'A Study on factors affecting exchange rate in foreign exchange market.'

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Abstract
The foreign exchange market is the world's largest market with highest volume of trade transactions. The foreign exchange markets are subject to high volatility between currency exchange rates. The research focuses over factors that influence foreign exchange rates with increased focus over impact of crude oil prices over exchange rate and impact of NSE (Nifty 50) equity investment on share prices. For conducting analysis the historical data of past 10 years is taken into consideration and results are derived by conducting univariate analysis, correlation analysis, regression and R square analysis. The data collected has been collected through authenticated data sources of Reserve Bank of India. Four currency pairs have been taken for consideration. Analysis of US Dollar, Great British Pound, Euro and Japanese Yen has been considered for evaluation with comparison to Indian rupee.
Upon analysis of the data collected findings suggest that crude oil prices have significantly less impact as compared to the impact caused by the price and investment in Nifty 50. Since the past 10 years Indian rupee has faced depreciation. The continuous fall in Indian rupee is warning signal for the Indian economy and all its sectors.
Keywords: Depriciation, univariate, correlation, regression, R Square

I.   Introduction

The foreign exchange market in India originated in 1978 when banks were permitted to undertake intraday trading in currencies but major changes that helped in building of modern foreign exchange market were introduced in 1990s. Till 1992-1993 the foreign exchange market was fully under the control of Indian government who monitored and regulated all the policies to control exchange rates, import-export policies, foreign direct investment and foreign institutional investment, etc. Foreign Exchange Regulation Act (FERA) was enacted in 1973 which helped the government a lot to regulate exchange rates. After the economic reforms of 1991 Indian government liberalized foreign exchange market and introduced Foreign Exchange Management Act (FEMA) in 1999, which liberalized foreign exchange trading, Import-Export procedures, etc.

Reserve Bank of India (RBI) still has the necessary authority and powers to regulate the exchange rates and foreign exchange transactions. The exchange rate in the foreign exchange market saw periods of high volatility since May 2013. To regulate the depreciation of the Indian Rupee policies included necessary measures to control CRR ratio, Trading restrictions and market interventions.

The Indian foreign exchange market majorly deals in 4 currency pairs that contribute to majority of the transactions in Multi Commodity Exchange. These currency pairs include USD/INR (US Dollar/Indian Rupee), EUR/INR (EURO/Indian Rupee), GBP/INR (Great British Pound/Indian Rupee) and JPY/INR (Japanese Yen/Indian Rupee). Besides them any currency can be traded on a international market.

II.   Objective

Primary Objectives
* To analyze currency pairs and their exchange rates and evaluate major factors responsible for change in their values.

Secondary Objectives
* To analyze the relation between Currencies, Nifty 50 and Crude oil.
* To study dependency between Currencies, Nifty 50 and Crude oil.
* To forecast the future prices.

III. Data Methodology

The research design for this research is descriptive and causal. The data will be collected through secondary data collection from various sources such as books, research papers, magazines, periodical articles and journal articles. Required data for conducting forecasting and analysis will be gathered from websites of Indian as well as foreign exchanges such as BSE, NSE, NASDAQ, etc. All the data collected will be relative to the topic and will help in understanding and analyzing multiple aspects of foreign exchange market.

IV. Literature Review

Deepa Gulati and Monika Kakhani (Nov, 2012) It tells us about the stock market and foreign market. It also tells us about whether there is a casual relationship or not between the foreign exchange rate and stock market. By claiming the relationships between the INR/ $ exchange rate the Indian stock indices were determined for data 2004 and 2012.

Ayush Singh, (2016) he had studied the impact of the INR – USD on Indian economy. The factors which have been affecting the Indian currency rates that leads to the depreciation of Indian rupee against the US dollars. Due to that it has been affecting a lot on the Indian economy such as the demand and supply of currencies, changing interest rates and the technical factors.

Mr Srikanth, (2014) analyzed how the foreign exchange currencies are been greatly determined by the forward markets and it was been prepared by the changing interest rates, and balance of the payments. Since, many years the Indian foreign exchange markets have been proved by the long lasting component.

Prof Michael, (2013) analyzed the USD and INR the ancient data and also to understand that how the Indian rupee affects the Indian economy. In this paper it specially focuses on the forecast of the INR – USD exchange rates. The most significant variables those hypothetically affect foreign exchange rate, balance of trade, interest rate and inflation rates.

Dr. R Venkata Raman, (2015) this study examined about the bonds between the stock return and foreign exchange in India throughout the duration time from 2000 January to 2014 June. The outcome recommend that us dollars and euro lasting connections with the CNN and Sensex.

Desis lava Dimintrova (2005) investigated the link between the stock prices, exchange rate, fiscal policy and monetary policy. The study concluded that the interest rate parity conditional effects the stock prices significantly.

Tomoe Moore, Eric. J. Pentecost (2006) entitled ―The Sources of Real Exchange Rate Fluctuations in India ― attempted to find out the different sources of exchange rate appreciation by using Value at risk approach. There are nominal shocks which play an important role in defining nominal exchange rate, but, for the case of real exchange rates, nominal shocks are inapplicable. The study further explores that nominal and real exchange rates are not co integrated, i.e, they are not having any linear relationship in the long run.

