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A Study On The Relationship Between India's Foreign Exchange Reserves And Its Inflation Rate

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Abstract:

Foreign exchange reserves are the reserves held by a country's central bank in the form of foreign currencies mostly US Dollar and other assets while inflation rate is defined as the average increase in the price level of goods and services over a specific period and is determined in terms of percentage. The present study aims at examining the relationship between India's foreign exchange reserves and its inflation rate. The study is based entirely on secondary data. The data required for the study has been collected from the official website of the World Bank and the Reserve Bank of India. The monthly data of the foreign exchange reserves is collected, which is represented in US million dollars. Further, the monthly data of inflation rate based on percentage is also collected. The study covers a period of ten years i.e. April 2014 to March 2024. To analyse the data, the Pearson's correlation coefficient tool has been adopted. The study reveals that a significant negative correlation has been observed between the foreign exchange reserves and the inflation rate in India during the study period. This study would be helpful to the policymakers to make decisions so as to maintain the foreign exchange reserves and the inflation rate.

Key Words: Foreign Exchange Reserves, Inflation, India, Foreign Currency

Introduction:

Inflation rate is defined as the average increase in the price level of goods and services over a specific period and is determined in terms of percentage. A country faces higher inflation due to several reasons including depreciation in the value of the domestic currency, higher production costs, higher demand for goods and services, changes in the monetary policy etc. A stable inflation rate in the country boosts both the domestic as well as foreign investors' confidence which is very crucial for the overall growth and development of the country. Further, a stable inflation rate is very important for a nation to maintain its purchasing power and reduce uncertainties and economic shocks (Lin and Wang, 2009).

Foreign exchange reserves are the reserves held by a country's central bank in the form of foreign currencies mostly US Dollar and other assets (Arunachalam, 2010. In order to accumulate adequate reserves, it is essential to increase exports, encourage foreign investment, develop tourism sector, encourage foreign grants etc. Holding sufficient foreign exchange reserves is very important to make timely payments of dues and to prevent any financial crisis (Bhatia and Kishor, 2013). It is often believed that during economic downturns, foreign exchange reserves protect the country by acting as the lender of the last resort (Arslan and Cantu, 2019).

In 1991, India faced a major financial crisis popularly known as the Balance of Payment crisis. This crisis took place due to default in the payments of dues as there was a shortage of foreign exchange reserves. Thus, after the crisis, the government of India introduced economic reforms and opened the country for foreign investment thereby increasing its foreign exchange reserves (Arunachalam, 2010).

Understanding the relationship between foreign exchange reserves and the inflation rate is very crucial for the economic stability of the country. Different economies may have different types of relationships between the two variables. A country with high foreign exchange reserves may have a lower inflation rate due to increased investors' confidence thereby making the currency stronger. Conversely, another country having high foreign exchange reserves may have a high inflation rate due to increased money supply. So, the present study is an attempt to examine the relationship between the foreign exchange reserves and the inflation rate in India (Lin and Wang, 2009; Aryasinghe and Cooray, 2019).

Objective of the Study:

The objective of the study is to examine the relationship between India's foreign exchange reserves and its inflation rate.

Hypothesis of the Study:

Based on the objective of the study the following hypothesis is set:

H_0: There is no significant relationship between the foreign exchange reserves and the inflation rate in India.

H_1: There is a significant relationship between the foreign exchange reserves and the inflation rate in India.

Review of Literature:

