



RELATIONSHIP BETWEEN STOCK MARKET INDEX AND FOREIGN EXCHANGE RATE AFTER DEMONETISATION IN INDIA

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ABSTRACT

The paper analyses the impact of demonetisation on stock market and foreign exchange rate. The secondary data is used for the study. The BSE Sensex is used to assess the impact of demonetization. US dollar and Indian Rupee foreign exchange rate is considered. Sensex and sectoral indices data was obtained from BSE website. Exchange rate data was obtained from Reserve Bank of India website. The period from November 2016 to November 2017 was selected for the study. Data was analyzed using correlation and regression. A negative correlation was found between foreign exchange rate and Sensex after demonetization. It was found that exchange rate has a significant impact on Sensex.

Keywords: Demonetisation, SENSEX, Foreign Exchange Rate, Secondary Data, Correlation

Introduction

In a country with 97% cash transactions, suddenly removing 86% currency (Mishra&Kapoor, 2016) was a bold step taken on 8th November 2016 to curb black money. The cash crunch problem has reduced in severity with remonetisation. The demonetization will have long term implications for the economy. The nifty touched life time high of 9306 and Sensex near 30000

mark on 25th April 2017 (TimesofIndia, 2017). The economy is gradually coming back to normal. Foreign exchange rate has gained prominence in the current era of globalized economy and amidst uncertainty in developed economies and political scenario. A need was felt to examine the impact of demonetization on the relationship between stock market indices and exchange rate.

Significance of Study: The demonetization has been a bold step by Mr. Narendra Modi. The earlier studies have examined the relation between exchange rate and stock indices under normal circumstances. This is a major change in the Indian economy. It is an effort to understand the nature of relationship between exchange rate and stock market indices in such a situation.

Objective

1. To examine the correlation between stock market indices and exchange rate after demonetization.
2. To examine the impact of foreign exchange rate on Sensex after demonetisation

Scope of Study: The stock market index selected for the study is BSE Sensex. The time period chosen for the study was from 9th November 2016 to 6th November 2017. The other market indices chosen were large cap index, mid cap, small cap index, bankex, healthcare, realty, fast moving consumer goods (FMCG), information technology (IT), auto, capital goods and oil & gas index on BSE.

Literature Review

Gulati and Kakhani(2012) examined correlation between Indian stock market indices and US dollar Indian rupee exchange rate. The data of eight years from 2004 to 2012 was considered for the study. Both BSE and NSE were investigated. It was found that there is no significant relationship between BSE, NSE and US dollar Indian rupee exchange rate.

Patel and Kagalwala (2013) analyzed the impact of exchange rate on stock exchanges, BSE and NSE. Eight years data from 2005 to 2012 was considered for the study. It was found that 2% variations in Nifty and 1.4% variations in Sensex were explained by exchange rate. It was found that exchange rate has no relationship with Sensex and Nifty. It was found that there is no impact of exchange rate on Sensex and Nifty.

Nataraja, Ganesh and Kumar (2014), examined the linkage between Cnxbank Nifty and exchange rate. Data from January 2010 to December 2013 was considered for the study. A negative correlation was found between Bank Nifty returns and exchange rates.

Suriani, Kumar, Jamil, and Muneer (2015) examined the relationship between stock index and exchange in Pakistan. Data from 2004 to 2009 was considered for the study. It was found that there is no relationship between exchange rate and stock price.

Laichena and Obwogi (2015), examined correlation of macroeconomic variables with stock returns. It was found that exchange rate has a negative correlation with stock market returns.

Polisetty, Kumar and Kurian (2016) investigated the influence of exchange rate on BSE Sensex and NSE Nifty. The data of ten year period was taken, from 2005 to 2014. The Pearson correlation coefficient between Sensex and exchange rate was obtained as 0.424. The Pearson correlation coefficient between Nifty and exchange rate was obtained as 0.433. Both the correlation was positive but was not significant.

