Project Dissertation Report on

IMPACT OF INFLATION ON EXCHANGE RATE

Submitted By :

Mayank Arora

2K18/MBA/032

Under the Guidance of :

Mr. Mohit Beniwal

Assistant Professor, Delhi School of Management, Delhi Technological University

DELHI SCHOOL OF MANAGEMENT

Delhi Technological University

CERTIFICATE

This is to certify that the Project Dissertation titled "IMPACT OF INFLATION ON EXCHANGE RATE" is an original and bonafide work carried out by Mr. Mayank Arora of MBA 2018-20 batch and was submitted to Delhi School of Management , Delhi Technological Univeristy , Bawana Road , Delhi-110042 in partial requirement of the award of the Degree of Masters of Business Administration.

Signatue of Guide

(Mr. Mohit Beniwal)

Place: Delhi

Signature of HOD (DSM)

(Prof. Rajan Yadav)

DECLARATION

I, Mayank Arora, hereby, declare that this project report, submitted to Delhi School of Management, Delhi Technological University is a record of work done for the requirement of Major Research Project which was part of the curriculum.

_____

Mayank Arora

DSM,DTU

ACKNOWLEDGEMENT

I would like to take this opportunity to express my gratitude to my mentor Mr. Mohit Beniwal (Assistant Professor, DSM, DTU), for their exemplary guidance, valuable feedback and constant encouragement throughout the duration of this project.

He gave me their keen insights and criticisms pertaining to this project. I gained a lot of knowledge under him.

INDEX

EXECUTIVE SUMMARY

Inflation may be defined as rate of rise of prices of goods and services and devaluing of currency of a county . Financial institutions arrange to control inflations and simultaneously being vary of deflation to ensure smooth functioning of the economy. Purchasing power of currency decreases due to inflation.

While inflation has its cons but a deflation could even be as dangerous or worse. During 20th century , those who make policies tried to control inflation and keep it at a rate of1.5-3% per fiscal. The central financial body of Europe - ECFI has many policies to curb deflation . As a result interest rates were in negative at few places Fearing deflation in Eurozone and further hampering of economy. Countries that have a higher growth rate usually have a higher inflation rate as compared to those with slower ones .

A rate of exchange may be defined as the what is our home currency worth in relation to that of a foreign country. Rate at which currencies are exchanged has two parts , the domestic currency and foreign currency. This rate could be defined in both direct and indirect manner. In direct way a foreign currency is defined in terms of our home currency. On the other hand in indirect manner reverse happens.

The study is aimed toward finding and analyzing the link between the rate and rate of exchange between 2 countries in both time frames : long and short.

CHAPTER 1

INTRODUCTION

INTRODUCTION

Inflation

Inflation may be defined as an increase within the price index of products and services rendered in an economy over a period of time. An increase in inflation results in a situation where a unit of currency obtains lesser units than it did before. Consequently, inflation reflects a decrease associated with buying power of cash . The medium of exchange suffers from a real loss in its value. Inflation is measured by inflation rate which is the rate of change in CPI during a specific time period. Comparison with base year gives an idea about the rate.

Inflation has a bearing on economy. It affects it in both positive and negative manner. Negatives include an increasing cost of holding money, lack of clarity over future levels of inflation which can discourage both savings and investment , provided inflation was speedy enough, an acute shortage of products may occur as panic stockpiling may occur out of concern that costs can increase in coming time frame. Positive effects include a decrease in the burden of debt both public and personal , maintaining nominal rate of interest more than zero .This will help the regulayor to alter interest rates for stablisation of economy, and decreasing joblessness because of rigidity in nominal wages.

Effects accrued to inflation:

General effects

Buying power of currency is decreased due to an increase in price index i.e inflation. What this means is asoverall costs rise, every unit of currency buys decreased level of doos than what it did before.

The effect of inflation isn't even equal for all. Some may be at a disadvantage while others are at an advantage.

Negative effects

Adverse impacts on trade due to currency fluctuation as a result of increase in inflation.

Cost push inflation

A higher level of inflation would lead to a demand to increase wages by staff. As per this theory an increase in wages would further increase the rate of inflation. During negotiations, working will demand an increased wage to beat the current level of inflation. Now this may a lead to a wage spiral .

Hoarding

A shortage of sturdy and non perishable items as these are purchased in bulk by public as they seem to be a better investment than holding cash . Thus leads to shortage of such items.

Civil unrest

Inflation may result in civil unrest in the counry. For instance inflation though in this inflation pertaining to food seems to have been the major contributor yo the 2010–11 Tunisian revolution and other such unrest in the continent of Africa. Tunisian leader Zine El Abidine was dethroned from power while , Egyptian President was removed from office with 18 days of unrest.

Hyperinflation

Hyperinflation as the name suggests is the situation where rate of inflation is very high could lead to less spending of money by people thus further worsening the situation. High inflation interferes with the economy and hamper its ability to provide goods and services. Hyperinflation will result in the complete stoppage of the utilization of the domestic currency leading to the adoption of an external currency. This is what happened in Zimbabwe where their currency was replaced by USD.

Allocative potency

Alteration in the patterns of demand and supply in the market signals the producers to alter their resource allocation. However due to inflation there is a constant change in demand and supply trends. Thus , anet decrease in the allocative potency.

Shoe leather price

A rise is seen in the cost of holiding money during high inflation periods. Thus , people may deposit money in higher interest paying bank accounts. However, since money continues to be required so as to hold out transactions this suggests that a lot of "trips to the bank" area are necessary so as to create withdrawals, proverbially sporting out the "shoe leather" with every trip.

Menu costs

During a period when inflation is high , companies have to modify the cost of their products to be at the same pace of change in inflation. Constantly changing the list price involves a considerable investment of time effort and money.

