

Determinants of Foreign Exchange Reserve on Indian Economy

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Abstract - Foreign exchange reserve is an essential asset held by the Central bank in the form of foreign currency as a reserve. In India, the Reserve Bank of India Act,1934 gives power to RBI to act as custodian of foreign exchange reserve and manage reserve with standards. This implies that supreme gains for the nation as a whole or economy, in general, could be derived in the process of reserve management. The most important reason for holding foreign exchange reserves by any country is insurance against currency crisis. This has caused unreliability in rupee depreciation against foreign currency, the depreciation of the exchange rate has adversely affected the Indian economy, this becomes evident that the exchange rate is the most crucial indicator of a country's strength and weakness. Taking charge of this issue Determinants factors of foreign exchange reserve has been identified a study is conducted and analysis has been made using correlation and regression. Which detects that money supply, gross fiscal deficit have high positive relationship with foreign exchange reserve. And there is a significant effect of determinants on foreign exchange reserve. As the world shrinks, there is an ever-increasing likelihood that we will be required to address the risks associated with the fact that there are different currencies used all around the world and that these currencies will have an immediate impact on our world.

Keywords: Foreign Exchange Reserve, components, Determinants, impact, and effects.

I. INTRODUCTION

A country is emulated by the sustained economic growth and development which is provided by the investments made. one of the outstanding features of globalization and liberalization has revolutionized the Indian economy by permitting investments from abroad either in the form of direct investment in an Indian company or investments by foreign investors in the financial service industry.

Foreign exchange reserve is maintained for three reasons, transaction, speculation, and precautionary motives, where transaction motive is of overseeing currency movements due to international trade. The speculative motive is due to trade in the capital markets and the precautionary motive is to take care in advance for unpredictable flows due to global vulnerability, deficits, return from alternative assets. Especially forex reserve is perpetuating to enhance credence in nations monetary as well as exchange rate policy along with validating orderly absorption of international money and capital flows, and supplement capacity to intervene in the forex market to curb excess volatility, to balance between demand and supply of foreign currency to preserve and improve reliance in the market especially as per the rating agency about the country's ability to meet the external chore and to provide market participants confidence by backing domestic currency by external assets. It becomes very essential for any country to maintain a standard amount of

foreign reserve for a balanced economy in case of a financial emergency. Foreign exchange reserve includes banknotes, deposits, bonds and treasury bills, and other government securities, which are significantly held to corroborate that central government has backup funds in case of national currency rapidly devalues at certain.

II. REVIEW OF LITERATURE

Dr.R.Rajanbabu, Dr.G.Monikanda Prasad, and Dr. K.Manoj (2017)⁷⁹ This paper is primarily concerned with an analysis of the volatility and trends in the foreign exchange reserves of India. The analysis of the data reveals that foreign exchange reserves have significantly changed over the years. All the components noticed high volatility except foreign currency assets during the period under review. However, on the whole, it was observed that the degree of stability slightly increased for foreign exchange reserves in India over the periods and holds an adequate level of foreign exchange reserves.

Smith Antoine Azar & Wael Aboukhodor (2017)⁸⁰ study shows a robust and positive link between foreign exchange reserves and oil prices one hand and economic growth in these countries, on the other hand, The paper also aims to look into whether foreign exchange reserves accumulation affects real growth in these countries. Finally, the paper refers to the Real Growth Model. The paper also examines whether the price of oil plays a role in foreign exchange

reserves accumulation in major oil-exporting countries, like countries of the Gulf Cooperation Council. As the study points to a positive association between foreign exchange reserves accumulation and GDP, higher reserves make the market more stable, which in turn enhances economic development. It is also desirable that GCC countries increase and diversify their amount of foreign reserves. This implies that a policy of lowering domestic interest rates may serve additionally and involuntarily to reduce the opportunity cost of reserves.

Chen and Narala (2017)⁸⁴ analyzed forecasting of the foreign exchange rate of the Indian rupee by the Feed forward Backpropagation Neural Network (FBNN) model. They have used monthly data of foreign exchange rates of the Indian rupee and the US dollar for the period 2001 to 2014 and prognosticated the foreign exchange rate for 2015. By using the six major factors which affect exchange rate and six neural networks they have concluded that prediction was great for the first seven months of the year 2015 but in the latter five months the deviation was significant, which shows that forecasting was good enough in the short-run than in long run.

Chojnowski and Dybka (2017)⁸⁵ worked to improve the prediction of the foreign exchange rate forecasting by including the unobserved fundamentals (UNF) (credit-market, financial-market, and price-market sentiments) along with observable fundamentals (OF). They have extracted these unobserved fundamentals from Google Trends. Observing monthly data on the exchange rate for Polish zioty (Poland) and Euro from 2004 to 2016 and included UNF in an extended form of VAR (Vector Autoregressive) model, found that including the market sentiments improved forecasting capabilities.