Research Gap: After review of literature it was observed that there is no study done to examine the impact of foreign exchange rate on stock market index in the era of demonetization. Another gap was found in terms of relation of sectoral indices with exchange rate. Thus present study is an endeavor to fill the research gap, by investigating the relation of foreign exchange rate on Sensex and sectoral indices of Bombay Stock Exchange (BSE) after demonetization.

Research Methodology

A descriptive research design was used for the study. Secondary data was used. The secondary data of Sensex and sectoral indices was obtained from website of Bombay Stock Exchange, and exchange rate data was obtained from website of Reserve Bank of India. The data was analyzed using correlation, regression with the help of SPSS software. Based on the literature review, following hypothesis was framed. Sensex was considered as dependent variable and US dollar Indian rupee foreign exchange rate was considered as independent variable for regression.

Hypothesis

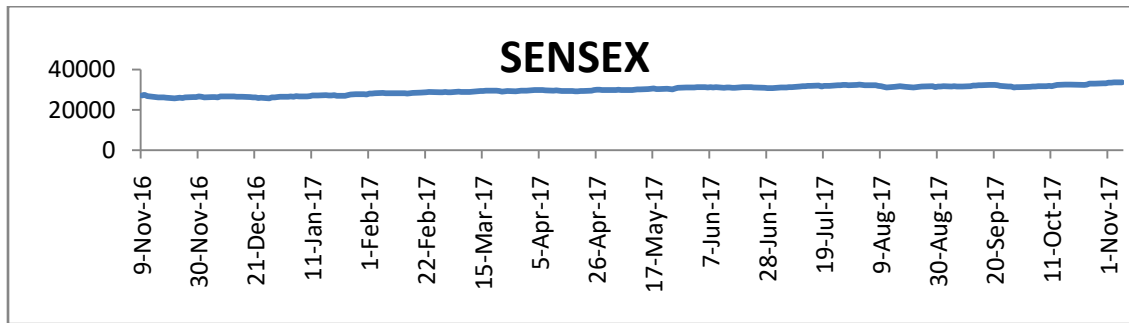
H₀: There is no correlation between Sensex and US Dollar Indian Rupee foreign exchange rate

H₀: There is no impact of foreign exchange rate on Sensex

H₀: There no correlation between sectoral stock market indices of BSE and US Dollar Indian Rupee foreign exchange rate

Findings: Different BSE indices after demonetisation has shown upward as shown below from figure 1 to figure 9.

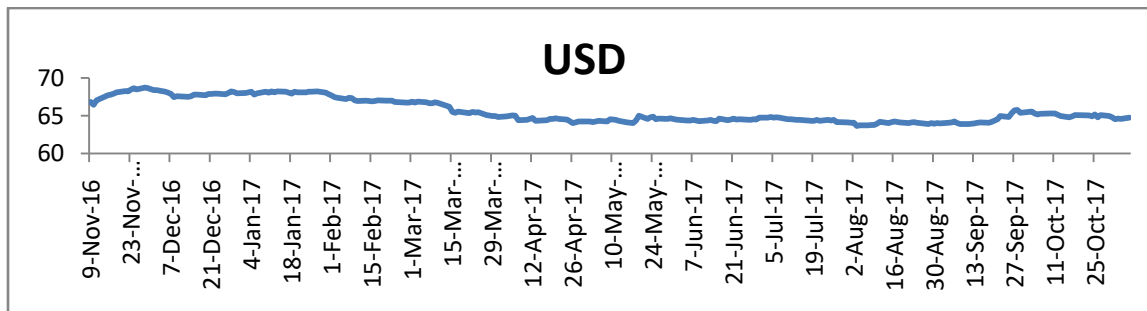
Figure 1: Trend of Sensex after demonetisation



Source: Bombay Stock Exchange

The Sensex has shown an upward trend. The Sensex increased from 27252 on 9th November 2016 to 29647 on 30th April 2017.