(1)Analysis of USD/INR and crude oil
Correlation between USD/INR and crude oil.

	Change % CRUDE OIL	*Change % USD/INR*
Change % CRUDE OIL	1	
Change % USD/INR	0.120734479	1

Interpretation: The correlation value comes (-0.602627222) which means there is a negative correlation.
Interpretation: - The R Square value is 0.01421501 which is less than 50% which shows less dependency on crude oil on USD/INR.

Regression Statistics	
Multiple R	0.119226716
R Square	0.01421501
Adjusted R Square	0.007123032
Standard Error	2.55201289
Observations	141

ANOVA					
	Df	*SS*	*MS*	*F*	*Significance F*
Regression	1	13.0540566	13.0540566	2.004379	0.159082343

Residual	139	905.2750012	6.512769793		
Total	140	918.3290578			

Interpretation: - The value of significance F in one way anova is 0.159082343 which being more than 0.05 so it can be said that USD/INR prices do not have a significant impact over crude oil.

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.4376309	0.215240211	2.03329	0.0438	0.01207086	0.8632053
X Variable 1	0.0324207	0.022899852	1.41579	0.1590	-0.0128563	0.0776977

Regression Slope: 0.032420713   Y intercept: 0.437639009   Regression Line: Y= a+ bx USD = 0.437639009 + 0.032420713 Crude oil.
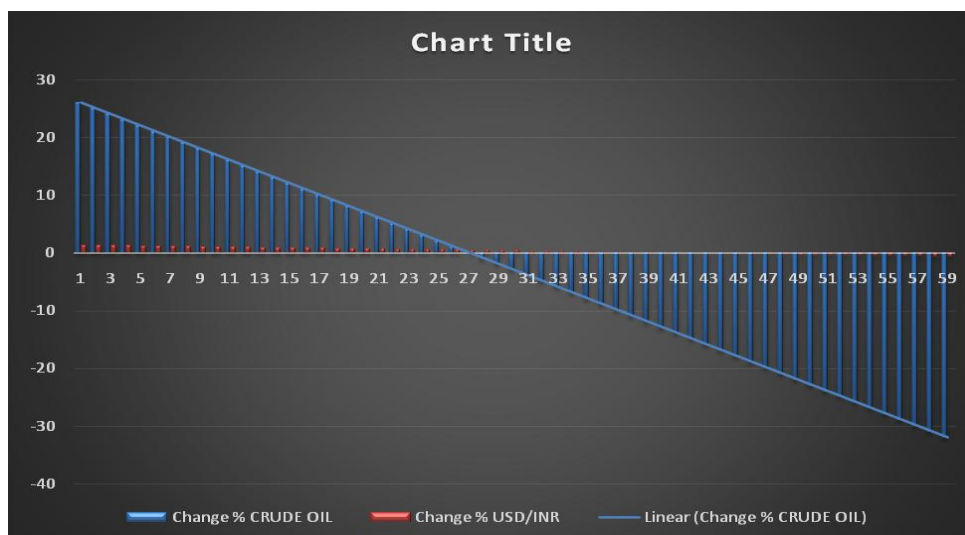
Predicted Change % CRUDE OIL	Predicted Change% USD/INR
26	1.280577547
25	1.248156834
24	1.215736121
23	1.183315408
22	1.150894695
21	1.118473982
20	1.086053269
19	1.053632556
18	1.021211843
17	0.98879113
16	0.956370417
15	0.923949704
14	0.891528991
13	0.859108278
12	0.826687565
11	0.794266852
10	0.761846139
9	0.729425426
8	0.697004713
7	0.664584
6	0.632163287
5	0.599742574
4	0.567321861

Predicted Change % CRUDE OIL	Predicted Change% USD/INR
3	0.534901148
2	0.502480435
1	0.470059722
0	0.437639009
-1	0.405218296
-2	0.372797583
-3	0.34037687
-4	0.307956157
-5	0.275535444
-6	0.243114731
-7	0.210694018
-8	0.178273305
-9	0.145852592
-10	0.113431879
-11	0.081011166
-12	0.048590453
-13	0.01616974
-14	-0.016250973

Predicted Change % Crude oil	Predicted Change% USD/INR
-17	-0.113513112
-18	-0.145933825
-19	-0.178354538
-20	-0.210775251
-21	-0.243195964
-22	-0.275616677
-23	-0.30803739
-24	-0.340458103
-25	-0.372878816
-26	-0.405299529
-27	-0.437720242
-28	-0.470140955
-29	-0.502561668
-30	-0.534982381
-31	-0.567403094
-32	-0.599823807

(2)Analysis of USD/ INR and Nifty 50.
Correlation between USD/INR Exchange rate and Nifty 50.

	Change % NIFTY 50	*Change % USD/INR*
Change % NIFTY 50	1	
Change % USD/INR	-0.602627222	1

Interpretation:- The correlation value comes (-0.602627222) which means there is a negative correlation.