Triggering cycles

As per the the Austrian trade cycle Theory, trade cycles may be a result of inflation. Those who propounded this theory found it to be the most damaging aspect ralted to inflation. by artificial means that lead to low interest rates and will lead to non regulated and speculative borrowing, leading to a lot of poor investments, that will later be liquidated.

Positive effects

Changes in the labour market

Adjustment of nominal wages is a very slow processs. Unemployment and long term disequilibrium in the economy may be caused by this. Inflation leads to a decrease in real wages whereas nominal wages still remain more or less constant. Thus a rate of inflation of moderate level will enable labor markets to reach a state of equilibrium rapidly.

Room to maneuver

Money supply in an economy can be controlled by open market operations by the government , changing the repo rate and reverse repo rates and rate of interest charged by the banks for loans given . During a recession interest rates may be low or even zero . As a result a further reduction in rate of interests is not possible. This situation is known as liquidity trap . Thus, inflation is needed to stop this.

Mundell–Tobin Impact

Nobelist parliamentarian Mundell studied that rate of inflation at a moderate level would force savers to hold money rather than borrowing so they can earn a return which would later finance their future needs. This would lead to fall in real interest rate in the market. As a result more borrowing would be needed to finance investment on account of a decrease in real rate of interest . Similarly Nobelist parliamentarian James Tobin studied that inflation at that rate may divert a business assets investment from tangibles assets like building and factories to cash and cash equivalents . This substitution implies getting a lower rate of return . Combined theory of these two is Mundell-Tobin Impact.

Exchange rate

Echange rate in simple term is the rate at which currency of one country can be changed or is changed for that of the other country. It defines one currency in terms of the other . For instance, a current currency exchange rate of 76INR for a dollar (USD) means a dollar is worth 76 INR and conversely a rupee is worth 76^{th} of a dollar.

Exchange rates are determined by the forces of demand and supply in the foreign market.

Fluctuations in exchange rates

A market-based rate of exchange would change whenever there is change in the value of either currencies . Value of a currency increases if its demand exceeds the supply. Similarly it will lose it value when opposite happens.

An increase in demand could be by increased speculative demand or increased transaction demand . Transaction demand Is derived from the level of business activity, the GDP , and the current employment levels in the country. Public spending is proportional to the level of employment in the countrys. Controlling of money supply is a difficult task for a central bank as there are many businesses who trade daily. These transactions cant be controlled easily.

It is much more difficult to control speculative demand by a central bank . They control such demand by adjusting the interest rate. A currency is brought if the interest rates are high and thus attractive. Thus, a positive correlation is found among currency and the prevailing interest rate of a country. Such a speculation can hamper economic growth since large currency speculators might short the currency putting a edownward pressure on it. Thus forcing a purchase by central bank to keep the currency stable.

How does inflation impact the exchange rate between two currencies?

Inflation rate has a bearing on both : the rate of interest and the currency exchange rate. Though remember that inflation is one amony amny factors that affect a currency's exchange rate.

Inflation has both : a positive and a negative effect. Though it is always a chance that latter is more than the former. Favourable currency exchange rate is not necessarily assured by a very low rate of inflation. ON the other hand a very high inflation rate will have a large bearing on currency exchange rate.

Rate of interest influences inflation which in turn influences the currency exchange rate. Countries focus a lot to balance the two : interest rate and inflation. However the relationship among is of a complex anture and doing such a balance is a very hard task. Demand for currency of a country is increased due to a higher interest rate as these rates attract foreign

investment. But a high interest rate put increasing inflationary pressure on a country . Thus a downward pressure on the economy. Low interest rates help aid consumer expenditure and thus a fiscal growth and positively bear on the currency. However they don't generally invite foreign investment in the contry.

The value and currency exchange rate is determined by the value that is perceived by holding the currency. This perception is influenced by many factors like the functioning of government , outlook of economy and stability of both . However the initial thing that the investors focus on is how safe is it to hold assets – specifically cash assets in the country . If political or economic instrability is associated with a country or an event may occure that may lead to sudden devaluation may lead to investors being cautioust to hold that currency for a long time frame or a substantial amounts of it .

Still there are many factors that influence the exchange rate other than inflation. These factors are rate of economic growth of a country , current state of BOT account and the total debt of a country. Interest rates may be derived from a countrys leading economic indicators. All these have a bearing on exchange rate and change in one leads to fluctuations in it. At a particular time interest rates may be having more importance than the others in determining the exchange rate or other times it could be inflation or debt.

Modern fiat currencies have no value attached to them .Thus exchange rates are relative. Perceived value of a currency vis-à-vis other currencies determine its value. This situation can influence the effect that a factor has on a country's rate of currency exchange. Consdier a country That has rate of inflation that could be in the high category but its value of currency would still be lower than the country with a higher interest rate.

CHAPTER 2

LITERATURE REVIEW

Hossain, akhtar (2005) analyses yearly data of time period from 1954 to 2002 to research whether causative relationship exists among devaluation of currency , rate of growth , rate of interest and general economy of Indonesia . His study found that there was a relation of bidirectional nature that existed between growth in money supply and inflation. Also it was found that inflations causality for many supply growth was far more than in the opposite situation. This agrees with the observation that during a very high rates of inflation feedback occurs leading to more inflation. Relationship among inflation and currency in short term was not strong.

Jean-claude Maswana (2006) uses Granger noncasuality – variant of it to look into the relationship between rate of exchange and steady price increase in DRC. He finds that the Granger relation between inflation and also the charge per unit in short run is bi dietional in nature but only during an extended time farme inflation affects currency rate of exchange without trigerring a feedback effect. All this brings into focus the policies concerning a program to stabilize exchange rate, a short lived fixed-exchange regime that ought to step by step shift towards an additional versatile rate per unit regime within the medium term, and a large vary of business and economics reforms.