Du, et al. (2018) identified the merits and demerits associated with the high growth of foreign exchange reserves in an economy. The study stated that high foreign exchange reserve help in strengthening the economy by maintaining proper balance of payment and by providing the opportunity to intervene in the exchange rates decision. The study also revealed that increased foreign exchange reserves increases the opportunity costs and other holding costs and also increases the risk of inflation in the nation. Arslan and Cantu (2019) examined the factors that influences the holdings of foreign exchange reserves. The study also focused on estimating the costs involved in maintaining foreign exchange reserves. The study stated that the countries holding more reserves has suffered less during the period of crisis as compared to those holding lower reserves. Lin and Wang conducted a study to understand the relationship between the foreign exchange reserves and inflation of five East Asian economies including Japan, Hong Kong, Korea, Singapore and Taiwan. The findings of the study revealed that the inflation rate and foreign exchange reserves were positively correlated for two economies i.e. Korea and Taiwan whereas negatively correlated for the economy of Japan. However, for the economies of Hong Kong and Singapore, no correlation has been observed between the two variables. Ariyasinghe and Cooray (2021) studied the relationship between foreign exchange reserves and inflation in Sri Lanka. The study stated that maintaining an adequate amount of foreign exchange reserves is very important to manage inflation effectively and more specifically in developing economies. Viorica and Tatiana (2022) conducted a study to determine the cointegration between the exchange rate and foreign exchange reserves of Moldova. The study used the Johansen

Cointegration test to measure the relationship between the two variables. The study found that a long-term strong relationship exists between the foreign exchange reserves of Moldova and the Moldovan exchange rates.

After going through the available literature, the researcher could not find any study that examines the relationship between foreign exchange reserves and the inflation rate in the Indian Economy. So, the present study is an honest attempt to fulfill the research gap.

Methodology:

The study is descriptive in nature. The study is based entirely on secondary data. The data required for the study has been collected from the official website of the World Bank and the Reserve Bank of India. The monthly data of the foreign exchange reserves is collected, which is represented in US million dollars. Further, the monthly data of inflation rate based on percentage is also collected. The study covers a period of ten years i.e. April 2014 to March 2024.

To analyse the data, the Pearson's correlation coefficient has been used. The data has been analyzed through Microsoft Excel and through SPSS. Correlation coefficient is an important tool that determines the degree of relationship between two variables. It either shows positive, negative or zero correlation. A positive correlation is one where the value of correlation coefficient is between 0 and +1 and it depicts that both the variables move in the same direction. A negative correlation is one where the value of correlation coefficient is between 0 and -1 and it indicates that both the variables move in the opposite direction showing an inverse relationship and a zero correlation value shows no relationship between the variables. The mathematical representation of the Pearson's correlation coefficient is shown as below:

$$R= n(\Sigma XY) - (\Sigma X).(\Sigma Y) / \sqrt{n(\Sigma X^2) - (\Sigma X)^2}\ \sqrt{n(\Sigma Y^2) - (\Sigma Y)^2}$$

where,

n = Number of observations

x = Measures of Variable 1

y = Measures of Variable 2

Σxy = Sum of the product of respective variable measures

Σx= Sum of the measures of Variable 1

Σy = Sum of the measures of Variable 2

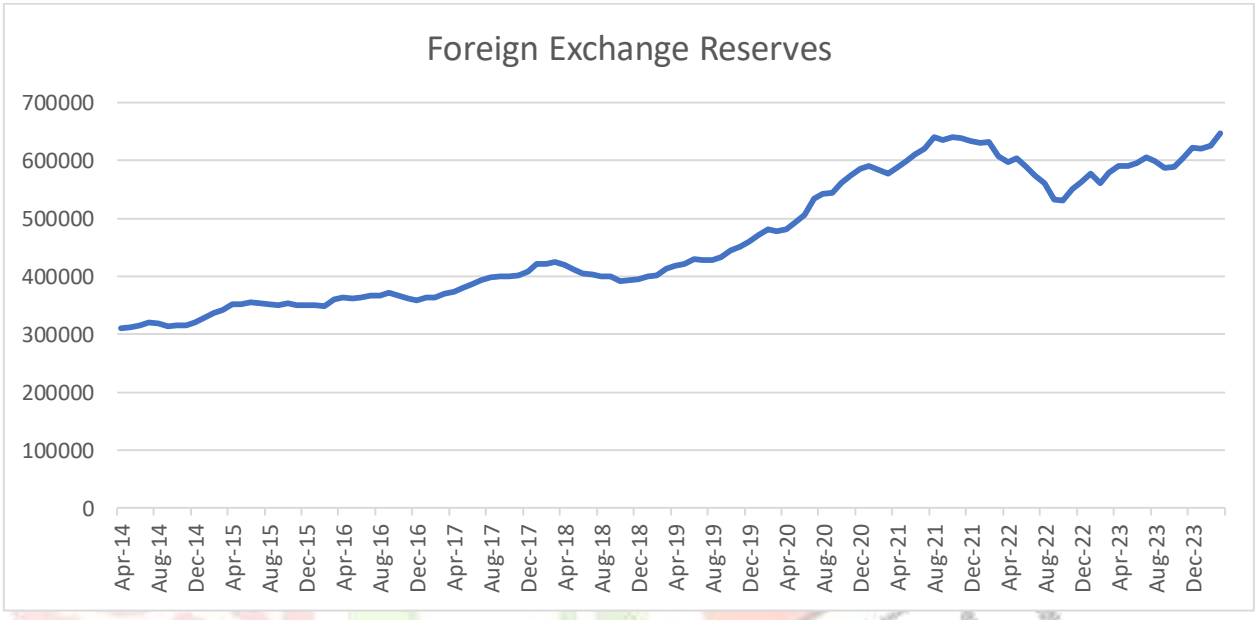
Σx^2 = Sum of squared values of the measures of Variable 1