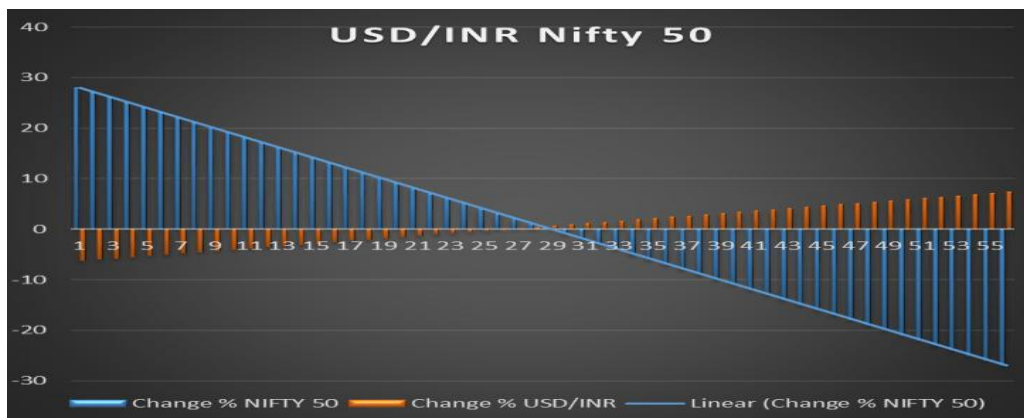| *Regression Statistics*	
Multiple R	0.627209531
R Square	0.393391796
Adjusted R Square	0.389027708
Standard Error	2.001916241
Observations	141

Interpretation:- The value of R Square is 0.393391796 which is less than 50% which shows less dependency of Nifty 50 on USD/INR .

ANOVA					
	Df	*SS*	*MS*	*F*	*Significance F*
Regression	1	361.2631176	361.2631176	90.14296104	8.70435E-17
Residual	139	557.0659402	4.007668635		
Total	140	918.3290578			

Interpretation:- The value of F significant in one way anova is 0.00 which being less than 0.05 so it can be said that Nifty 50 prices have a significant impact over USD/INR exchange rate.

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.6604090	0.169983657	3.885132721	0.0001576	0.3243211	0.99649696
X variable 1	0.2634321	0.027746156	-9.494364699	8.70435E-	-0.3182912	-0.20857304

Regression slope: -0.26343212 Y intercept: 0.660409068 Regression line: Y = a +bx
USD = 0.660409068 + (-0.26343212) Nifty 50.

Predicted Change % NIFTY 50	Predicted Change % USD/INR
28	-6.242492879
27	-5.995960666
26	-5.749428454
25	-5.502896241
24	-5.256364029
23	-5.009831817
22	-4.763299604
21	-4.516767392
20	-4.27023518
19	-4.023702967
18	-3.777170755
17	-3.530638542
16	-3.28410633
15	-3.037574118
14	-2.791041905
13	-2.544509693
12	-2.297977481
11	-2.051445268
10	-1.804913056

Predicted Change% NIFTY 50	Predicted Change% USD/INR
9	-1.558380843
8	-1.311848631
7	-1.065316419
6	-0.818784206
5	-0.572251994
4	-0.325719782
3	-0.079187569
2	0.167344643
1	0.413876856
0	0.660409068
-1	0.90694128
-2	1.153473493

Predicted change% NIFTY 50	Predicted change% USD/INR
-3	1.400005705
-4	1.646537918
-5	1.89307013
-6	2.139602342
-7	2.386134555
-8	2.632666767
-9	2.879198979
-10	3.125731192
-11	3.372263404
-12	3.618795617
-13	3.865327829
-14	4.111860041
-15	4.358392254
-16	4.604924466
-17	4.851456678
-18	5.097988891
-19	5.344521103
-20	5.591053316
-21	5.837585528
-22	6.08411774
-23	6.330649953
-24	6.577182165
-25	6.823714377
-26	7.07024659
-27	7.316778802

(3) Analysis of GBP/INR and Nifty 50.

Correlation between GBP/INR and Nifty 50.

	Change % NIFTY 50	*Change % GBP/INR*
Change % NIFTY 50	1	
Change % GBP/INR	-0.17588612	1

Interpretation:- The correlation value is -0.17588612 which means there is a negative correlation.

R square analysis:-

| *Regression Statistics*	
Multiple R	0.183405912
R Square	0.033637729
Adjusted R Square	0.026685482
Standard Error	2.984420867
Observations	141

Interpretation: The value is 0.033637729 which is less than 50% which shows less dependency on Nifty 50 and GBP/INR.