Douglason G. Omotor (2008) studies how a change in price affects the currency exchange rate in the nation of Nigeria . He studied and analysed data for the years 1970 to 2003. He used VEC model and slope-dummy methodology to determine how the change in fiscal policy affected the rate of currency exchange. His studies reveal that the fiscal policy regarding the rate of currency exchange has a bearing on the rate of inflation.Findings from the variances in the forecast error affected inflation error rate to a larger extent than the output. Though notice that the findings from slope dummy test show the value of rate reforms on inflation. He suggested that a stable, dynamic and a complementary fiscal policy was needed to control the value of Nigerian currency and to increase the GDP of the country.

Shagufta kashif (2011) provides the empirical proof concerning the association among inflation of a country and its exchange rate using years between 1993-2010 as her time period for her analysis. Her methodology involved using the least square method to work out the long haul relationship. She then concluded in finding a robust negative relation between inflation and rate. it is same that inflation isn't the foremost vital tool to work out the rate within the Pakistani market state of affairs if it's compared with U.S. currency dollar. this implies that if inflation has increasing trend, then it result in a decrease in domestic rate.

Wellington Modesha, Clainos Chidoko and James Zivanomoyo study the movement of rate of currency exchange and of the rate of inflation prevailing during the years of 1980 to 2007. His methodology consisted of Granger Causality to test. He found a long term relationship among currency exchange rate and that of the rate of inflation. Though, It is assumed the these rates are Granger-cause to each other during the study. Appropriate policies can be drawn on the basis off this research given the working of functioning of the currency rate of exchange without hampering the economy.

Ebiringa, Oforgbunam Thaddeus and Anyaogu, Nneka (2014) The association among rate of interest , currency rate of exchange and that of rate of inflation in the long run . They ysed ARDL (autoregressive distributed lag) in their methodology. Maintaining stability of currency exchange rate via adjusting the rate of interest and targeting a rate of inflation are the pillars of this study. This study established a relation among the rate of interest prevailing and the rate of inflation corresponding in both : long and short terms. DO note that a negative relation though a minor one was showed by interest rate . Regulator needs to develop such policies that minimize the movement of inflation rate to avoid uncertainity in the value of currency.

Roshanak Poushideh Nmjour, Mohd Hosan Gholizadeh (2014) studied the movements among currency exchange rate and prevailing the rate of inflation during initial two years of the eighth economic plan. They evaluated and analysed the

association among two variables- the rate of currency exchange and the prevailing rate of inflation at that time using tools like Eview and SPSS .It was found that inflation followed the previous two years . Exchange rate also obeyed previous periods.

Oliver Dwight David Eisenhower Inyiama, micheal Chidiebere Ekwe (2014) studies bot the magnitude and the nature of relation among rate of currency exchange to that to prevailing inflation rate and economics indicators in Federal Republic of Nigeria during the years 1979 and 2010. normal technique|statistical procedure} method within the variety of multiple regressions was methodized to study their association and if it had any impact or not. They also used Granger causality as a part of their methodology. A procedure of co intergatov enature was done to find whether these relationships could stand the test of nature. After conducting a test by using ADF test , it was found that a relatipn does exist among currency rate of exchange and the prevailing rate of inflation at that time. This suggests that a change in the currency exchange rate would affect the prevailing rate of inflation in the country. Alsough they didn't find existence of any causality among the two. Real GDP and the rate of interest also didn't have any vital impact on exchange rate in Federal Republic of Nigeria as disclosed by their working. Though remember that both the above have a negative realtion with the currency rate . Thus, their research suggested that the regulator or the cental financial authority in the Republic of Nigeria needs to formulate such policies that will help control and improve the economic indicators of their country.

Blessing Manddizzha (2014) used the Granger causality check and found out a non expected finding regarding the direction in which variables of cause and effect flowed, during the four years from 2001 – a time where hyperinflation was happening. Thus, after this period was over he cited that the currency rate of exchange varies in both short and long time frames.

ungu Wilson (2014) investigated the connection between the rate of exchange to the rate of interest for Republic of Namibia. He utilized statistic techniques like unit root tests, cointegration take a look at along with variance decomposition.His period of study were

quarter during the time frame of 1992 to 2012. His studied cited that there was no cointergration observed among variables. Findings in this research were to able to sight a transparent defined relationship among rate of interest to that of rate of exchange. Note that decomposition of variance disclosed that the shortcomings within the forecast among the rate of interest and of exchange ar dominated by itself and an insignificant share is additionally attributed to alternative variables.

Emmanuel Pitia Zacharia Lado (2015) utilised Granger methodology to find the connection among rate of exchange and inflation derived CPI in the country of South Sudan using the data on monthly basis from mid 2012 to the end of the year 2014. He found there may be a mono directional association among the rat of exhcnage to CPI provided that feedback doesn't exist. What we may infer is that depreciation in currency of Sudan hampers the economy. Though consider that CPI did not influence the currency rate . This cant be said with sure accuracy. This change could also happen from economic policies adopted by the country. However there was no such policy decision by Sudanes central bank, thus the result of increase in costs due to change in currency exchange rate results burden on marginalized in terms of suffering of groups like shoppers and chiefly the low-income shoppers are hit the hardest. The findings show that monetary authorities have to manage the currency rate of exchange and prevent the depreciation of the foreign currency. He recommends additional analysis to be done . A SWOT of Sudan economy would be helpful to formulate the economic policies in the interest of the country of Sudan .

CHAPTER 3

RESEARCH METHODOLOGY

Objective of the study:

Objectives of the study are :

- To study and analyse the relationship that exists between inflation rate and exchange rates in the short run.
- To study and analyse the relationship that exists between inflation rate and exchange rates in the long run.

The mentioned objective are tested with the help of following hypothesis selected for the study:

H_{01}= There isn't any impact of inflation on the exchange rate in the short run

H_{01}= There isn't any impact of inflation on the exchange rate in the long run

Research Methodology

The timeperiod of study is from January 2006 to December 2019. Data contains monthly inflation rate of India, United States and Great Britain , along with exchange rate between India and United States and India and Great Britain.

