange rate also affects the importance of payment of bills or debts.

II. REVIEW OF LITERATURE

Due to the economic recession of countries, cross borders have played a crucial role in transmitting economic impacts. In the light of external features to find out the value, some lessons have been made to understand relationships and evaluate the impact. Other findings from the previous studies on the various issues discussed are listed below.

Waseem Aslam (2014) has studied a relationship between market dishonesty and exchange rate in Pakistan. Granger causative test finds that there is a relationship between kse 100 and the exchange rate.

Andrew Maredza, Courage and Kin Sibanda (2013) examined the results of the exchange rate exchange rate in South African stock exchange. The author used the GARCH model were found in determining the relationship. Weekly relationship between the total financial and market share of the stock market. The author praised that, the South African market is not really found in the worst consequences of unemployment, a slanderer can use exchange rate as a policy to attract the FPI.

The study conducted by Yu Yu Hsing (2011) is a stock market index of good stock in hungary and variations related to economic products. The study concludes that the index of the Hungarian market has a relationship with real GDP, the average debt rate on GDP as this is the case for the German stock index. The appendix to the bread baking, according to taste, is in accordance with taste in Hungarian agriculture.

Khalil Tunal (2010), the relationship between economic reforms in the equity of Turkey's shareholders is being investigated through the settlement. The course of action at various levels of economic and economic turmoil in Turkey in reorganization concluded that long-term relationship.

Randy Næs, Johannes A. Skjeltorp and Bernt Arne Odegaard (2009) analyzed ways to restore the Oslo Stock Exchange. In the research period, the market has reached the conclusion that some size and liquidity factor have provided the suitability of the sample representing the Norwegian market market.

A study conducted by Robert D. Gay (2008) examined the relationship between stock prices and variations in Brazil, China, India and Russia using oil prices, exchange rates and frequent rates of frequent lag. Studies conclude that domestic industries have a profound impact on developing countries than external factors.

U. Khaled A.Al-Zubi and Hussain Salameh (2007) investigated the relationship between various economic conditions (industrial production, expected inflation, unexpected expense, timetable) and its impact on stock returns to the industrial sector of the Jordan. The study concludes that inflation and unexpected decline affect the stock benefits while considering the refund without its shareholders. However, an unexpected rise in revenue is that the only flexibility affects profit-looking benefits. Additionally, evidence from research suggests that there is a long relationship between the changes but not a short period of time.

Ratanapakorn and Sharma (2007) has examined long-term relationship with and short between the S & P500 company and US selected changes from 1975 to 1999. Studies conclude that the long-term interest rate affects the impact of stock equity while money, sales, exchange rate, industrial production, exchange rate and interest rate interest are deeply involved in controlling shareholder prices over time.

III RESEARCH OBJECTIVES AND METHODOLOGY

The objectives of the study are

1. To find out the degree of impact of exchange rate on NSE.
2. To find out the degree of impact of exchange rate on BSE.
3. To establish the relationship between exchange rate and stock market indices particularly NSE & BSE

Research Methodology

This item deals with the methods of selecting samples and collection of necessary statistics for the purpose of the present analysis.

IV SELECTION OF THE SAMPLE

Data have been Drawn from Nifty index in NSE and S \$P BSE index respectively. Exchange rate data have been taken to be USD/INR for the above study. Sample size used for study is determined based on data collection costs, as well as the need for sufficient quantity. So my study of my sample size is 10 years based on annual data-based search.

V. SOURCES OF DATA

Secondary data are those which are already gathered and available. Externally these sources include books, periodicals, published reports etc. Exchange rate data have been collected from RBI i.e data base on India economy. Closing value of NSE & BSE index have been collected from their NSE & BSE website respectively.

VI. PERIOD OF THE STUDY

The period of study has been taken from 2008-2017 for exchange rate and stock market index respectively. A 10 year study would provide substantial input into this particular research process.

VII. DATA ANALYSIS

TABLE No.1:-Correlation between Exchange Rate and BSE

YEAR	EXCHANGE RATE(X)USD/INR	BSE(Y)RS. In Crore	XY	X ²	Y ²
2008	43.50	9647.31	419657.985	1892.25	93070590.2361
2009	48.40	17464.81	845296.804	2342.56	305019588.336
2010	45.72	20509.09	937675.5948	2090.3184	420622772.628

2011	46.67	15454.92	721281.1164	2178.0889	238854552.206
2012	53.43	19426.71	1037969.1153	2854.7649	377397061.662
2013	58.59	21170.68	1240390.1412	3432.7881	448197691.662
2014	61.03	27499.42	1678289.6026	3724.6609	756218100.336
2015	64.15	26117.54	1675440.191	4115.2225	682125895.652
2016	67.19	26626.46	1789031.8474	4514.4961	708968372.132
2017	65.12	43056.83	2217780.7696	4240.6144	1159867669.65
	$\Sigma X=553.8$	$\Sigma Y=217973.77$	$\Sigma XY=12562813.167$ 3	$\Sigma X^2=31385.7642$	$\Sigma Y^2=5190342294.26$

SOURCE: Computed from NSE ,BSE historical index report and DBIE.

$$r = \frac{N \Sigma XY - \Sigma X \Sigma Y}{\sqrt{[N \Sigma X^2 - (\Sigma X)^2][N \Sigma Y^2 - (\Sigma Y)^2]}}$$

$$r = 0.8763$$

INTERPRETATION

In this particular study Exchange Rate is taken to be X which is assumed to be an independent variable and BSE index have been taken to be Y .The relationship between BSE and Exchange rate shows a positive relation , i.e if the value of independent variable changes then it has a positive significance bearing on the dependent value. R is equal to 0.87 means if there is a change in independent variable then dependent variable also changes to the extent of 87%.There is a positive relationship between Exchange Rate and Stock Market index.