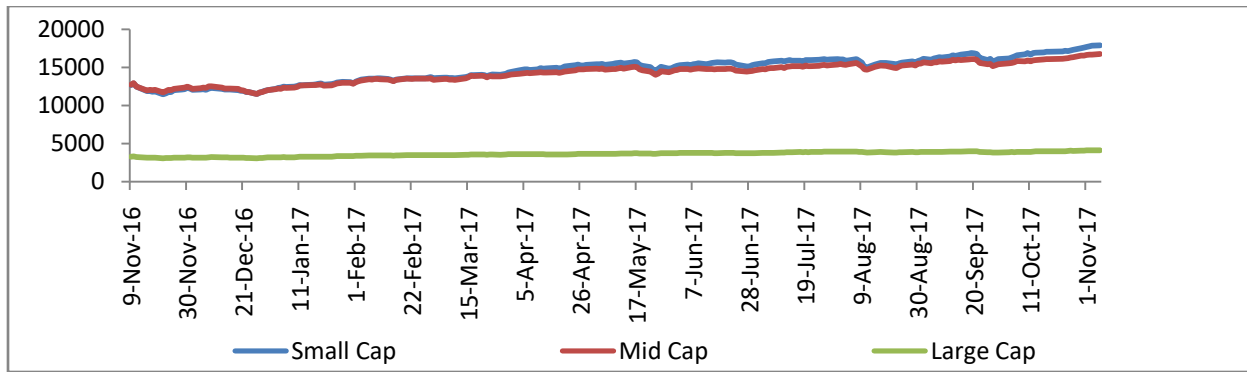
Figure 2: Trend of USD Indian Rupee Exchange Rate after Demonetisation



Source: Reserve Bank of India

The US dollar Indian rupee rate has changed from 66.7968 to 64.9325 on 30th April 2017.

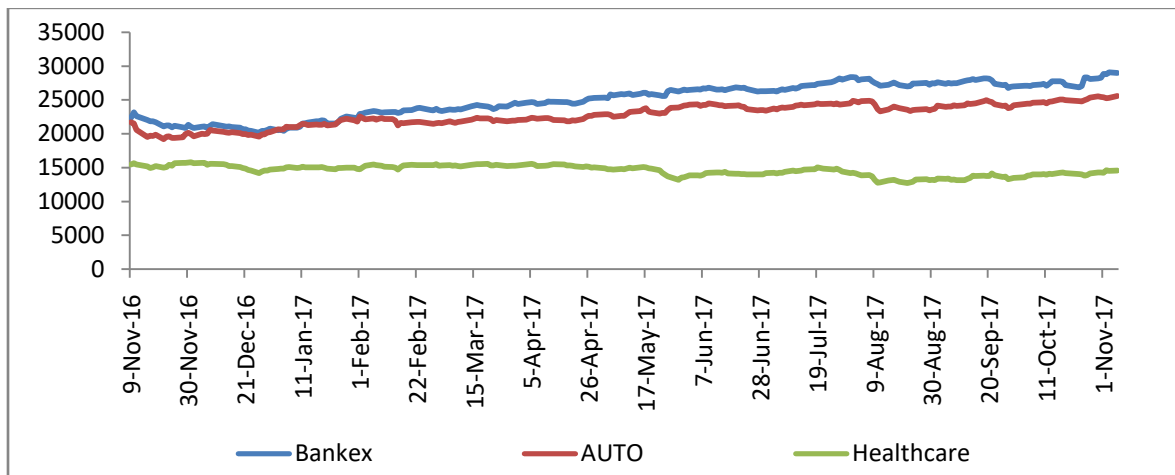
Figure 3: Trend of Large Cap, Mid Cap and Small Cap Indices after Demonetisation



Source: Bombay Stock Exchange

The healthcare index has shown a fluctuating trend. The index was at 15472 on 9th November 2016 and after fluctuation was at 15283 on 30th April 2017.