The study includes the following tools, namely:

- Statistics (Descriptive):

  Coefficients that help to summarize the data. This data may be of entire population or of a sample from population. Description of data is done by measures of dispersion(variability) and measures of central tendency.

- ADF test

  ADF Test stands for Augmented Dickey–Fuller test. It tests the existence of a unit root in a time series sample. In simple terms it is a modified or advanced version of Dickey-

Fuller test used to analyse a voluminous and more complicated set of time series models. dfuller performs the augmented Dickey–Fuller test that a variable follows a unit-root process. The null hypothesis is that the variable contains a unit root, and the alternative is that the variable was generated by a stationary process.

- Correlation Analysis

  Correlation analysis measures the relationship between two items, for example, a security's price and an indicator. The resulting value shows if changes in one item will result in changes in the other item. When comparing the correlation between two items, one item is called the "dependent" item and the other the "independent" item. The goal is to see if a change in the independent item will result in a change in the dependent item. This information helps one understand an indicator's predictive abilities.

- VAR Granger Causality

  Granger causality tests are conducted thorugh VAR similar to other causality tests. Granger causality is used to find existence of a correlation among current value of a variable with the previous values of other variables. Though it doesn not imply that change in one variable will cause a change in another.

- Impulse response Function

  The impulse response functions can be used to produce the time path of the dependent variables in the VAR, to shocks from all the explanatory variables. If the system of equations is stable any shock should decline to zero, an unstable system would produce an explosive time path.

CHAPTER 4

DATA ANALYSIS & INFERENCES

INDIA AND UNITED STATES ANALYSIS

Descriptive statistics

	INDIA_INFL...	US_INFLAT...	USD_INR_...
Mean	8.460000	1.965833	62.79283
Median	8.300000	1.950000	58.39000
Maximum	16.20000	5.400000	71.8200
Minimum	4.400000	-2.000000	39.36000
Std. Dev.	2.601467	1.532368	7.882606
Skewness	0.584975	-0.141479	0.482471
Kurtosis	a	2.806305	1.921792
Jarque-Bera	6.885838	0.587912	10.46823
Probability	0.031971	0.745309	0.005332
Sum	1015.200	235.9000	6095.140
Sum Sq. Dev.	805.3480	279.4299	7394.121
Observations	120	120	120

Table 1

Table 1 shows the descriptive statistics of the three variables. The study found that USD INR exchange rate has the maximum value and greater standard deviation as compared to the other two variables. Skewness and kurtosis measures provide insights about the statistical distribution. Skewness is positive for inflation rate of India and rate of exchange between the currencies but negative for US inflation rate. However, kurtosis is positive for all the three variables.

Unit Root Test

At level			At first difference		
Variables	**T Values**	**Probability**	**Variables**	**T Values**	**Probability**
India inflation rate	-2.197265	0.4864	India inflation Rate	-9.740447	0.0000
US inflation rate	-3.173051	0.0950	US inflation Rate	-7.694390	0.0000
USD INR exchange rate	-2.293035	0.4341	USD INR exchange rate	-8.295869	0.0000

Table 2

We know that a lot of time series of financial nature have random walk and have unit root , thus unit root test in the India inflation rate, US inflation rate and USD INR currency rate of exchange is necessary as unit rot exists which may give erroneous inferences during our study. Augmented Dickey-Fuller (ADF) test is shown preference for testing unit root time series.

Table 2 shows the final results obtained after doing a unit root test applied on Indias inflation rate, US inflation rate and USD INR currency rate of exchange series data by doing an ADF test. The findings of our test at series at the level is of a non stationery nature .Though at first difference it becomes stationery . When the probability values become less than 5% as in first difference the series becomes stationery.

Correlation

	INDIA INFL...	US INFLAT...	USD INR ...
INDIA INFL...	1	-0.1720216...	-0.0994320...
US_INFLAT...	-0.1720216...	1	-0.5367710...
USD_INR_...	-0.0994320...	-0.5367710...	1

Table 3

A negative correlation exists among inflation rate of India to that of US (-.172) and between indian rate of inflation and USD INR currency rate of exchange (-.099) and among US rate of inflation and USD INR currency rate of exchange (-.536). This indicates that both the variables move in opposite directions.

Granger causality

Pairwise Granger Causality Tests
Date: 04/15/20 Time:
Sample: 1906N01 Q2378P
Lags: 0

Null Hypothesis:		Obs	F-Statistic	Prob.
US INFLATION RATE	does not Granger Cause INDIA INFLATION RATE	118	0.96721	0.3833
INDIA INFLATION RATE	does not Granger Cause US INFLATION RATE		0.14178	0.8680
USD INR EXCHANGE RATE	does not Granger Cause INDIA INFLATION RATE	118	0.70505	0.4962
INDIA INFLATION RATE	does not Granger Cause USD INR EXCHANGE RATE		2.69799	0.0717
USD INR EXCHANGE RATE	does not Granger Cause US INFLATION RATE	118	6.21952	0.0027
US INFLATION RATE	does not Granger Cause USD INR EXCHANGE RATE		2.90561	0.0588

Table 4

If values are observed to be below 5% then we may reject the null hypothesis and accept the alternative one . Observe that in the first two cases the null hypothesis will be accepted i.e there is no cause and effect relation among US inflation rate and India inflation rate and that among USD INR exchange rate and India inflation rate since the values are more than 5%.

However in the last case, the values are less than 5 %, so there is bi directional association among USD currency rate of exchange and US inflation rate . So we may say USD INR rate of currency exchange affects the US inflation per centage and vice versa in the short run. Thus null hypothesis will be rejected.

