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EXCHANGE RATE DYNAMICS AND THEIR EFFECT ON MACROECONOMIC FACTORS IN INDIA

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Abstract:
The objective of this study was to examine the relationship between the Exchange Rate and Macro Economic Determinants in India in the period of 2011-2021. To investigate the causal relationship between Exchange Rate and Macroeconomic Performance in India. The study using exchange rate, inflation, total investment, volume of imports of goods and service, volume of exports of goods and services, government total expenditure and government net lending. The required data is collected from international monetary fund database. The result of descriptive statistics for, India during the study period 2009 to 2018 shows the highest mean is -0.004 in GTE and lowest value -2.320 in IMP. The standard deviation highest value is 6.677 in IMP and lowest value is 0.019 from GTE. The probability values of selected variables like EXP01(0.570), GNL (0.828), GET (0.628), IMP(0) ,INF(0.687) TIN(0.846) and NER (0.838) were less than five percent significant level, which indicated that there was normality in the distribution. The other factors indicate that there was normality in distribution during the study period. The result of correlation India shows the highest positive relationship between IMP and INF (0.455). The result of correlation India shows the highest positive relationship between IMP and INF (0.455). Highest negative relationship between EXP and IMP (-0.16). The result of granger causality shows that the Government Total Expenditure, Government Net Lending and Total Investment were recorded no casualty linkage of India.

Keywords: Exchange Rate, Macro Economic Factors

Introduction:

These modern exchange rate theories may be distinguished from traditional exchange rate theories which are based on trade flows and help explain exchange rate movement only the long-run or over the year **(Benita, G., & Lauterbach, B. 2007).** The exchange rate is one in the middle of many macro-economic factors, which is careful as the for the most part significant factor for the economic growth of India. The exchange rate is partial by factors like GDP, inflation rate and interest rate **(Baranidharan, S., et al., 2016)**. The rate at which home currency is exchanged beside a overseas currency is the rate of exchange. The refuse in currency value is called depreciation. The rising economies usually have self-confidence in import to meet their internal claim. At the similar time, approximately all the up-and-coming economies buy and sell crosswise countries and this, in revolve, has to result for the comprehensive economy **(Janus, T., & Riera-Crichton, D. 2015**). The exchange rate of one currency beside the other currency is slanted, by a variety of basic and scientific factors. These factors comprise relation supply and demand of equally currencies, economic performance, the attitude for inflation, interest rate differentials, capital inflows and outflows,

technical support and resistance levels and so on **(Rodrik.D, 2008)**. Macroeconomic development is necessity take better this financial year on the back of stronger spreads and enlarged expenses. In the following financial year, which spasms in July, expansion will possible control down, partially due to a great base consequence. Besides, risks of ordinary tragedies, a feeble worldwide trade atmosphere and a stressed national banking organisation all mist predictions over FY (Fiscal Year) 2020 **(Baranidharan S., 2018)**. Our panellists imagine GDP to expand 7.5% in FY 2019, which is up 0.1 percentage opinions from last month's prediction, and 7.3% in FY 2020 **(Nyoni, 2018).** The Reserve Bank of India has acted through timely intercessions by bartering dollars from time to time. However, in the crisis periods of worldwide intensity, the shareholders have preferences for USD as a harmless port. The RBI can decrease capital controls, by floating the maximum level of FII on investment in government and corporate debt instruments and introduce higher limits in European Central Banks. The Government can produce an established political and economic environment. But a lot centres on the Global economic outlook and the future of Euro zone, which resolve regulate the future of INR **(Hegwood, N. D., & Nath, H. K. 2014)**. **Khaled M.Hanafy et al., (2016),** examined on the relationship between the stock market and macroeconomic factors in two developing economies. The results showed that there is a causal relationship in Egypt between market index and consumer price index (CPI), exchange rate, money supply, and interest rate. The same goes for Tunisia excluding for CPI, which had no causal relationship through the market index. Results also exposed that the four macroeconomic factors were co-integrated with the stock market in two countries. **Willett, T. D. (2001)**, studied that traditional analysis of OCA theory has naturally been considered in terms of balancing the micro welfares to be increased by attractive the expediency of money by increasing the effective fields of individual currencies over the currency association or fixed exchange rates in contradiction of the macroeconomic costs of generous up the exchange rate as an instrument of balance of payments adjustment and therefore subjecting domestic macroeconomic strategies to a compulsory balance of payments constraint. Tools used in the study were granger causality test, co integration test, and unit root tests **(Sankarkumar, A. V.,et al.,2017, 2019, 2020).**