Σy^2 = Sum of squared values of the measures of Variable 2

Data Analysis and Findings:

Figure 1:

Monthly Foreign Exchange Reserves of India during April 2014-March 2024

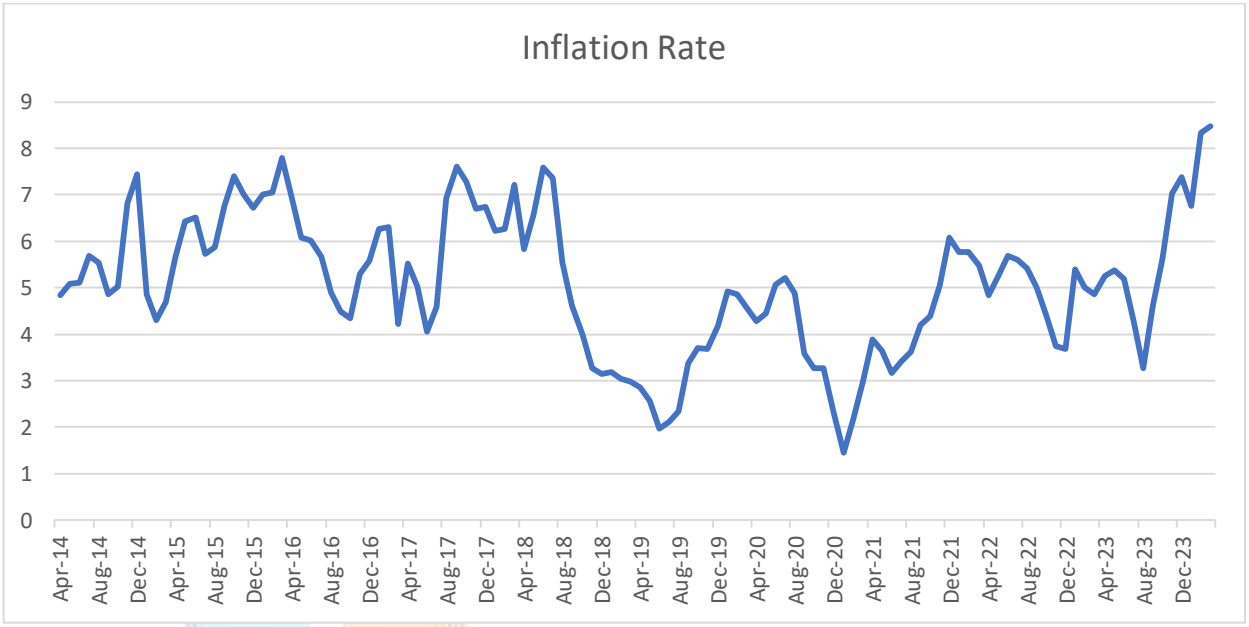


Source: Computed through Microsoft Excel

Figure 1 shows the graphical representation of the monthly foreign exchange reserves of India during April 2014-March 2024. It has been observed from the figure that, the monthly data on foreign exchange reserves shows an upward trend over a period of time. However, minor fluctuations have also been observed.