Johansen cointegration

Uohansen Cointegration Test of Rank

Hypothesized No. of CE(s)	Value(Eigen)	Trace Statistic	0.05 Critical Value	Prob.**
None *	.244751	37.28064	29.79707	0.0057
At most 1	.042187	4.999245	15.49471	0.8089
At most 2	.000368	0.042383	3.841466	0.8369

Trace test is an indicator of 1 cointegrating eqn(s) at level of 0.05
* denotes hypothesis rejection at 0.05 level

Table 5

We can observe from Table 5 , that trace statistics have p-value less than the critical value in only one case. Thus we may reject the null hypthesis. This means that there is existence of only one cointegration equation among US rate of inflation and US INR currency rate of exchange . So , a long term relation among US rate of inflation and US INR currency rate of exchange .

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized CE(s)	Value(Eigen)	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	.244751	32.28139	21.13162	0.0009
At most 1	.042187	4.956862	14.26460	0.7473
At most 2	.000368	0.042383	3.841466	0.8369

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 6

Eigen values at their peak are observed to have a p-valu less than the critical value in only one case, thus we may dow away with the null hypthesis. What this suggests is existence of only one cointegration equation among US inflation rate and USD INR exchange rate. So , a long term relation among US rate of inflation and US INR currency rate of exchange .

Impulse response function

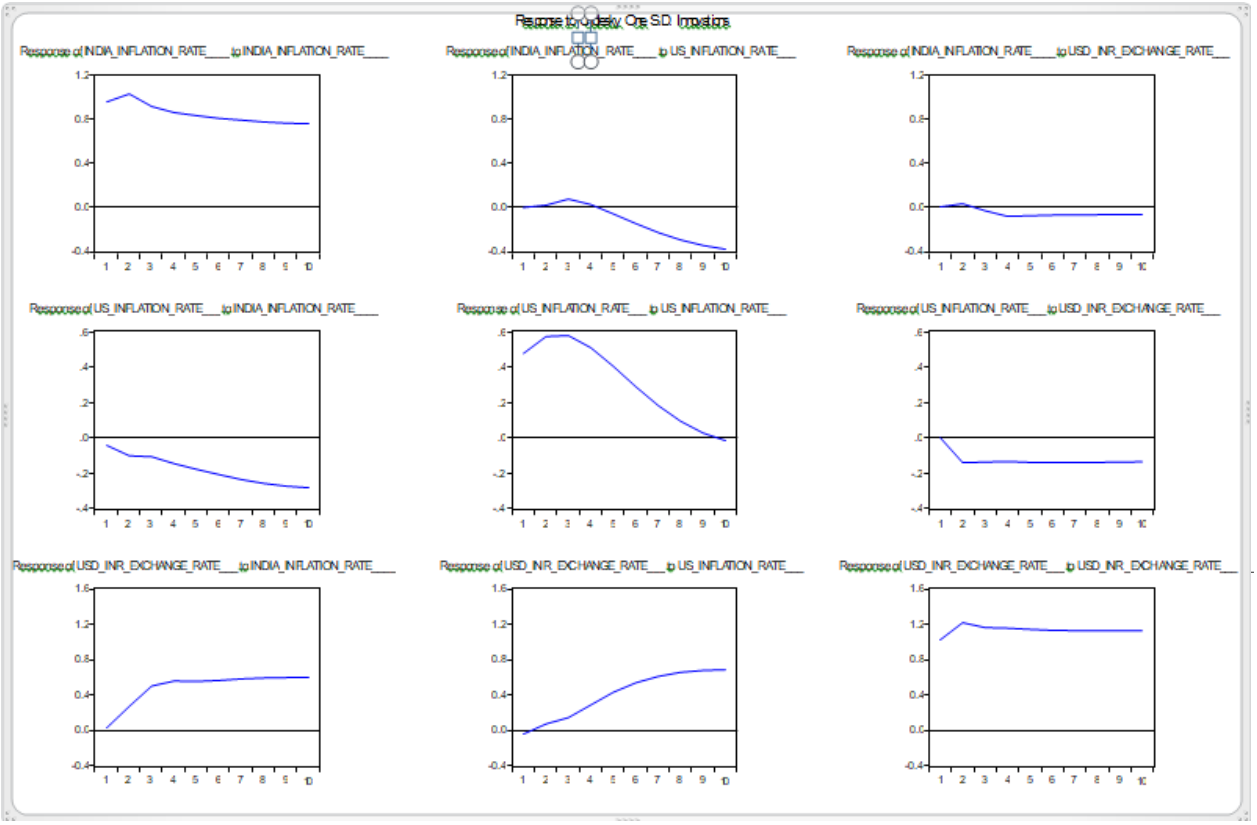


Table 7

This function shows the degree of response of the variable in our system to other variables. Thus a unit shock is used for each error of an endogenous variable and effects are studied over time. Theese figures show the pairwise impulse response of relations among the Indian rate of inflation, US rate of inflation and USD INR currency rate of exchange.

INDIA & GREAT BRITAIN ANALYSIS

Descriptive statistics

	GBP_INR_E...	GREAT_BRI...	INDIA_INFL...
Mean	84.21167	2.517500	8.460000
Median	82.39000	2.550000	8.300000
Maximum	102.9100	5.300000	16.20000
Minimum	67.14000	-0.100000	4.400000
Std. Dev.	10.10427	1.243312	2.601467
Skewness	0.398789	-0.173190	0.584975
Kurtosis	2.060842	2.981768	2.908428
Jarque-Bera	7.590746	0.601559	6.885838
Probability	0.022475	0.740241	0.031971
Sum	10105.40	302.1000	1015.200
Sum Sq. Dev.	12149.45	183.9532	805.3480
Observations	120	120	120

Table 8

Table 8 shows the descriptive statistics of the three variables. The study found that GBP INR exchange rate has the maximum value and greater standard deviation as compared to the other two variables. Skewness and kurtosis measures provide insights about the statistical distribution. Skewness is positive for India inflation rate and GBP INR exchange rate but negative for Great Britain inflation rate. However, kurtosis is positive for all the three variables.