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	43.09447892	43.09447892	4.838397	0.029485106
Residual	139	1238.040739	8.906767909		
Total	140	1281.135218			

Interpretation: - The value of F significant 0.029485106 which is less than 0.05 so it can be said that nifty 50 prices have a significant impact on GBP/INR exchange rate.Table 3.14

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.2320565	0.25340859	0.91574	0.3613	-0.268977	0.7330903
X variable 1	-0.0909845	0.041363472	-2.19963	0.0294	-0.1727675	-0.00920

Regression slope: -0.090984567   Y intercept: 0.232056578   Regression line: Y= a+bx
GBP = 0.232056578 + (-0.090984567) Nifty 50.
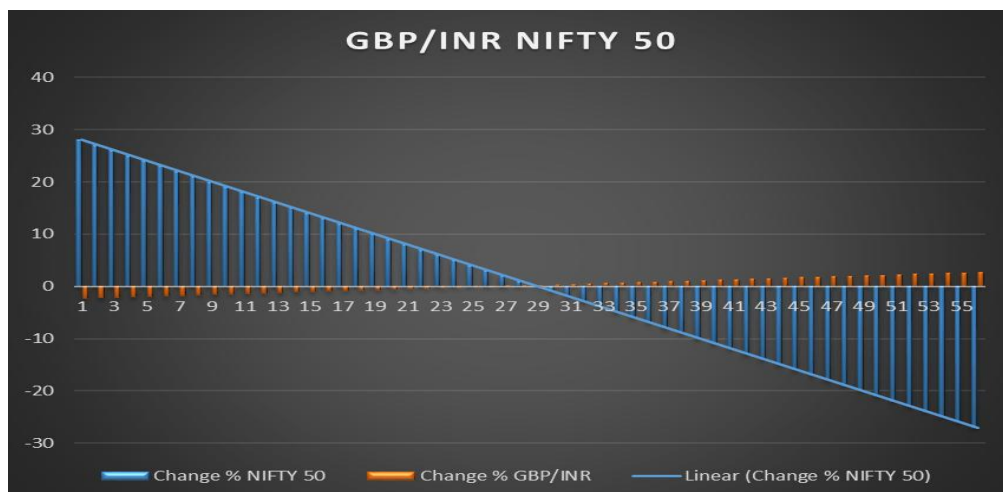
Predicted Change % NIFTY 50	Predicted Change % GBP/INR
28	-2.315511298
27	-2.224526731
26	-2.133542164
25	-2.042557597
24	-1.95157303
23	-1.860588463
22	-1.769603896
21	-1.678619329
20	-1.587634762
19	-1.496650195
18	-1.405665628
17	-1.314681061
16	-1.223696494
15	-1.132711927
14	-1.04172736
13	-0.950742793
12	-0.859758226

11	-0.768773659
10	-0.677789092
9	-0.586804525
8	-0.495819958
7	-0.404835391
6	-0.313850824
5	-0.222866257
4	-0.13188169
3	-0.040897123
2	0.050087444
1	0.141072011
0	0.232056578
-2	0.414025712
-3	0.505010279
-4	0.595994846
-5	0.686979413
-6	0.77796398
-7	0.868948547
-8	0.959933114
-9	1.050917681

-10	1.141902248
-11	1.232886815
-12	1.323871382
-13	1.414855949
-14	1.505840516
-15	1.596825083
-16	1.68780965
-17	1.778794217
-18	1.869778784
-19	1.960763351
-20	2.051747918
-21	2.142732485
-22	2.233717052
-23	2.324701619
-24	2.415686186
-25	2.506670753
-26	2.59765532
-27	2.688639887

(4)Analysis of GBP/INR and crude oil.

Correlation between GBP/INR Exchange rate and Crude oil.

	Change % CRUDE OIL	*Change % GBP/INR*
Change % CRUDE OIL	1	
Change % GBP/INR	0.494791563	1

Interpretation:- The correlation value comes 0.494791563 which means there is a positive correlation.

R square analysis:-

| *Regression Statistics*	
Multiple R	0.494895465
R Square	0.244921522
Adjusted R Square	0.239489302
Standard Error	2.638068881
Observations	141

Interpretation:- The value of R Square is 0.244921522 which is less than 50% which shows less dependency of crude oil on GBP/INR.

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	313.777587	313.777587	45.08683	4.43156E-10
Residual	139	967.3576313	6.95940742		
Total	140	1281.135218			

Interpretation:- The value of significance F in one way anova is 0.000000000443 which being less than 0.05 so it can be said that Crude oil prices have a significant impact over GBP/INR exchange rate.

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.0791858	0.222498289	0.35589405	0.72249	-0.360732837	0.51910447
X variable 1	0.1589500	0.023672054	6.71467239	4.43E-10	0.112146232	0.205753948