Shaveta Gupta, Neha Kalra, and Rajesh Bagga (2019)⁸⁷ This paper examine a the impact of Foreign Investment inflows on the Indian stock market. The paper finds the long-run relationship between Foreign investment and stock exchange barometer index SENSEX by extracting the data on monthly basis, for both the SENSEX and the FDI and FPI from January 2001 to February 2012. Using Regression Model, it was found that an increase in FDI significantly influences the fluctuations in the stock market in India, in tandem with the results of similar studies examined in the literature.

Statement of the Problem

Foreign exchange reserves are assets held by the Reserve Bank of India, which are backed-up liabilities and influence monetary policy. Presently countries' foreign exchange reserve increased by USD 1.883 billion to the hike of USD 611.895 billion in the week ended July 9. All the foreign investments are followed by external borrowings of domestic firms has led to a rise in the accumulation of foreign exchange reserves. In an economy such as India,

international transactions are affected by fluctuations in the foreign exchange rate.

This leads to the depreciation of the foreign currency, which affects the Indian economy adversely. this becomes evident that foreign exchange reserve has a significant impact and affects the economic growth of a country. This indicates the importance of foreign exchange reserve which is widening the growth of the country. Keeping this circumstance focused it becomes essential to know how the factors affect and influence the performance of the foreign exchange reserve.

The above problem is discussed in the form of a research question:

- What are the factors determining foreign exchange reserve and how it is related to growth and performance?
- How does foreign exchange reserve relates to economic development? How do they impact the economy?

Objective of the study

- To examine the impact of Determinants of Foreign Exchange Reserve

Hypothesis of the study

- There is no significant relationship between determinants factors and foreign exchange reserve.
- There is no significant impact of determinant factors on foreign exchange reserves.

III. RESEARCH METHODOLOGY

The study is Analytical in nature.

Source of Data

The study is based on secondary data. The data are collected from the official websites of the Reserve Bank of India, World Bank, and IMF.

Tools used for the study

Data are analyzed using statistical tools like descriptive statistics, regression and correlation analysis.

IV. ANALYSIS AND INTERPRETATION:

Table 1.1 Descriptive Statistics of Determinants Factors of Foreign Exchange Reserve for the period 2009-2019

Year	Interest Payments	Current Account	Govt Debt	Broad Money (m3)	Gross Fiscal Deficit
2009-10	2.078	- 1.95146	11421.25	5602698	418482
2010-11	2.303	- 3.25348	11786.38	6504116	373591
2011-12	2.303	- 3.42929	14194.07	73848310	515990
2012-13	3.128	- 5.00489	18441.67	83898190	490190
2013-14	3.642	- 2.64567	22473.40	95173860	502852

2014-15	3.919	-1.33951	26822.14	10550168	510725
2015-16	4.315	1.06755	29715.42	11617615	532725
2016-17	4.791	0.52788	32175.63	12791940	535618
2017-18	5.292	1.43879	30550.95	13962587	591062
2018-19	5.741	2.41782	34418.83	15432067	649418
2019-20	--	1.03742	37548.72	16799930	766846
Mean	80.463	-2.1922	20.327	10.777	53.522
Std. Deviation	15.872	1.324	14.477	36.977	10.658
Variance	25.194	1.755	20.960	13.673	11.361
Skewness	3.084	-.884	-.458	.215	.820
Kurtosis	9.644	.488	-1.606	-1.104	1.418

Source: compiled and computed from secondary data

Table 1.1 describes the descriptive statistics of determinants of foreign exchange reserve, such as interest payment, current account balances, government debt, money supply, and gross fiscal deficit. The highest mean value of 80.463 was found in the interest payment which means that interest payment is considered to be a highly determining and strong factor of foreign exchange reserve as well as an economic indicator. Followed by gross fiscal deficit with the mean value of 53.522 and government debt with a mean value of 20.327 certify that they are also highly determining factor as per foreign exchange reserve. the highest standard deviation is found in money supply which confirms that they are highly volatile and the lowest standard deviation is found in the current account balance with the value 1.324 which means that it is low volatile.

There is a positive skewness except for the current account balance and government debt which indicates a longer right tail towards the right and longer tail towards the left in case of current account and government debt. The kurtosis of 9.644 is found in interest payment which is above 3 indicates that they longer than a normal distribution. And kurtosis of other determinants is below 3 which means they are platykurtic which means they have a lower tail than a normal distribution.