Unit root tests

Level			First difference		
Variables	**t-values**	**Probability**	**Variables**	**t-values**	**Probability**
India inflation Rate	-2.1973	0.4864	India inflation rate	-9.7404	0
Great Britain Inflation rate	-2.4518	0.3514	Great Britain Inflation rate	-5.543	0
GBP INR Exchange rate	-1.4457	0.8423	GBP INR Exchange rate	-9.3003	0

Table 9

We know that a lot of time series of financial nature have random walk and have unit root, hence a test of the India inflation rate for unit root, Great Britain inflation rate and GBP INR currency rate of exchange seems vital as there is a chance of non valid analysis as unit root is there. ADF test series is generally used to test a time series pertaining to unit root.

The above table shows the final results obtained after doing a unit root test applied on Indias inflation rate, Britain inflation rate and GBP INR currency rate of exchange series data by doing an ADF test. Remember that readings of this test at current level are of a non-stationary nature.Though at first difference it becomes stationery . When the probability values become less than 5% as in first difference the series becomes stationery.

Correlation

	GBP_INR_E...	GREAT_BRI...	INDIA_INFL...
GBP INR E...	1	-0.6451778...	-0.4250187...
GREAT BRI...	-0.6451778...	1	0.42516211...
INDIA_INFL...	-0.4250187...	0.42516211...	1

Table 10

A negative correlation exists inflation rate of India with the GBP INR rate of exchange (-0.425) and between Britains rate of inflation and GBP INR currency rate of exchange (-.645). This is an indicator of opposite movement of both the variables.

Note that a positive correlation is found between India's rate of inflation and that of Britain's' (0.4251). This indicates that both the variables move in same direction.

Granger causality

Pairwise Granger Causality Tests
Date: 04/15/2020 Time:
Sample: 2006M01 2019M12
Lags: 2

Hypothesis(Null):		Obs	F-Statistic	Prob.
GREAT BRITAIN INFLATION	does not Granger Cause GBP INR EXCHANGE RATE	118	3.97169	0.0215
GBP INR EXCHANGE RATE	does not Granger Cause GREAT BRITAIN INFLATION		2.93340	0.0573
INDIA INFLATION RATE	does not Granger Cause GBP INR EXCHANGE RATE	118	0.66599	0.5158
GBP INR EXCHANGE RATE	does not Granger Cause INDIA INFLATION RATE		2.01834	0.1376
INDIA INFLATION RATE	does not Granger Cause GREAT BRITAIN INFLATION	118	1.40132	0.2505
GREAT BRITAIN INFLATION	does not Granger Cause INDIA INFLATION RATE		0.66308	0.5173

For values below 5% we will reject the null hypothesis and select the alternative one . We will reject the null hypothesis in the first case and conclude about existence of a cause and effect relation among Great Britain inflation rate and GBP INR exchange rate since the values are less than 5%. Thus a short term relation is found among the two .

See that in our last tw cases values are more than 5% . So we accept the null hypothesis. Thus, there is no cause ando effect relationship among Indian rate of inflation and GBP INR currency exchange rate and Indian rate of inflation and Great Britain rate of inflation.

Johansen cointegration

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.113185	22.08528	29.79707	0.2938
At most 1	0.055402	8.271563	15.49471	0.4368
At most 2	0.014820	1.717052	3.841466	0.1901

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

Table 12

We can see that in Table 12 , the p_value of trace statistics exceeds the critical value in whole of our observations.Thus accept the null hypthesis.This is an indicator of no existence of a cointegration equation among the variables. Thus, we can say that there sint any long term relation among the variables.

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.113185	13.81372	21.13162	0.3805
At most 1	0.055402	6.554511	14.26460	0.5431
At most 2	0.014820	1.717052	3.841466	0.1901

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

Table 13

We will accept the null hypothesis as maximum eigen value exceeds the critical value in all the cases. This is an indicator of no existence of a cointegration equation between the variables. Hence no long term relation exists among the variables.