Regression slope: 0.15895009 Y intercept: 0.079185817 Regression line: Y = a + bx
GBP = 0.079185817 + 0.15895009 CRUDE OIL
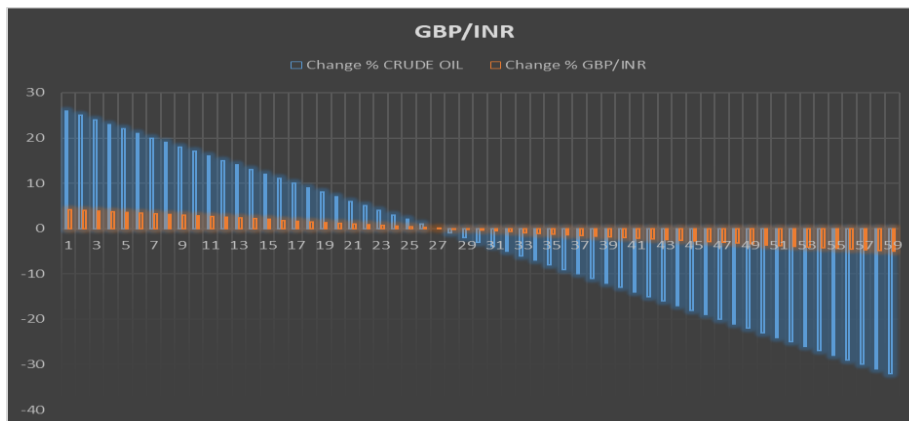
Predicted Change % CRUDE OIL	Predicted Change % GBP/INR
26	4.211888157
25	4.052938067
24	3.893987977
23	3.735037887
22	3.576087797
21	3.417137707
20	3.258187617
19	3.099237527
18	2.940287437
17	2.781337347
16	2.622387257
15	2.463437167
14	2.304487077
13	2.145536987
12	1.986586897
11	1.827636807
10	1.668686717
9	1.509736627

8	1.350786537
7	1.191836447
6	1.032886357
5	0.873936267
4	0.714986177
3	0.556036087
2	0.397085997
1	0.238135907
0	0.079185817
-1	-0.079764273
-2	-0.238714363
-3	-0.397664453
-4	-0.556614543
-5	-0.715564633
-6	-0.874514723
-7	-1.033464813
-8	-1.192414903
-9	-1.351364993
-10	-1.510315083
-11	-1.669265173
-12	-1.828215263

-13	-1.987165353
-14	-2.146115443
-15	-2.305065533
-16	-2.464015623
-17	-2.622965713
-18	-2.781915803
-19	-2.940865893
-20	-3.099815983
-21	-3.258766073
-22	-3.417716163
-23	-3.576666253
-24	-3.735616343
-25	-3.894566433
-26	-4.053516523
-27	-4.212466613
-28	-4.371416703
-29	-4.530366793
-30	-4.689316883
-31	-4.848266973
-32	-5.007217063

(5)   Analysis of EUR/INR and nifty 50.

The correlation between EUR/INR and Nifty 50.

	Change % NIFTY 50	*Change % EUR/INR*
Change % NIFTY 50	1	
Change % EUR/INR	-0.106128134	1

Interpretation:- The correlation value is 0.494791563 which means there is a positive correlation .

R square analysis:-

Regression Statistics	
Multiple R	0.099813129
R Square	0.009962661
Adjusted R Square	0.00284009
Standard Error	2.87092653
Observations	141

Interpretation: - The value of R Square is 0.009962661 which is less than 50% which shows less dependency of nifty 50 on EUR / INR.
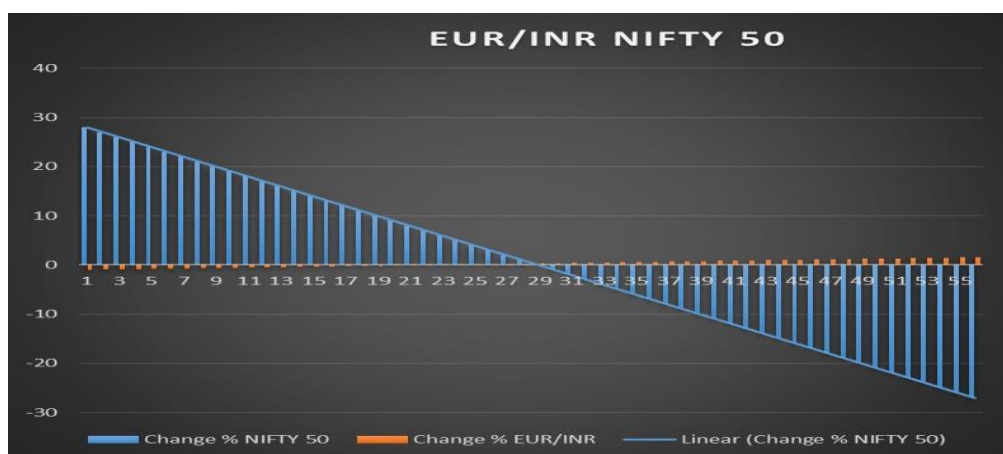
ANOVA					
	Df	*SS*	*MS*	*F*	*Significance F*
Regression	1	11.52876337	11.52876337	1.398745	0.238952834
Residual	139	1145.66846	8.242219138		
Total	140	1157.197224			

Interpretation:- The value of significance F in one way anova 0.238952834 is which being greater than 0.05 so it can be said that Nifty 50 prices do not have a significant impact over EUR/INR.

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.2943056	0.243771733	1.20730	0.2293	-0.18767441	0.7762856
X variable 1	-0.0470596	0.039790463	-1.1826	0.2389	-0.12573242	0.0316132

Regression slope: -0.047059605   Y intercept: 0.294305617   Regression line: Y = a+bx

EUR = 0.294305617 + (-0.047059605) Nifty 50.