Figure 2:

Monthly Inflation Rates of India during April 2014-March 2024



Source: Computed through Microsoft Excel

Figure 2 shows the graphical representation of the monthly inflation rate of India during April 2014-March 2024. It has been observed from the figure that, the monthly data on inflation rate shows no trend over a period of time. Moreover, high fluctuations have been observed in the inflation rate.

Table 1:

Correlation between the monthly Foreign Exchange Reserves and Inflation rate of India

		FER	INFLATION
FER	Pearson Correlation	1	-.218
	Sig. (2-tailed)		**.017**
	N	120	120
INFLATION	Pearson Correlation	-.218	1
	Sig. (2-tailed)	**.017**	
	N	120	120

Source: Computed through SPSS

Table 1 shows the result of the Pearson's Correlation Coefficient adopted to measure the correlation between the monthly foreign exchange reserves and inflation rate of India during April 2014-March 2024. It has been observed from the table that, that a significant negative correlation has been found between the foreign exchange reserves and the inflation rate in India during the study period as the significance value is 0.017 which is less than the critical value of 0.05 at 5% significance value. This depicts that if foreign exchange reserves increase, the inflation rate decreases and vice-versa.

Conclusion:

The present study assessed the relationship between the foreign exchange reserves and the inflation rate in India through the Pearson's correlation coefficient. The study reveals that a significant negative correlation has been observed between the foreign exchange reserves and the inflation rate in India during the study period. This depicts that if foreign exchange reserves increase, the inflation rate decreases and vice-versa. Thus, it is very essential for a country to accumulate adequate foreign exchange reserves to maintain the stability of inflation rates and to boost the overall economic growth. This study would be helpful to the policymakers to make decisions so as to maintain the foreign exchange reserves and the inflation rate. The study also has implications for domestic as well as foreign ivestors', researchers, economists etc.

This study measures only the relationship between the foreign exchange reserves and the inflation rate in India. Further, more comprehensive studies may be carried out taking into consideration several economies. Moreover, studies may also be carried out to understand the underlying reasons behind the inverse relationship between the two variables.

References:

Ariyasinghe, A. and Cooray, N.S. (2021). The Nexus of Foreign Reserves, Exchange Rate and Inflation: Recent Empirical Evidence from Sri Lanka. South Asia Economic Journal.1–44. 10.1177/1391561420987106

Arslan, Y. and Cantu, C. (2019). The Size of Foreign Exchange Reserves. *Bank for International Settlements Paper No. 104a*, https://ssrn.com/abstract=3497858

Arunachalam, P. (2010). Foreign Exchange Reserves in India and China. *African Journal of Marketing Management*, 2(4).

Bhatia, A. and Kishor, N. (2013). Impact of FII Investments on Stock Market Volatility and Foreign Exchange Reserves: The Indian Experience, *Transnational Corporations Review*, 5(3).

Du, S., Lin, X. and Han, X. (2018). Advantages and Disadvantages of Continued Growth in Foreign Exchange Reserves. *Financial Statistical Journal*

Fukuda, S., and Y. Kon. (2010). Macroeconomic Impacts of Foreign Exchange Reserve Accumulation: Theory and International Evidence. *Asian Development Bank Institute Working Paper 197*. Retrieved from http://www.adbi.org/workingpaper/2010/02/19/3515.macroeconomic.impact.forex.reserve.accumulation/.

Lin, M.Y. and Wang, J.S. (2009). Foreign Exchange Reserves and Inflation: An Empirical Study of Five East Asian Economies. *The Empirical Economics Letters, 8*(5). 487-493. https://www.researchgate.net/publication/228859952

Lopotenco Viorica, Dziubetcaia Tatiana. (2022) Relationship Between Exchange Rate and Foreign Exchange Reserves. *International Journal of Innovative Technologies in Economy.* 4(40).10.31435/rsglobal_ijite/30122022/7925