Implulse response function

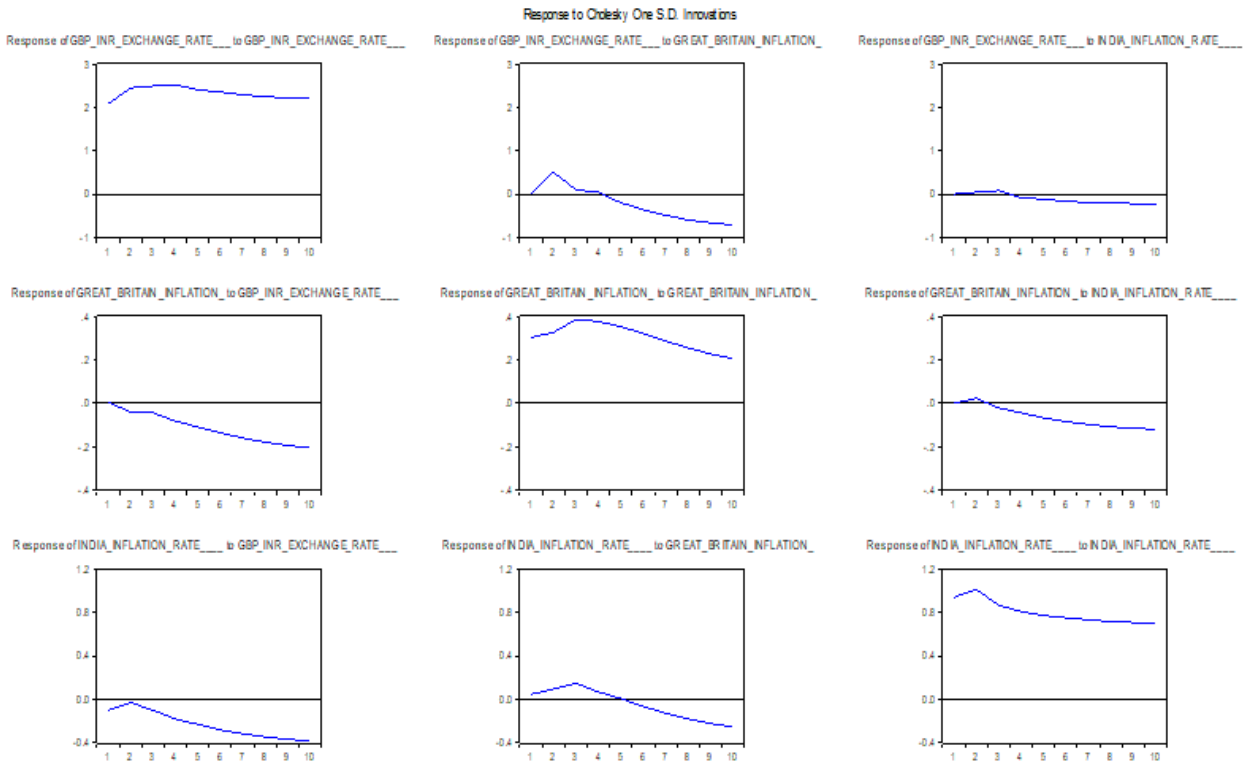


Table 14

This function shows the degree of response of the variable in our system to other variables. Thus a unit shock is used for each error of an endogenous variable and effects are studied over time. Theese figures show the pairwise impulse response of relations among the Indian rate of inflation, Great Britain rate of inflation and GBP INR currency rate of exchange.

CHAPTER 5

FINDINGS

- A negative correlation is found between rate of inflation of India and US(-.172) and between indian rate of inflation and USD INR currency rate of exchange (-0.99) as well as between US rate of inflation and USD INR currency rate of exchange (-.536) which is an indicator of movement in opposite directions of both the variables.
- There exists a bi directional relationship among USD currency exchange rate and US rate of inflation i.e USD INR currency rate of exchange affects the US inflation rate and vice versa. Thus, there exists a short term relationship between these two variables.
- A long term relation also exists between US rate of inflation and USD currency rate of exchange.
- There exists a negative correlation among GBP INR currency rate of exchange with Great Britains rate of inflation (-.64) and between GBP INR conversion rate and Indian rate of inflation (-0.43) indicating that both the variables move in opposite direction. However a positive correlation is found among Indias' rate of inflation and that of Britain (0.4521)
- There is bi directional relationship between great britain inflation and GBP INR currency rate of exchange but in a short period time. However there isn't a long term relation among the two.

CHAPTER 6

LIMITATIONS, SUGGESTIONS AND CONCLUSION

- In this report impact of inflation on currencies of India , USA and Britain has been analysed. Currencies of other countries were not studied. Also, impact on USD-GBP has not been calculated.

- Date consists of monthly time series. Daily time series data may give a more accurate picture.

- Usage of secondary data might not give true picture of the area concerned.

In simple term we may describe inflation as the general rise in the prices of commodities in an economy given a fixed time frame. A currency's value and its exchange bear the positive and negative effects of inflation with possibility of latter being more.

There exists a relation between rate of inflation and rate of currency exchange. There exists a relation among USD INR currency rate of exchange and US inflation and between GBP INR exchange rate and GB inflation only.

Positive correlation is found between Indian rate of inflation and that of Britain's.

Relationships of both typer: long and short term are found to exist among USD INR currency rate of exchange and US rate of inflation. But only a short term relationship is found among GBP INR international rate of exchange and level of inflation in Britain.

Thus we can conclude that studied variables i.e exchange rate and inflation affect each other. But this may not be true in all the cases of the countries.

REFERENCES

- Hossain, Akhtar (2005)"The Granger-Causality Between Money Growth, Inflation, Currency Devaluation And Economic Growth In Indonesia: 1954-2002." , International Journal of Applied Econometrics and Quantitative Studies Vol.2-3
- Jean-Claude Maswana.(2006) "Granger Non-CausalityTest of the Inflation-Exchange Rate in the Democratic Congo." , RCE-WP03/06-1 Document de Travail/Working Paper WP03/06–December
- Douglason G. Omotor(2008) "Exchange rate reform and its inflationary consequences: the case of Nigeria" , EKONOMSKI PREGLED, 59 (11) 688-716
- Shagufta Kashif (2010)"The Relationship Between Exchange Rate and Inflation in Pakistan"
- Wellington Madesha, Clainos Chidoko and James Zivanomoyo,(2013) "Empirical Test of the Relationship Between Exchange Rate and Inflation in Zimbabwe." , Journal of Economics and Sustainable Development ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online) Vol.4, No.1,
- Ebiringa, Oforegbunam Thaddeus and Anyaogu, Nnneka, B.(2014), "Exchange Rate, Inflation and Interest Rates Relationships: An Autoregressive Distributed Lag Analysis." , Journal of Economics and Development Studies June 2014, Vol. 2, No. 2, pp. 263-279 ISSN: 2334-2382 (Print), 2334-2390 (Online)
- Roshanak Poushideh Namjour, Mohammad Hasan Gholizadeh, & Mohammad Bagher Nobakht Haghighi , .(2014), "Survey the Relationship between Exchange Rates and Inflation Rate in the First Two Years of Fifth Development Plan" , Universal Journal of Management and Social Sciences Vol. 4, No.3; March 2014
- Oliver Ike Inyiama & Michael Chidiebere Ekwe, .(2014), "Exchange Rate and Inflationary Rate: Do They Interact? Evidence from Nigeria", International Journal of Economics and Finance; Vol. 6, No. 3; 2014 ISSN 1916-971XE-ISSN 1916-9728 Published by Canadian Center of Science and Education
- Blessing Mandizha, .(2014), "Inflation And Exchange Rate Depreciation: A Granger Causality Test At The Naissance Of Zimbabwe's Infamous Hyperinflation (2001-2005)" , Economics and Finance Review Vol. 3(09) pp. 22 – 42, July, 2014 ISSN: 2047 – 0401