Table No 2:- Regression Analysis of BSE & Exchange Rate

YEAR	BSE(Y)	EXCHANGE RATE(X)
2008	9647.31	43.50
2009	17464.81	48.40
2010	20509.09	45.72
2011	15454.92	46.67
2012	19426.71	53.43

2013	21170.68	58.59
2014	27499.42	61.03
2015	26117.54	64.15
2016	26626.83	67.19
2017	34056.83	65.12

SOURCE: Computed from NSE ,BSE historical index report and DBIE.

Table No.3 Regression Statistics

Multiple R	0.8762143					
R Square	0.7677515					
Adjusted R Square	0.7387204					
Standard Error	3570.3264					
Observations	10					
	Coefficients	t Stat	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-16199.149	-2.16728	-33435.2	1036.894	-33435.2	1036.894
EXCHANGE	686.05667	5.142555	378.4178	993.6955	378.4178	993.6955

SOURCE: Computed from Excel .

INTERPRETATION

Multiple R in the regression equation shows the degree of relationship between two variables. The degree of relationship that exist between Exchange rate and BSE index is 0.876.R squared is the proportion of variance in the dependent variable that is predictable from the dependent variable .R squared of 0.76 shows that proportion of 0.76 variance of an Exchange rate is explained in two particular model.76% of the variance in Exchange rate is being explained from this particular model.

Table No 4:- Correlation between Exchange Rate and NSE

YEAR	Exchange Rate(X) Rs.	NXE(Y)Dollar	XY	X ²	Y ²
2008	43.50	4146.78	180384.93	1892.25	17195784.4684
2009	48.40	3833.48	185540.432	2342.56	14695568.9104
2010	45.72	4998.54	228533.2488	2090.3184	24985402.9025
2011	46.67	5046.55	235522.4885	2178.0889	25467666.9025
2012	53.43	4976.37	265887.4491	2854.7649	24764258.3769
2013	58.59	5526.89	323820.4851	3432.7881	30546513.0721
2014	61.03	7035.92	429402.1976	3724.6609	49504170.2464

2015	64.15	7852.08	503710.932	4115.2225	61655160.3264
2016	67.19	7677.48	515849.8812	4514.4961	58943699.1504
2017	65.12	9017.01	587187.6912	4240.6144	81306469.3401

SOURCE: Computed from NSE and BSE historical index report and DBIE.

$$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}$$

$$r = 0.9003$$

INTERPRETATION

In this particular study Exchange Rate is taken to be X which is assumed to be an independent variable and NSE index have been taken to be Y. The relationship between NSE and Exchange rate shows a positive relation, i.e. if the value of independent variable changes then it has a positive significance bearing on the dependent value. R is equal to 0.90 means if there is a change in independent variable then dependent variable also changes to the extent of 90%. There is a positive relationship between Exchange Rate and Stock Market index.

Table No 5:- Regression Analysis of NSE & Exchange Rate

YEAR	NSE(Y)	EXCHANGE RATE(X)
2008	4146.78	43.505
2009	3833.48	48.405
2010	4998.54	45.726
2011	5046.55	46.67
2012	4976.37	53.437
2013	5526.89	58.598
2014	7035.92	61.03
2015	7852.08	64.152
2016	7677.48	67.195
2017	9017.01	65.122

SOURCE: Computed from NSE, BSE historical index report and DBIE.

Table No: 6 Regression Statistics

Regression Statistics	
Multiple R	0.90021669
R Square	0.81039009
Adjusted R Square	0.78668885
Standard Error	810.704319

Observations	10							
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-3799.172	1697.196142	-2.2385	0.055555	-7712.9133	114.569323	-7712.9133	114.5693
EXCHANGE	177.13206	30.29253659	5.84738 3	0.000384	107.27735	246.986774	107.277345	246.9868

SOURCE: Computed from Excel .

INTERPRETATION

Multiple R in the regression equation shows the degree of relationship between two variables. The degree of relationship that exist between Exchange rate and BSE index is 0.900. R squared is the proportion of variance in the dependent variable that is predictable from the dependent variable .R squared of 0.81 shows that proportion of 0.81 variance of an Exchange rate is explained in this particular model 81% of the variance in Exchange rate is being explained from this particular model. Around 81% of the data in this model supports which is a good fit model.

CONCLUSION:

This study was conducted to determine the causal relationship between exchange rates and stock Index. Then, the coefficient of correlation between the two variables were computed, which indicated positive correlation between them. The results indicated that causal relationship exist between exchange rates and stock Index. The study concludes the fact that exchange rate is one of the determination factor in valuing stock indices in India. The following conclusion have been derived from our analysis. There is significance cause and effect relationship between two variables.

REFERENCES:

- [1]Dr. S Purnima , M.Ganeshwari (2016),Relationship between Exchange Rates and Stock Market Index: Evidence from Indian Stock Market ,International Journal of Science and Research, Vol. 5, No. 10, pp. 16-18
- [2]Mr.Divyang Patel, Ms.Nikita Kagalwala, (2013),The Impact of Exchange Rates on Indian Stock Exchanges like BSE and NSE, International Journal of Scientific Research, Vol. 2, No. 10, pp. 1-2
- [3] Kishore R. M., (2009), Financial Management, 7th Edition, Taxmann Publications (P.) Ltd., New Delhi, p. 1127
- [4]Levi Maurice .D., (2005), International Finance, 5th Edition,. Routledge, New York, p.280