Predicted Change % NIFTY 50	Predicted Change % EUR/INR
28	-1.023363323
27	-0.976303718
26	-0.929244113
25	-0.882184508
24	-0.835124903
23	-0.788065298
22	-0.741005693
21	-0.693946088
20	-0.646886483
19	-0.599826878
18	-0.552767273
17	-0.505707668
16	-0.458648063
15	-0.411588458
14	-0.364528853
13	-0.317469248
12	-0.270409643

11	-0.223350038
10	-0.176290433
9	-0.129230828
8	-0.082171223
7	-0.035111618
6	0.011947987
5	0.059007592
4	0.106067197
3	0.153126802
2	0.200186407
1	0.247246012
0	0.294305617
-1	0.341365222
-2	0.388424827
-3	0.435484432
-4	0.482544037
-5	0.529603642
-6	0.576663247
-7	0.623722852
-8	0.670782457

-9	0.717842062
-10	0.764901667
-11	0.811961272
-12	0.859020877
-13	0.906080482
-14	0.953140087
-15	1.000199692
-16	1.047259297
-17	1.094318902
-18	1.141378507
-19	1.188438112
-20	1.235497717
-21	1.282557322
-22	1.329616927
-23	1.376676532
-24	1.423736137
-25	1.470795742
-26	1.517855347
-27	1.564914952

(6) Analysis of EUR/INR and crude oil.
   Correlation between EUR/INR exchange rate and crude oil.

	Change % CRUDE OIL	Change % EUR/INR
Change % CRUDE OIL	1	
Change % EUR/INR	0.367681079	1

Interpretation:- The correlation value is 0.367681079 which means there is a positive correlation.
R square analysis:-

Regression Statistics	
Multiple R	0.370535714
R Square	0.137296715
Adjusted R Square	0.131090217
Standard Error	2.67995201
Observations	141

**Interpretation:-** The value is 0.137296715 which is less than 50% which shows less dependency of Crude oil on EUR / INR.

ANOVA					
	Df	SS	MS	F	Significance F
Regression	1	158.8793778	158.8793778	22.12145	6.1039E-06
Residual	139	998.3178457	7.182142775		
Total	140	1157.197224			

Interpretation: - The value of significance F in one way anova 0.00000610390 is which being less than 0.05 so it can be said that crude oil prices have a significant impact over EUR/INR crude oil.

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.1993612	0.226030769	0.88200	0.3792	-0.24754171	0.6462642
X variable 1	0.1131054	0.024047882	4.70334	6.1E-	0.06555852	0.1606524

Regression slope: 0.113105464   Y intercept: 0.199361279   Regression line: Y = a +bx
EUR = 0.199361279 + 0.113105464 CRUDE OIL.
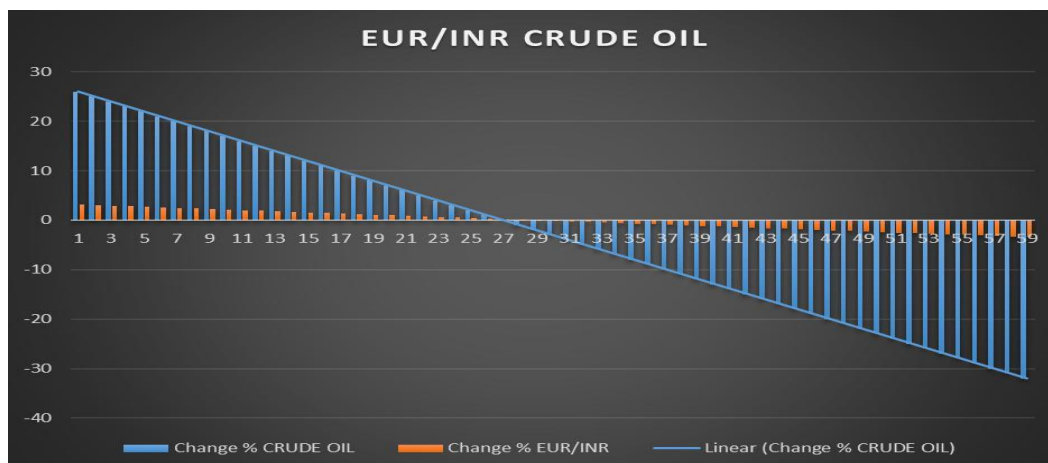
Predicted Change % CRUDE OIL	Predicted Change % EUR/INR
26	3.140103343
25	3.026997879
24	2.913892415
23	2.800786951
22	2.687681487
21	2.574576023
20	2.461470559
19	2.348365095
18	2.235259631
17	2.122154167
16	2.009048703
15	1.895943239
14	1.782837775
13	1.669732311
12	1.556626847
11	1.443521383

10	1.330415919
9	1.217310455
8	1.104204991
7	0.991099527
6	0.877994063
5	0.764888599
4	0.651783135
3	0.538677671
2	0.425572207
1	0.312466743
0	0.199361279
-1	0.086255815
-2	-0.026849649
-4	-0.253060577
-5	-0.366166041
-6	-0.479271505
-7	-0.592376969
-8	-0.705482433
-9	-0.818587897
-10	-0.931693361
-11	-1.044798825

-12	-1.157904289
-13	-1.271009753
-14	-1.384115217
-15	-1.497220681
-16	-1.610326145
-17	-1.723431609
-18	-1.836537073
-19	-1.949642537
-20	-2.062748001
-21	-2.175853465
-22	-2.288958929
-23	-2.402064393
-24	-2.515169857
-25	-2.628275321
-26	-2.741380785
-27	-2.854486249
-28	-2.967591713
-29	-3.080697177
-30	-3.193802641
-31	-3.306908105
-32	-3.420013569

(7)Analysis of JPY/ INR and nifty 50.
Correlation between JPY/INR Exchange rate and Nifty 50.