Materials and Method

The following are the objectives of the study. To analyses the normality of Exchange Rate and Macroeconomic Performance in India. To investigate the linear relationship between Exchange Rate and Macroeconomic Performance in India. To investigate the causal relationship between Exchange Rate and Macroeconomic Performance in India. The study based on the secondary data. The study using exchange rate, inflation, total investment, volume of imports of goods and service, volume of exports of goods and services, government total expenditure and government net lending. The required data is collected from international monetary fund database. The study covers a period of eleven years 2011 to 2021. The present study has analyzed the following testing the performance of the firm. Descriptive Statistics (to analysis the normality of exchange rate and macroeconomic performance). Correlation (to analysis relationship between exchange rate and macroeconomic performance). Granger Causality (to analysis causal relationship between exchange rate and macroeconomic performance).

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Result and Discussion

Table 3.1 Normality Exchange Rate and Macroeconomic Performance for India from 2009 to 2018.

India							
	EXP	GNL	GTE	IMP	INF	ER	TIN
Mean	-0.8168	-0.02792	-0.00483	-2.3206	-0.08883	-0.04323	-0.00655
Maximum	6.311902	0.061456	0.031922	2.427614	0.287195	0.057059	0.084598
Minimum	-6.84299	-0.0957	-0.02792	-20.6439	-0.41837	-0.12759	-0.11276
Std. Dev.	3.248904	0.051213	0.019745	6.677071	0.241323	0.05704	0.060528
Skewness	0.474107	0.142343	0.594075	-2.31884	0.175849	0.333987	-0.20404
Kurtosis	4.338753	2.092738	2.096073	7.070833	1.706327	2.366198	2.205747
Jarque-Bera	1.121403	0.376738	0.92866	15.86655	0.748867	0.353289	0.332233
Probability	0.570808	0.828309	0.628556	0.000359	0.687679	0.838078	0.846947

Source: International Monetary Fund, Pacific Exchange Rate and computed by using E-views

Note: TIN- Total Investment, INF – Inflation, IMP – Imports, EXP – Exports, GTE – Government Total Expenditure, GNL – Government Net Lending, ER – Exchange Rate

3.1 Results of normality between Exchange Rate and Macroeconomic Performance in India

The descriptive statistics of India given in the **Table 3.1** have shown that the mean value of GTE, TIN, GNL, ER, INF, EXP and IMP were -0.00483, -0.00655,-0.02792, -0.04323, -0.08883, -0.8168 and -2.3206 respectively during the study period. TIN recorded the positive mean and also a highest mean (-0.00483) among the all sample variables. It is to be noted that the standard deviation (SD) of the sample variables were 3.248904 (EXP), 0.0512213 (GNL), 0.019745 (GTE), 6.677071 (IMP), 0.241323 (INF), 0.05704 (ER) and 0.06528 (TIN) respectively during the period under study. This leads to conclusion that the Exports a sample variable, which have, take higher than other sample variable. The value of skewness was 0.474107, 0.412343, 0.594075, -2.31884, 0.175849, 0.333987 and -20404 respectively for EXP, GNL, GTE, IMP, INF, ER and TIN. Totally there was a four sample variables (IMP and TIN) noted as a positive skewness in the study period and the distribution has long right tail. A positive skewness indicates that the tail on the right hand side is longer than the left hand side that means the bulk values lie to the left of the mean. Kurtosis measure the “Peakedness” of the probable distribution of the data. Kurtosis values were 4.338753 (EXP), 2.092738 (GNL), 2.096073 (GTE), 7.070833 (IMP), 1.706321 (INF), 2.366198 (ER) and 2.205747 (TIN) respectively. The value of kurtosis were more than 3 in sample variables except IMP and TIN. This test confirms that the series was not normally distributed at 5% level of significance, hence the time series data of sample variables were not normal. Hence, NH 3.1 there is no normality among Exchange Rate and Macroeconomic Performance in India were accepted.

