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RESEARCH ARTICLE

THE IMPACT OF US INTEREST RATES OF THE INDIAN SECTORAL INDICES

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Abstract

The study explores the influence of fluctuations in U.S. interest rates on some crucial economic indicators in India and provides evidence of the ever-deepening interconnectivity of global economies. Analyzing data from 2000 to 2023, the study utilizes regression techniques to assess how it affects Indian inflation, repo rates, GDP growth, stock market indices, and fiscal deficits. According to the results, variations in U.S. interest rates have a strong impact on Indian inflation and repo rates. Higher U.S rates push capital out of the country, weaken the rupee, and increase borrowing costs; lower rates attract inflows, boost liquidity, and consumption.There was a negative correlation between the U.S. rates and Indian GDP and stock market performance, though not always statistically significant. The rate cuts of the U.S during global crises have lowered the borrowing costs of India thereby aiding fiscal stability. RBI aligns policies with trends in the global arena in order to stabilize markets and to attract foreign investments.This comprehensive review will detail complex implications of U.S. monetary policies on the Indian economy, providing policymakers and investors with vital insights into risks and opportunities.

Introduction:-

The global economy is now highly interdependent, meaning that the monetary systems, trade relations, and regulatory policies of one country often influence others. The United States, being the world's leading economy, has a pivotal influence on the global financial trend, especially through monetary policy measures adopted in the country. Changes in the interest rates of the United States, primarily decided by the Federal Reserve, have far-reaching implications for economies across the world. For India, identified by a rapidly growing and globally integrated economy, changes hold potential to affect the internal financial markets, economic equilibrium, and growth paths. This paper examines the impact of changes in U.S. interest rates on Indian sectoral indices, but also keeping in mind crucial macroeconomic factors, such as repo rate, inflation rate, GDP growth rate, and fiscal deficit.

US interest rates are considered a benchmark for global financial markets as they affect capital flows, foreign exchange, and foreign trade. The rate movements can be very significant in terms of cost of capital, foreign investment, and domestic economic conditions in India. Hence, policymakers, investors, and economists need to know these relationships to anticipate and leverage opportunities arising from global financial trends.

This paper investigates the link between US interest rate variances and the repo rate in India as used by RBI to control liquidity and inflation. As the central banks have integrated more into a global system, they respond to extraneous shocks or contain financial instability by following external influences on their monetary policies. And

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therefore, this paper aims at examining whether RBI monetary policy decisions are endogenous to external influences or exogenous to internal factors.

It examines the disruptions in US interest rates and their effects on the rate of inflation reactivity of India with regard to capital flow, changes in the exchange rate, and changes in import prices will also be conducted. As the US monetary policy might alter the import expenditures or act as a trigger for changes in foreign investments which may influence the path of inflation in India, such knowledge would enable policymakers to better predict the external economic shocks that may bring an inflationary bias over domestic conditions.

It discusses the impact of interest rates of the US on India's growth in GDP, which is one of the benchmarks that measure an economy. Interest rates in the US succumb to FDI and portfolio inflows into India, influencing the growth of infrastructure and industries. The upward trends of interest rates in the US would slow down economic growth in countries like India if the countries are sending outward capital flows. Conversely, lower US interest rates create favorable conditions for capital inflows, thereby increasing GDP growth.

Lastly, the study analyzes the linkages between US interest rates and the Indian fiscal deficit. A large share of India's fiscal deficit is financed through borrowing, making it sensitive to changes in international borrowing cost. Higher US interest rates are likely to increase the borrowing cost of India, which increases India's fiscal deficit further and leaves less resources for the developmental activities.

Sectoral indices of India develop a structure reflecting various industries. This can be used as a foundation to analyze the very wide-ranging economic effects of US monetary policy. Indices for banking, manufacturing, technology, and infrastructure show the presence of macroeconomic variables such as inflation and gross domestic product and modifications in fiscal policy. This paper attempts to find complex effects that owe their origin to the changes in US interest rates through the analysis of sectoral indices.

Global economies' interconnectivity has made it not only vital but also necessary to understand the spillover effects of United States monetary policy on India. The present study aims to fill the identified knowledge gap by providing a comprehensive study of the impact of changes in US interest rates upon various Indian economic indicators. The findings of this study could significantly benefit governments, investors, and researchers in deciding future policies on how to minimize risk and seize opportunities arising in those markets.

Literature Review:-

Maria Eleftheriou and Georgios P. Kouretas (2022) have evaluated the monetary policy rules and inflation control in the economy of the United States. They stated that the long-term target path of the American interest rate was comparable to the Taylor rule. The decrease in the policy rate had a positive impact on lowering inflation. Dornbusch (1976) highlighted that monetary expansion results in currency depreciation and the structural parameters of the model determines the magnitude and the duration of overshoot. Shaobo Long et al (2022) studied the interest rate difference and economic policy uncertainty under different exchange rates between China and the United States economy and have found the asymmetric relationship. Research of Tatjana Dahlhaus and Garima Vasishtha (2020), revealed that the impact of US monetary policy news shocks may be asymmetrical across countries. Kang J (2023) explores the impact of the Fed's interest rate on the exchange market and capital market. The study reveals that the increase in the rate reflects the Fed's confidence in the US economy. It also signifies the commitment to stabilise the inflation and employment level.