	Change % NIFTY 50	*Change % JPY/INR*
Change % NIFTY 50	1	
Change % JPY/INR	-0.518301393	1

 Interpretation:- The correlation value is -0.518301393 which means there is a negative correlation.
R square analysis-

| *Regression Statistics*	
Multiple R	0.512421664
R Square	0.262575962
Adjusted R Square	0.257270753
Standard Error	3.198456082
Observations	141

Interpretation: - The value of R Square is 0.262575962 is which is less than 50% which shows less dependency of Nifty 50 on JPY / INR.

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	506.3295311	506.3295311	49.49399	8.28158E-11
Residual	139	1421.986862	10.23012131		
Total	140	1928.316393			

Interpretation:- The value of significance F in one way anova 0.00 is which being less than 0.05 so it can be said that nifty 50 prices have a significant impact over JPY/INR.

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Y Intercept	0.7227757	0.271582422	2.661	0.0086	0.1858090	1.2597424
X variable 1	-0.3118699	0.044329957	-7.035	8.28E-	-0.399518161	-0.2242217

Regression slope: - 0.311869959   Y intercept: 0.722775743   Regression line: Y = a+bx
JPY = 0.722775743 + (-0.311869959) Nifty 50
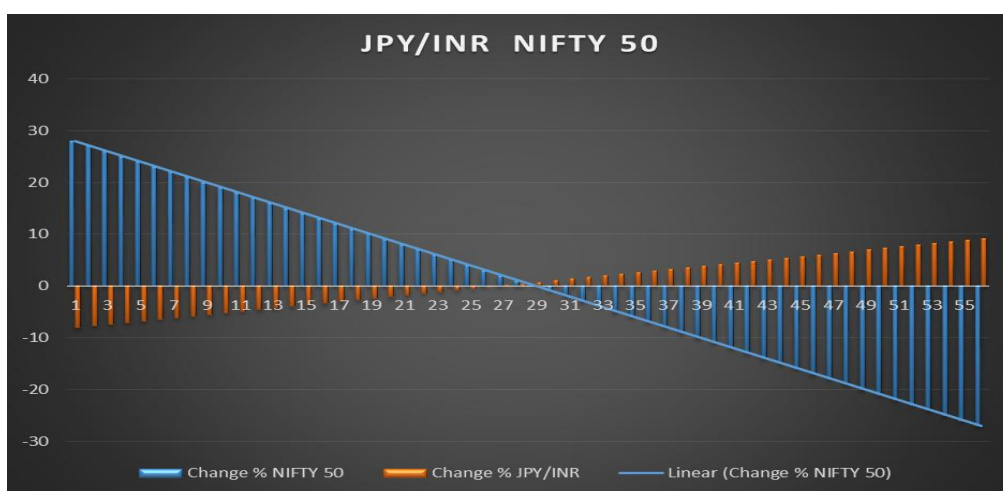
Predicted Change % NIFTY 50	Predicted Change % JPY/INR
28	-8.009583109
27	-7.69771315
26	-7.385843191
25	-7.073973232
24	-6.762103273
23	-6.450233314
22	-6.138363355
21	-5.826493396
20	-5.514623437
19	-5.202753478
18	-4.890883519
17	-4.57901356
16	-4.267143601
15	-3.955273642
14	-3.643403683

13	-3.331533724
12	-3.019663765
11	-2.707793806
10	-2.395923847
9	-2.084053888
8	-1.772183929
7	-1.46031397
6	-1.148444011
5	-0.836574052
4	-0.524704093
3	-0.212834134
2	0.099035825
1	0.410905784
-1	1.034645702
-2	1.346515661
-3	1.65838562
-4	1.970255579
-5	2.282125538
-6	2.593995497
-7	2.905865456

-8	3.217735415
-9	3.529605374
-10	3.841475333
-11	4.153345292
-12	4.465215251
-13	4.77708521
-14	5.088955169
-15	5.400825128
-16	5.712695087
-17	6.024565046
-18	6.336435005
-19	6.648304964
-20	6.960174923
-21	7.272044882
-22	7.583914841
-23	7.8957848
-24	8.207654759
-25	8.519524718
-26	8.831394677
-27	9.143264636

(8)Analysis of JPY/INR and Crude oil.

Correlation between JPY/INR Exchange rate and Crude oil.

	Change % CRUDE OIL	*Change % JPY/INR*
Change % CRUDE OIL	1	
Change % JPY/INR	-0.06405339	1

Interpretation:- The correlation value is -0.06405339 which means there is a negative correlation.