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3.2 Results of Correlation between Exchange Rate and Macroeconomic Performance of India during the period from 2009 to 2018

		TIN	INF	IMP	EXP	GTE	GNL	ER
TIN	Pearson Correlation	1						
	Sig. (2-tailed)	-						
INF	Pearson Correlation	0.289	1					
	Sig. (2-tailed)	0.418	-					
IMP	Pearson Correlation	0.420	0.455	1				
	Sig. (2-tailed)	0.065	0.440	-				
EXP	Pearson Correlation	-0.338	-0.130	-0.016	1			
	Sig. (2-tailed)	0.339	0.721	0.964	-			
GTE	Pearson Correlation	-0.030	-0.213	-0.257	-0.221	1		
	Sig. (2-tailed)	0.934	0.554	0.474	0.540	-		
GNL	Pearson Correlation	0.309	0.115	-0.134	-0.040	.214	1	
	Sig. (2-tailed)	0.385	0.753	0.712	0.912	0.554	-	
ER	Pearson Correlation	0.257	-0.024	0.183	-0.440	-0.005	-0.157	1
	Sig. (2-tailed)	0.473	0.948	0.613	0.203	0.988	0.664	-

Source: International Monetary Fund database and computed by using SPSS.

Note: TIN- Total Investment, INF – Inflation, IMP – Imports, EXP – Exports, GTE – Government Total Expenditure, GNL – Government Net Lending, ER – Exchange Rate

3.2 Results of Correlation Matrix between Exchange Rate and Macroeconomic Performance in INDIA.

The correlation of India given in the **Table 3.2** it is clear from the Table that Exchange Rate and Macroeconomic Performance were not correlated with each other. There is no correlation in the probability value during the study period. The correlation analysis of India were reveals that there was a more negative correlation with in sample variables then positive correlation each other. There is a high correlation to be TIN and IMP (0.420) during the study period. Likewise, Lowest correlation value of India was EXP and ER with the value of (-0.440). Hence, NH 3.2 there is no relationship among Exchange Rate and Macroeconomic Performance in India were accepted.

3.3 The Results of Granger Causality for Testing the Exchange Rate and Macroeconomic Performance of India

Null Hypothesis	F-Statistic	p-value
ER does not Granger Cause EXP	1.22581	0.4082
EXP does not Granger Cause ER	0.35798	0.7254
ER does not Granger Cause GNL	57.1918	0.0041
GNL does not Granger Cause ER	1.9828	0.2826
ER does not Granger Cause GTE	1.02067	0.4591
GTE does not Granger Cause ER	8.60185	0.0572
ER does not Granger Cause INF	6.10376	0.0876
INF does not Granger Cause ER	0.15523	0.8627
TIN does not Granger Cause ER	1.30789	0.3905
ER does not Granger Cause TIN	5.64574	0.0962
ER does not Granger Cause IMP	0.11407	0.8959
IMP does not Granger Cause ER	8.46415	0.0584

Sources: International Monetary Fund Database, Computed using E-views

Note: TIN- Total Investment, INF – Inflation, IMP – Imports, EXP – Exports, GTE – Government Total Expenditure, GNL – Government Net Lending, ER – Exchange Rate.

3.3 Causal Relationship between Real Exchange Rate and Macroeconomic Performance of India.

The Granger Causality of F-statistic on ER and Macroeconomic Performance for India **Table 3.3** reveals that six independent sample variable (TIN, INF, IMP, EXP, GNL and GTE) with one dependent sample variable (ER). GNL cause ER recorded F-statistic value (57.19) were high comparing to other sample variable and P-value of the IMP and ER was 0.004 lies below 0.05. Other sample variables were not cause the Exchange Rate during the study period. Hence, the Null hypothesis (3.3) **there was no causal relationship between Exchange Rate and Macroeconomic Performance in India** were accepted.