Literature Gap:-

From the surveyed literature, no such study has been found on the impact of the US interest rate on the Indian economy. Hence the paper takes up such objectives;

Objectives:-

The paper intends to evaluate the impact of US interest on the

1- Indian Inflation rate
2- Indian Repo rate
3- Indian GDP rate
4- Indian Stock market index rate

5- Indian Fiscal deficit

Methodology- the paper is based on secondary data. The study period is from 2000-2023. Data has been collected from various government official websites. Regression analysis has been done to evaluate the impact. Results have been presented through simple tables.

Result and Analysis-

Objective 1-

The first objective of this paper is to analyse the impact of US interest rate on Indian inflation rate over the last 23 years. This is done by a simple regression analysis. The regression model is as follows-

Equation:

$$y_t = \alpha + \beta_1 X_{1t} + \varepsilon_{it}$$

t = 1, 2, 3…,23

Y_t = Indian Inflation rate

α= slope coefficient

β_1 = Coefficient of variable

X_{1t} = US interest rate

ϵ_{it} = Residual

The model has two hypotheses-

H_0- the impact of US interest rate on Indian inflation rate is statistically significant.

H_1- the impact of US interest rate on Indian inflation rate is not statistically significant.

The analysis is as follows

Regression Statistics	
Multiple R	0.401349354
R Square	0.161081304
Adjusted R Squa	0.122948636
Standard Error	2.376673352
Observations	24

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	23.86090646	23.86090646	4.224233776	0.05191223
Residual	22	124.2686769	5.648576222		
Total	23	148.1295833			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	7.089998926	0.673725114	10.52357821	4.73192E-10	5.692778564	8.487219
Us intrest rate (9	-0.537027812	0.26129001	-2.055294085	0.05191223	-1.07891012	0.004855

Table 1:- Impact of US interest rate on Indian inflation rate (Author's own estimation)

From the above table it is found that the impact of US interest rate on Indian inflation rate is statistically significant at 95% significance level and it is negatively correlated. Hence null hypothesis is accepted. High level of U.S. interest rates attracts worldwide investors looking for better returns. It results in capital outflows from emerging markets like India. This type of outflows weaken the Indian rupee as demand for the dollar increases, making imports more expensive. This study shows that, As Us interest has fallen, Indian assets become more attractive. It leads to capital inflows into India. These inflows have strengthened the Indian rupee. Along with this, they also increase domestic liquidity, which can boost up the level of consumption and investment, resulting in increasing demand-driven inflation.

Objective 2-

The next objective is to analyse the impact of US interest rate on Indian repo rate over the last 23 years. This is done by a simple regression analysis. The regression model is as follows-

Equation:

$$y_t = \alpha + \beta_1 X_{1t} + \varepsilon_{it}$$

t = 1, 2, 3…,23
Y_t = Indian repo rate
α= slope coefficient
β_1 = Coefficient of variable
X_{1t} = US interest rate
ϵ_{it} = Residual
The model has two hypotheses-
H_0- the impact of US interest rate on Indian repo rate is statistically significant.
H_1- the impact of US interest rate on Indian repo rate is not statistically significant.
The analysis is as follows

Regression Statistics	
Multiple R	0.530939
R Square	0.281896
Adjusted R	0.249255
Standard E	1.173057
Observatio	24

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	11.88401	11.88401	8.63623772	0.007597
Residual	22	30.27339	1.376063		
Total	23	42.1574			

	Coefficients	*andard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	5.973996	0.332531	17.96522	1.2388E-14	5.284369	6.663624
Us intrest r	0.378996	0.128965	2.938748	0.00759735	0.111539	0.646454

Table 2:- Impact of US interest rate on Indian repo rate (Author's own estimation).

From the above table it is found that the impact of US interest rate on Indian repo rate is statistically significant at 99% significance level and it is positively correlated. Hence Null hypothesis is accepted. By each day passing, the Indian economy is increasingly getting integrated with global financial markets. Movements in U.S. interest rates influence global liquidity and capital flows. When the U.S. economy lowers interest rates, then the cost for global borrowing decreases. Hence the Reserve Bank of India (RBI) has to align its policy to maintain competitiveness and attract foreign investments. It increases inflows of investments in India. These inflows help to strengthen the rupee, by reducing imported inflation. To prevent excessive rupee appreciation and to stabilise the economy, RBI lowers the repo rate to balance domestic and international monetary conditions. This provides the logical justification for the finding of this section of the paper.