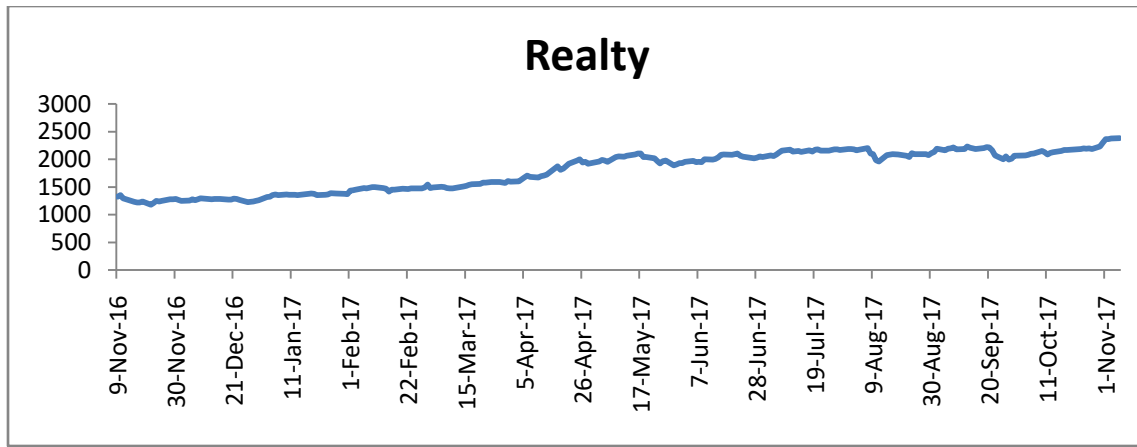
Figure 4: Trend of Bankex, Auto, Healthcare Index after Demonetisation



Source: Bombay Stock Exchange

Bankex has shown a slow growth trend. The index increased from 22372 on 9th November 2016 to 24601 on 30th April 2017.

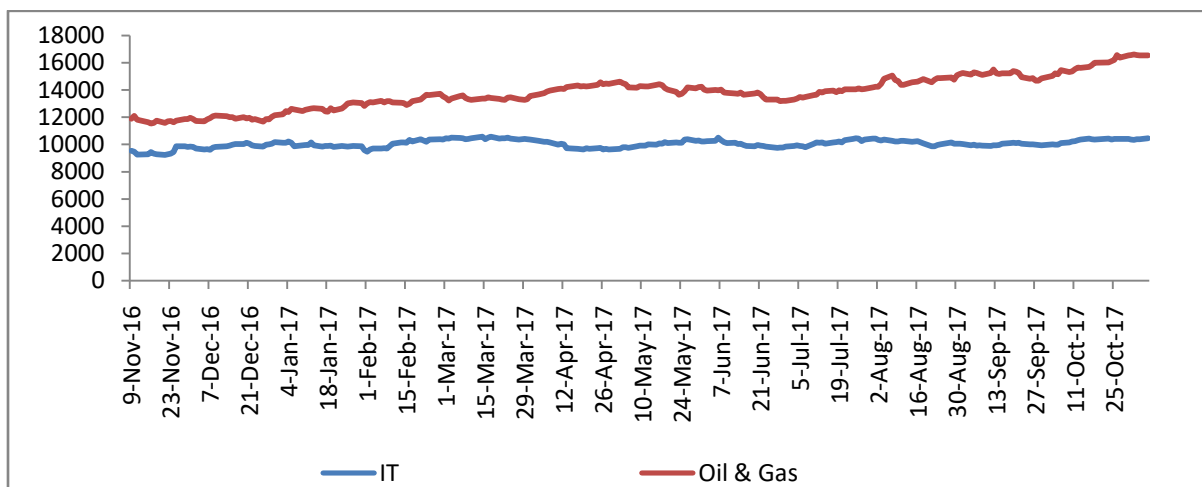
Figure 5: Trend of Realty Index after Demonetisation



Source: Bombay Stock Exchange

The realty index has also shown upward trend. It increased from 1324 to 1608 on 30th April 2017.