R-Square analysis:-

Regression Statistics	
Multiple R	0.059448732
R Square	0.003534152
Adjusted R Square	-0.003634667
Standard Error	3.718030567
Observations	141

Interpretation:- The value of R Square is 0.003534152 which is less than 50% which shows less dependency of Crude on JPY / INR.
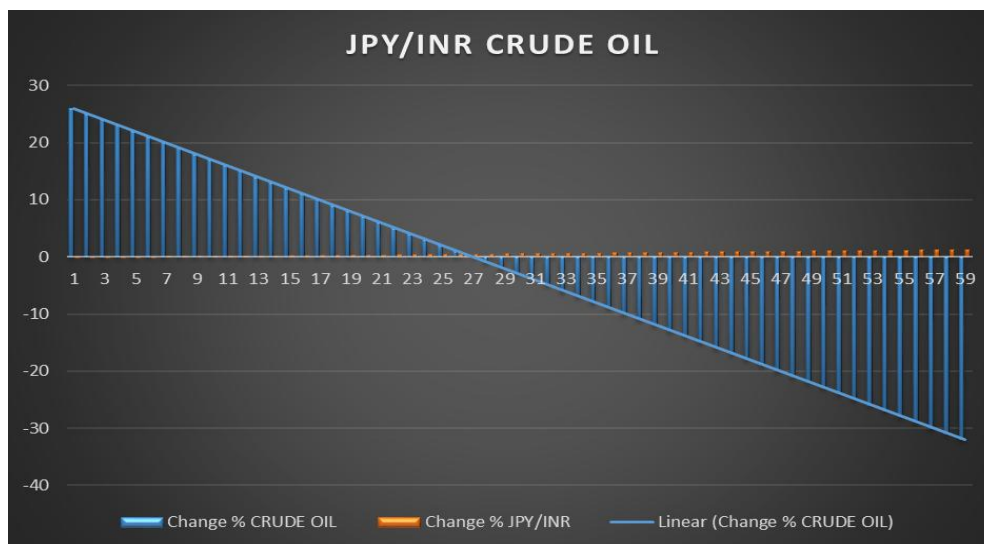
ANOVA					
	Df	*SS*	*MS*	*F*	*Significance F*
Regression	1	6.814962724	6.814962724	0.49298939	0.483770896
Residual	139	1921.50143	13.8237513		
Total	140	1928.316393			

Interpretation:- The value of significance F in one way anova is 0.483770896 which being greater than 0.05 so it can be said that Crude oil prices do not have a significant impact over JPY/INR.

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.4908071	0.313583715	1.5651551	0.119820	-0.129203	1.110817883
X Variable 1	-0.023425	0.033362822	-0.7021320	0.4837708	-0.089389	0.042539121

Regression slope: -0.023425106   Y intercept: 0.490807157   Regression line: Y = a+ bx

JPY = 0.490807157 + (-0.023425106) Crude oil

Predicted Change % CRUDE OIL	Predicted Change % JPY/INR
26	-0.118245599
25	-0.094820493
24	-0.071395387
23	-0.047970281
22	-0.024545175
21	-0.001120069
20	0.022305037
19	0.045730143
18	0.069155249
17	0.092580355
16	0.116005461
15	0.139430567
14	0.162855673
13	0.186280779
12	0.209705885
11	0.233130991
10	0.256556097
9	0.279981203
8	0.303406309
7	0.326831415
6	0.350256521
5	0.373681627
4	0.397106733
3	0.420531839
2	0.443956945
1	0.467382051
0	0.490807157
-1	0.514232263
-2	0.537657369
-3	0.561082475
-4	0.584507581
-5	0.607932687
-6	0.631357793
-7	0.654782899
-8	0.678208005
-9	0.701633111
-10	0.725058217
-11	0.748483323
-12	0.771908429
-14	0.818758641
-15	0.842183747
-16	0.865608853
-17	0.889033959
-18	0.912459065
-19	0.935884171
-20	0.959309277
-21	0.982734383
-22	1.006159489
-23	1.029584595
-24	1.053009701
-25	1.076434807
-26	1.099859913
-27	1.123285019
-28	1.146710125
-29	1.170135231
-30	1.193560337
-31	1.216985443
-32	1.240410549

HYPOTHESIS

So crude oil prices do not have significant impact over USD/INR, Nifty 50 prices have a significant impact over USD/INR.

Crude oil prices have significant impact over GBP/INR and are same in case of NIFTY 50.

Crude oil prices have significant impact over EUR/INR; Nifty 50 prices do not have a significant impact over EUR/INR.

Crude oil prices do not have significant impact over JPY/INR; Nifty 50 prices have a significant impact over JPY/INR.

V. Conclusion

In the past 10 years Indian rupee has seen a significant decline in relation to some of the major currencies of forex market. The decline in rupee value is a warning signal for the Indian economy. The decrease in the value of rupee affects all the sectors of the economy. Due to the decline in rupee, there is hidden inflation which results in declining the growth of economy. The Indian government should take initiatives to encourage the foreign investment to larger extent and not only for short term. Efforts should be made to reduce the import and encourage exports in order to bring current account deficit to lower level.

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