Conclusion

The study result the Exchange Rate and Macro Economic Performance in South Asian Region using the return data from (2011 to 2021) using the study of normality of descriptive statistics, relationship of correlation and causal relationship of ganger causality in India. The exchange rate which has a positive effect in the Indian exchange rate results that they have a positive relationship in the India. The result of correlation India shows the highest positive relationship between IMP and INF (0.455). Highest negative relationship between EXP and IMP (-0.16). Therefore it

sources the significant level it is positive and it's accepted. The study suggest for investors, traders, exporters, importers because that the all sample countries have a less than 5% probability value .there is no normality so the hypothesis was accepted.

References

1. Barakat, M. R., Elgazzar, S. H., & Hanafy, K. M. (2016). Impact of macroeconomic variables on stock markets: Evidence from emerging markets. *International journal of economics and finance*, *8*(1), 195-207.
2. Baranidharan, S., & Vanitha, S. (2016). The effect of macroeconomic and financial related variables on stock market capitalization of global growth generator countries. *Journal of Contemporary Management Research*, *10*(1), 1.
3. Baranidharan, S. (2016). The dynamic long-run and short-run linkages between exchange rates and BSE sensex return. *IPE Journal of Management*, *6*(2), 92.
4. Baranidharan, S., Dhanavathi, K., & Sukumar, C. (2018). Influence of Macroeconomic variables on Exchange rate volatility by using Structural Equation Model. *Galaxy International Interdisciplinary Research Journal*, *6*(5), 6-22.
5. Baranidharan, S., Alex, A., & Dhivya, N. (2019). The effect and volatility of exchange rates on BSE Sectoral Indices. *RESEARCH REVIEW International Journal of Multidisciplinary*, *4*(4), 1173-1180.
6. Baranidharan, S., & Alex, A. (2020). Volatility spillover of exchange rate on stock market evidence from South Africa. *Asian Journal of Economics, Finance and Management*, 26-34.
7. Benita, G., & Lauterbach, B. (2007). Policy factors and exchange rate volatility: panel data versus a specific country analysis. *International research journal of finance and economics*, *7*(7), 7-23.
8. Hegwood, N. D., & Nath, H. K. (2014). Real exchange rate dynamics: evidence from India. *Economic Analysis and Policy*, *44*(4), 396-404.
9. Janus, T., & Riera-Crichton, D. (2015). Economic shocks, civil war and ethnicity. *Journal of Development Economics*, *115*, 32-44.
10. Nyoni, T. (2018). Modeling and forecasting inflation in Kenya: Recent insights from ARIMA and GARCH analysis. *Dimorian Review*, *5*(6), 16-40.
11. Rodrik, D. (2008). The real exchange rate and economic growth. *Brookings papers on economic activity*, *2008*(2), 365-412.
12. Sankarkumar, A. V., Selvam, M., & Sigo, M. O. (2017). Long memory features and relationship stability of Asia-Pacific currencies against USD. *Business and Economic Horizons*, *13*(1).
13. Sankarkumar, A. V., Selvam, M., & Kathiravan, C. (2019). Relationship between Real Exchange Rate and Economic Growth in Asia–Pacific Countries. *ADALYA JOURNAL*, *8*(8).

ISSN: 2583-276X (Online)
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14. Sankarkumar, A. V., Selvam, M., Gunasekaran, I., & Dhamotharan, D. (2020). Exchange Rate and Macroeconomic Performance in South Asian Region. *Journal of Advanced Research in Dynamical and Control Systems*, *12*, 07.
15. Vasani, S. A., Selvam, M., & Selvam, M. (2019). Relationship between real exchange rate and economic growth in India. *ZENITH International Journal of Business Economics & Management Research*, *9*(3), 19-35.
16. Willett, T. D. (2001). The OCA approach to exchange rate regimes: A perspective on recent developments.