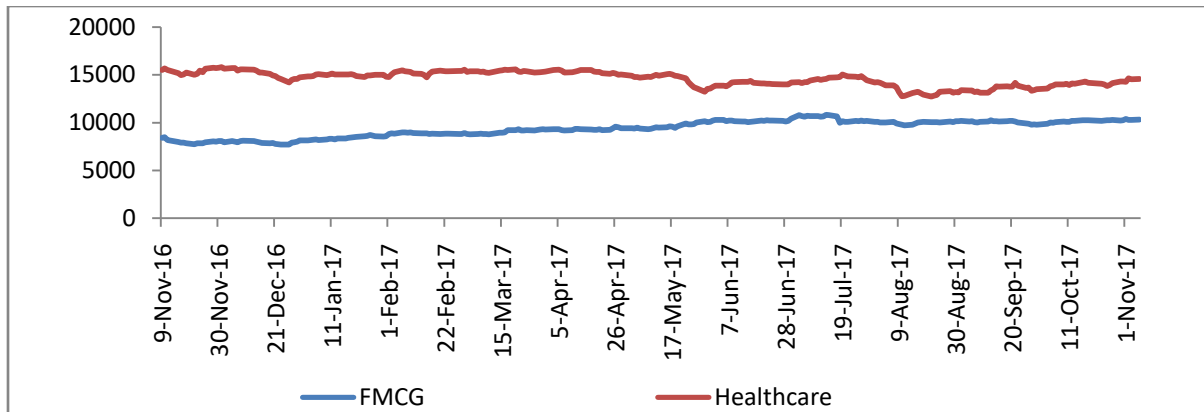
Figure 6: Trend of IT, Oil & Gas Index after Demonetization



Source: Bombay Stock Exchange

The FMCG index has increased from 8408 to 9304 indicating a positive trend.

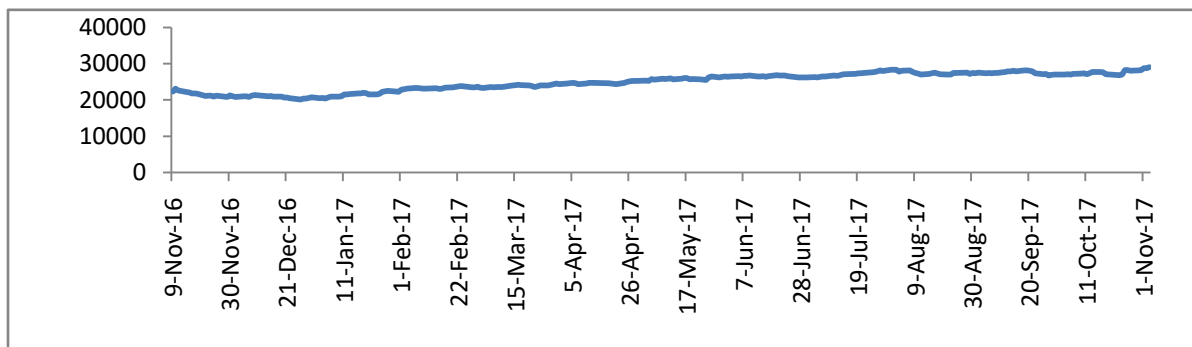
Figure 7: Trend of FMCG, Halhcare Index after Demonetisation



Source: Bombay Stock Exchange

The IT industry has a significant impact of foreign exchange rate, as the earnings are skewed towards exports. The IT index increased from 9524 to 10397.

Figure 8: Trend of Auto Index after Demonetisation



Source: Bombay Stock Exchange

Auto index registered an upward after an initial downward trend following demonetization. Oil and gas index has shown an upward trend. The index increased from 11905 on 9th November 2016 to 13317 on 30th April 2017.