- Lungu Wilson, .(2014), "The Relationship between Interest Rate and Exchange Rate in Namibia", Journal of Emerging Issues in Economics, Finance and Banking (JEIEFB) An Online International Monthly Journal (ISSN: 2306-367X) 2014 Vol: 3 Issue 1
- Emmanuel Pitia Zacharia Lado,(2015) "Test of relationship between Exchange Rate and Inflation in South Sudan: Granger-Causality Approach". Economics.Vol. 4, No. 2, 2015, pp. 34-40.doi: 10.11648/j.eco.20150402.13
- http://www.inflation.eu
- www.xe.com

Annexure:

Plagiarism Report

File 12e

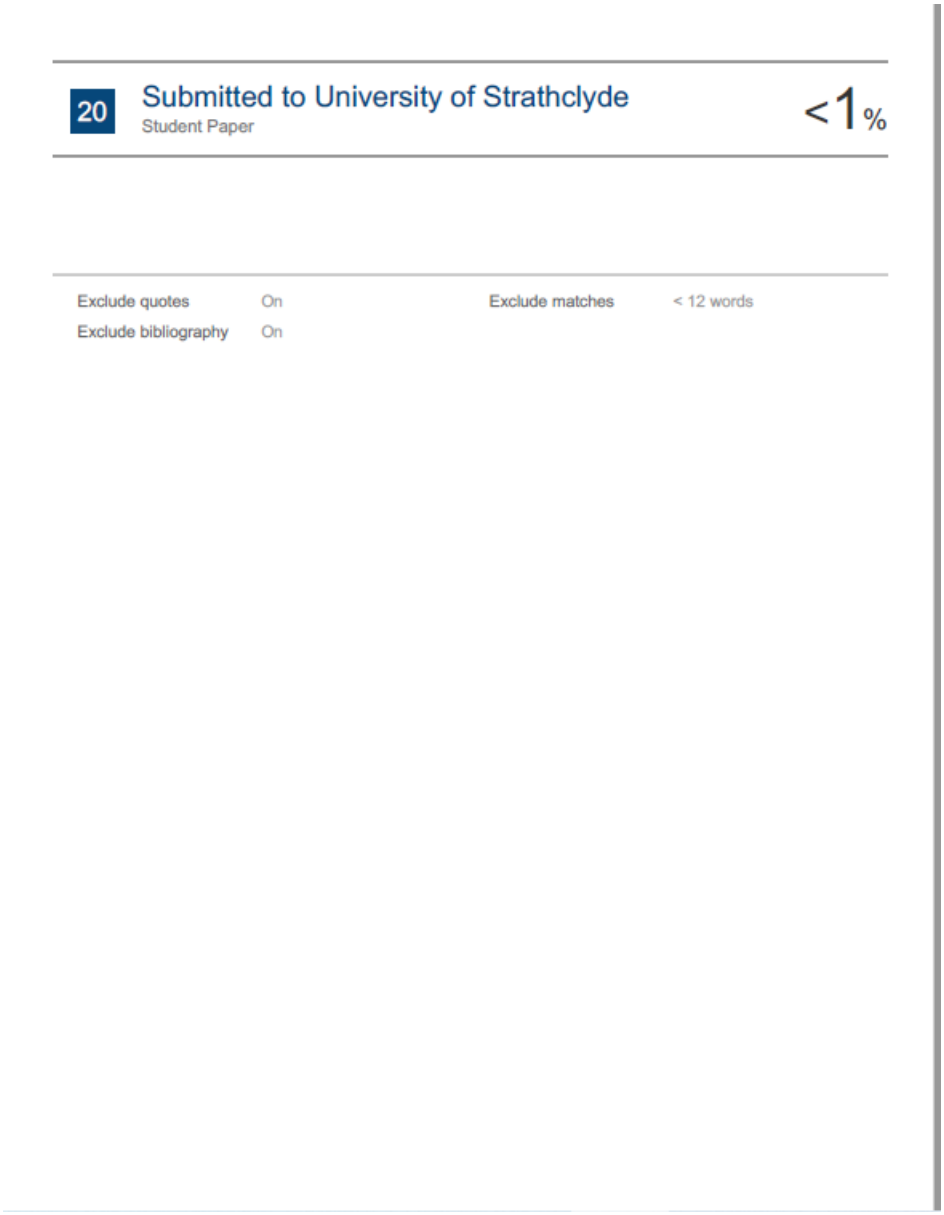
ORIGINALITY REPORT

8%	4%	3%	7%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to University of Wales Swansea Student Paper	1%
2	Submitted to University of Venda Student Paper	1%
3	www.ejemjournal.com Internet Source	1%
4	shodhganga.inflibnet.ac.in Internet Source	1%
5	nrb.org.np Internet Source	<1%
6	Submitted to University of Greenwich Student Paper	<1%
7	Submitted to Loughborough University Student Paper	<1%
8	Submitted to Management Development Institute Student Paper	<1%
9	Inyiama, Oliver Ike, and Michael Chidiebere	

	Ekwe. "Exchange Rate and Inflationary Rate: Do They Interact? Evidence from Nigeria", International Journal of Economics and Finance, 2014. Publication	<1%
10	scihub.org Internet Source	<1%
11	eprints.utar.edu.my Internet Source	<1%
12	Submitted to University of Salford Student Paper	<1%
13	Submitted to Institute of Accountancy Arusha Student Paper	<1%
14	eprints.ru.ac.za Internet Source	<1%
15	Submitted to University of Bristol Student Paper	<1%
16	Submitted to University of Durham Student Paper	<1%
17	Submitted to SIM Global Education Student Paper	<1%
18	Submitted to Eiffel Corporation Student Paper	<1%
19	Submitted to Universiti Teknologi MARA Student Paper	<1%


20
Submitted to University of Strathclyde
Student Paper
<1%
Exclude quotes On
Exclude bibliography On
Exclude matches < 12 words