Objective 3-
The next objective is to analyse the impact of US interest rate on Indian GDP rate over the last 23 years. This is done by a simple regression analysis. The regression model is as follows-
Equation:

$$y_t = \alpha + \beta_1 X_{1t} + \varepsilon_{it}$$

t = 1, 2, 3…,23
Y_t = Indian GDP rate
α= slope coefficient

β_1 = Coefficient of variable
X_{1t} = US interest rate
ϵ_{it} = Residual
The model has two hypotheses-
H_0- the impact of US interest rate on Indian GDP rate is statistically significant.
H_1- the impact of US interest rate on Indian GDP rate is not statistically significant.
The analysis is as follows

Regression Statistics	
Multiple R	0.002136
R Square	4.56E-06
Adjusted R	-0.04545
Standard E	3.169279
Observatio	24

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	0.001008	0.001008	0.00010033	0.992098
Residual	22	220.9752	10.04433		
Total	23	220.9763			

	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	6.168744	0.898408	6.866304	6.76176E-07	4.30556	8.031929
Us intrest r	-0.00349	0.348429	-0.01002	0.992098422	-0.72609	0.719107

Table 3:- Impact of US interest rate on Indian GDP rate (Author's own estimation)

It is found that the US interest rate is negatively correlated with the Indian GDP rate. However the impact of the same on Indian GDP rate is not statistically significant. Hence in this case, the paper fails to accept the null hypothesis. The possible reason behind this factor may be the fall in US interest rate has shifted the investors direction to some other emerging markets like the Indian economy. Hence there are huge capital inflows. The higher rate of Capital inflows in terms of FDI FPI increases the GDP growth rate in India.

Objective 4-
The next objective is to analyse the impact of US interest rate on Indian GDP rate over the last 23 years. This is done by a simple regression analysis. The regression model is as follows-
Equation:

$$y_t = \alpha + \beta_1 X_{1t} + \varepsilon_{it}$$

t = 1, 2, 3…,23
Y_t = Indian GDP rate
α= slope coefficient
β_1 = Coefficient of variable
X_{1t} = US interest rate
ϵ_{it} = Residual
The model has two hypotheses-
H_0- the impact of US interest rate on Indian stock market index rate is statistically significant.
H_1- the impact of US interest rate on Indian stock market index rate is not statistically significant.
The analysis is as follows

Regression Statistics	
Multiple R	0.106752
R Square	0.011396
Adjusted R	-0.03354
Standard E	5829.146
Observatio	24

ANOVA

	df	SS	MS	F	Significance F
Regression	1	8617097	8617097	0.253601056	0.61955618
Residual	22	7.48E+08	33978947		
Total	23	7.56E+08			

	Coefficients	andard Erro	t Stat	P-value	Lower 95%	Upper 95%
Intercept	8102.16	1652.411	4.903234	6.66129E-05	4675.2688	11529.05
Us intrest r	-322.726	640.8528	-0.50359	0.619556177	-1651.7732	1006.321

Table 4:- Impact of US interest rate on Indian Stock market index rate (Author's own estimation).

Study shows that US interest is negatively influencing the Indian stock market index (NIFTY) rate though that is not statistically significant. Hence for this case, null hypothesis is rejected. The possible explanations can be given as; US interest rate gets low, global investors seek higher return in other emerging markets like India. Hence there is a surge in the FPI in the Indian economy. As a result, the Indian Stock market improves.

Objective 5-

Lastly the paper studies the impact of US interest rate on Indian fiscal deficit rate over the last 1 decade (Since 2013). The correlation coefficient has been calculated and it showed a positive correlation (0.058) between the two. The correlation coefficient shows, there is no strong relation between these two. The positive correlation may be because of reduction in the cost of borrowing, improving the Indian export sector. Data shows that in the post-2008 global financial crisis era and during the COVID-19 recovery phase, declining U.S. interest rates coincided with the increasing global liquidity and economic growth. It helped India to stabilise its fiscal deficit through higher revenues and reduced borrowing costs.

Conclusion:-

The research demonstrates the considerable impact that fluctuations in U.S. interest rates exert on essential economic indicators within India, emphasizing the increasing interdependence of global economies. Variations in U.S. interest rates have both direct and indirect effects on India's inflation rate, repo rate, GDP growth, stock market activity, and fiscal deficit. Increases in US interest rates are found often with associated capital outflows, declining rupee, and relatively higher cost of borrowings for India with potential inflationary pressures and disturbances to fiscal stability. Reductions in US interest rates come along with capital inflow with increased liquidity supporting higher growth in the economy.

The results indicate that the RBI always follows the global trends in monetary policies, especially in response to the moves of the Federal Reserve. This is important for stabilizing the domestic markets and staying competitive in seeking foreign investments. Furthermore, the study shows the complex relationship between external economic shocks and domestic fiscal management, which portrays how the global monetary policies impact the emerging economies like India.

The present research, based on sectoral indices studies, reveals complex and heterogeneously effects shocks over US interest rates. Present research is very crucial input to policymakers, investors, and scholars for better understanding

these economic changes and preparing strategizing risk reduction with the proper adoption of possible opportunities. It further fills an important lacuna in the literature thus far presented, providing a comprehensive analysis of the impacts of U.S. monetary policy on the economic context of India, thus making subsequent investigations possible in this domain.

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