Table 1: Correlation between Foreign Exchange Rate and Sensex

Correlations					
		Sensex	Small Cap	Mid Cap	Large Cap
USD INR Exchange Rate	Pearson Correlation	-0.891	-0.820	-0.880	-0.890
	Sig. (2-tailed)	0.000	0.000	0.000	0.000

Source: Source: Bombay Stock Exchange

It was found that correlation of Sensex with US dollar and Indian Rupee foreign exchange rate is -0.8551. The correlation between small cap index and US dollar and Indian Rupee foreign exchange rate was found to be -0.8201. The correlation between mid cap index and US dollar and Indian Rupee foreign exchange rate was found to be -0.8241. The correlation between large cap index and US dollar and Indian Rupee foreign exchange rate was found to be -0.8411. All the correlations were significant.

As P value is obtained as 0.00 (<0.05) the first null hypothesis is rejected and it is concluded that there is a significant negative correlation between Sensex and US Indian Rupee foreign exchange rate.

Table 2: Model Summary for Regression between Sensex and Exchange Rate

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.891 ^a	.793	.793	988.5903829
a. Predictors: (Constant), US Dollar Exchange Rate Post Demonetisation				

R square was obtained as 79.3%, which means 79.3% variation in Sensex is explained by exchange rate.

Table 3: ANOVA Results for Sensex and Exchange Rate

ANOVA^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	897502954.192	1	897502954.192	918.339	.000 ^b
	Residual	233577315.905	239	977310.945		
	Total	1131080270.097	240			
a. Dependent Variable: Sensex Post Demonetisation						
b. Predictors: (Constant), US Dollar Exchange Rate Post Demonetisation						

Table 4: Coefficient Score

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	110333.741	2655.959		41.542	.000
	US Dollar Exchange Rate Post Demonetisation	-1226.186	40.463	-.891	-30.304	.000

a. Dependent Variable: Sensex Post Demonetisation

The regression equation is obtained as

$$Y = 110333.741 - 1226.186 X$$

The dependent variable (Y) is Sensex and independent variable (X) is Rupee US Dollar exchange rate.

As P value is less than 0.05 (0.00), second null hypothesis is rejected and it is concluded that there is a significant impact of US dollar Indian rupee foreign exchange rate on Sensex.

Table 5: Correlation between Foreign Exchange Rate and Sectoral Indices of BSE

		Bankex	Realty	Healthcare	FMCG	IT	Oil & Gas	Capital Goods	Auto
E. Rate	Correlation	-0.909	-0.910	0.579	-0.888	-0.332	-0.777	-0.947	-0.834
	P Value	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000

Source: Source: Bombay Stock Exchange

The correlation between US dollar Rupee foreign exchange rate and bankex was -0.909, realty index was -0.910, healthcare index was 0.579, FMCG was -0.888, Information Technology (IT) index was -0.332, oil and gas index was -0.777, capital goods was -0.947, auto index was -0.834. All the correlations were significant as P value obtained was less than 0.05. All the indices have shown a negative correlation with exchange rate but healthcare has shown a positive correlation.

As P value is obtained as 0.00 (<0.05) the third null hypothesis is rejected and it is concluded that there was a significant negative correlation between bankex, realty, FMCG, IT, oil and gas,

capital goods and auto after demonetization. There was a significant positive correlation between healthcare and exchange rate.

Conclusion

The findings of the study are different from the findings of earlier studies on relation between stock market indices and US dollar Indian rupee foreign exchange rate. It was found that Sensex had a significant negative correlation with exchange rate. The regression test indicated that exchange rate has a significant impact on Sensex. A significant negative correlation was found between exchange rate and sectorial indices and with small cap, mid cap and large cap indices. Sectoral Indices have also shown a negative correlation with exchange rate, except healthcare index which has shown a significant positive correlation with exchange rate. The Sensex has shown a bullish trend after demonetization. It indicates that demonetization has been considered as a long term positive structural change for the economy. A move towards cash less economy supported by digital India initiatives will unleash new wave of reforms to propel the economy to a more vibrant, efficient, transparent economy. Healthcare index can be used to diversify the portfolio of an investor. The finding of study has implications for portfolio managers and investors.

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