1.2 Analysis of Relationship between Determinants Factors of Foreign Exchange Reserve in India for the period 2009-2019

H₀= There is no significant relationship between determinants and Foreign Exchange Reserve

Table 1.2

Correlations						
FER	FER	IP	CA	GD	MS	GFD
	1					
IP	.545	1				
CA	.597	.295	1			
GD	.850**	.360	.615*	1		

MS	.983**	.495	.555	.860**	1	
GFD	.938**	.431	.403	.736**	.918**	1

Correlation Matrix for the Determinants Factor of Foreign Exchange Reserve in India

Source: compiled and computed from secondary data through SPSS

Table 1.2 exhibits the correlation matrix of the determinants of foreign exchange reserve. the strength of association between foreign exchange reserve and money supply is very high with .983 and the association between foreign exchange reserve and gross fiscal deficit is also high with .938. It is found that there is a high positive correlation among foreign exchange reserves with money supply and gross fiscal deficit. Followed by that foreign exchange reserve and government debt also have a high positive correlation with .850, which means an increase in government debt will affect the foreign exchange reserve. Determinants like gross fiscal deficit are highly positively correlated along with .918, money supply and government debt have highly correlated with .860 The analysis reveals that determinant factors influence the foreign exchange reserve to a great extent.

1.3 Regression Analysis on Determinant Factors of Foreign Exchange Reserve in India for the period 2009-2019

Table 1.3

Model	R	R Square	Adjusted R Square	Std. An error of the Estimate	Durbin-Watson
1	.997 ^a	.993	.985	70566.25270	2.586

Model summary of determinants of foreign exchange reserve in India

Source: compiled and computed from secondary data through SPSS

Table 1.3 depicts the model summary for the impact of determinant factors on foreign exchange reserves. Foreign exchange reserve is the dependent variable and, R=.997 Which means that there is a very strong relationship. R-square is .993 indicating that 99.3 percent of performance variation is accounted for the combined linear impact of independent variables. The adjusted R square is .985, implying that the model has accounted for 98.5 percent of the variance in the criterion variable. The value of Durbin-Watson statistics is 2.586 represents that the model is suffering from autocorrelation.

H₀: There is no significant effect of determinant factors on Foreign Exchange Reserve

Table 1.4 ANOVA of Determinants Factors on Foreign Exchange Reserve

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.011	5	6.022	120.936	.000 ^b
	Residual	1.991	4	4.979		

Total	3.030	9			
a. Dependent Variable: FER					
b. Predictors: (Constant), GFD, CURAC, INTPAY, GOVTDDEBT, MONEYSUP					

Source: compiled and computed from secondary data through SPSS

Table 1.4 discloses the ANOVA for the foreign exchange reserve and its factors determining the growth of foreign exchange reserve. The significant value for the above model is less than 0.05 which considers foreign exchange reserve as the dependent variable and other factors as an independent variable such as the gross fiscal deficit, current account balance, interest payment, government debt, and money supply. Hence, the null hypothesis is rejected. It is concluded that there is a significant effect of determinants factors on foreign exchange reserve.

Table 1.5 Coefficients of Effects of Determinants Factors on Foreign Exchange Reserve

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
constant	3.795	2.235		1.698	.165
P	2.563	.000	.070	1.483	.212
CA	3.982	2.326	.092	1.712	.162
GovtDebt	.022	.033	.053	.672	.539
MS	.146	.024	.825	5.982	.004
GFD	.337	.788	.045	.427	.691

a. Dependent Variable: FER
Source: compiled and computed from secondary data through SPSS

Table 1.5 above shows the coefficients for the impact of determinants factors on foreign exchange reserve. It implies that the money supply is significant at a 5 percent significance level. Other factors such as interest payment, current account balance, government debt, and gross fiscal deficit do not have a significant relationship with foreign exchange reserves. This means that the independent factors are found to be negatively related to foreign exchange reserves. Beta value shows that determinant factors such as interest payment, current account, government debt, and the gross fiscal deficit affect the foreign exchange reserve. money supply influences the foreign exchange reserve.

V. FINDINGS AND SUGGESTIONS

- Money supply, Gross Fiscal Deficit have positive relationship with foreign exchange.
- Money supply has positive relationship government debt and Gross Fiscal Deficit.
- It is identified that there is a high positive relationship between foreign exchange reserve and determinant factors.
- The significant value concludes that there is a significant effect of determinant factors on foreign exchange reserves.

- Expect money supply, gross fiscal deficit, and government debt to have a negative relationship with foreign exchange reserve.

VI. CONCLUSION

The foreign exchange reserves are a must for maintaining standards and liquidity position in the global market and to stand against in case of the financial crisis is a reserve backbone for not only India but for all the member countries of the international monetary fund. It is absolutely clear from the Analysis that determinants play a vital role in the increase or decrease of the reserve. Even though determinants have a relationship with forex, its impact forms to be vice versa in accordance with certain determinants factors. Although a foreign exchange may be perplexed, in today's global market place, there is a critical need for almost everyone to understand foreign exchange like never before. It can be concluded that even determinants factors are those that determine the performance and growth of forex in India, it is found that they have a direct relationship with forex but it impacts at a different phase which has no direct effect of those on the growth or rise of the forex over the time period. And these factors are considered for the overall economic development of the country.

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