Determinants of Exchange Rate Movement in Ethiopia

Temesgen Ayenew Birhan
Department of Accounting and finance,
College of Business and Economics, Bahir Dar University

Abstract:- Exchange rate can be defined in different ways but the general definition may be the price of one nation's currency in terms of another currency. The objective of this study was determining factors which contribute for the movement of exchange rate in Ethiopia. Nine years data was taken starting from 2007 up to 2016 which the most updated information. This paper used yearly panel data analysis; the data was collected for 9 years which started from the year 2007 until 2016 were most upto date data. SPSS used as statistical analysis tools. The relation between factors and exchange rate is consistent with theory and it is so difficult to say the exchange rate movement is as a result those major factors. The regression weight result shows that the above factors are not significant to determine the exchange rate. GDP seems that had significant impact for the determination exchange rate, however the correlation matrix evidence that the relation between GDP and exchange rate was positive. This is not support the theoretical relationship between these two variables. Political stability can be taken as the major factors affecting movement of exchange rate.

Keywords:- GDP, Currency, Macroeconomic.

I. INTRODUCTION

The rate at which one currency in one country may be exchanged for other currencies can be called exchange rate. The rate of exchange is incredibly important, because it allows for the conversion of national currency into another, thus it can facilitate international trade for goods and services and therefore the transfer of funds between countries and it also allows comparison of costs of products at the identical in several countries (Abdoh, Yusuf, Zulkifli, Bulot, & Ibrahim, 2016).A rate of exchange is additionally defined because the purchase power of domestic money to foreign currency. The movement of currency can be named on the basis of system either free floating system or fixed rate system. In freely floating system the increment and decreasing of value called appreciation and depreciation respectively. When we come to managed or fixed exchange rate system its increase and decreasing condition can be name as revaluation and devaluation (Lencho, 2013).

Appreciation/revaluation may be occurred within the increment price of a country's currency in terms of foreign currency while depreciation/devaluation could be a fall within the price of a country's currency in terms of foreign currency. Devaluation and depreciation are similar: devaluation is usually used for discrete change within the rate of exchange caused as a matter of policy, whereas

depreciation occurs gradually through the working of the exchange market. Revaluation and appreciation are antonyms for devaluation and depreciation respectively. From these definitions one can easily understand that devaluation/depreciation means a rise in nominal or real rate of exchange while revaluation/appreciation means decrease in nominal or real charge per unit irrespective of how they are available about. Therefore, devaluation and depreciation and also revaluation and appreciation could often be used interchangeably. During this study, exchange unit is defined because the units of the domestic currency per a unit of the foreign currency. Therefore, depreciation/devaluation is a rise in rate of exchange (for instance, increase in Birr/USD ratio) and appreciation/revaluation may be a fall in rate of exchange (for instance, decrease in Birr /USD ratio) (Lencho, 2013).Between the year 1945 and 1990 the movement of Ethiopian currency pegged to US dollar. For the last three decade the value of birr decrease and this research answer this question why it decreases time to time.

II. STATEMENT OF THE PROBLEM

The purchase power parity related to the concept of exchange rate movement which state that the long-term rate of exchange determination relies upon the speculation of among different currencies, which derives its essential validity from the law of the one price. In line with the purchasing power parity theory, within the future, identical products and services in several countries should cost the identical. this is often supported the principle that exchange rates will go with eliminate the arbitrage opportunity of shopping for cheaper goods or services in one country and selling it at increased prices in another. The speculation only holds for tradable goods and ignores several world factors, like transportation costs, tariffs and transaction costs. the opposite assumption is existence of competitive markets for the products and services all told countries (Twarowska & Kąko, 2014).The theoretical models of rate of exchange calculation should be a clear information of the country economicsystem governing the particular behavior of exchange rates within the world and of the relation-ships between exchange rates and other important economic variables (Bilson & Richard C., 1984).

From the past some decades up to the present time forecasting of monetary data like charge per unit, rate of exchange, exchange and bankruptcy has been observed to be a possible factors for creating financial and managerial decision. Currency Exchange gives a rate of currencies in pair of currency of two countries. This rate is often wont to buy or sell from Currency Exchange. Nowadays the trading of currency is increased and folks invest their money in specific currency as per the long run scope of

profitability. Currency Exchanges monitor events all around the world and therefore the currency rates are managed globally supported the economical valuation of any country's currency (Narendra, Patel, & .Ashok, 2014).

III. OBJECTIVE AND HYPOTHESIS FORMULATION

The central theme of the study is to investigate the relation between macroeconomic factors and exchange rate and answer the question, Are those factories really determine the value of Br in Ethiopian monetary policy. The following hypotheses are established to achieve this objective.

- H1:Inflation Rate and Exchange Rate has significant relationship in Ethiopian economy system.

- H2:Interest rate is a significantly influence movement of exchange rate in Ethiopia.
- H3:The relationship between terms of trade and exchange rate in Ethiopia is significant.
- H4: Exchange rate fluctuation significantly influenced by Gross Domestic Product.
- H5:Government deficit significantly affect fluctuation of exchange rate in Ethiopia.
- H6:There is a significant relationship between Current Account Deficit and exchange rate.
- H7:There is a significant relationship between Debt of the country and exchange rate.

IV. DATA AND METHODOLOGY

National bank of Ethiopia, International Monetary Fund (IMF) and Global Economy.com is the source of data for this research. This paper used yearly panel data analysis.

Year	X change rate	Inflation	GDP	Int rate	Export	Import	TOT	CAB	GOV.D	Pub Debt
2007	8.68	15.1	11.8	11.5	14	32.2	0.434783	-4.5	-8.1	43.9
2008	9.24	25.3	11.2	12.25	12.8	31.1	0.411576	-5.7	-7	38.5
2009	10.42	2.7	10	11.88	11.5	29	0.396552	-5.1	-5.3	35.5
2010	12.89	7.3	10.4	11.88	10.6	33.3	0.318318	-4.4	-4.6	39.4
2011	16.1	38.1	11.4	11.88	13.8	31.5	0.438095	-0.7	-4.9	37.8
2012	17.5	20.5	8.8	11.88	16.7	31.6	0.528481	-6.4	-2.9	32.8
2013	18.3	7.4	9.7	11.88	13.8	29	0.475862	-5.4	-3.5	36.1
2014	20.45	5.5	9.9	11.88	12.5	22.1	0.565611	-14.6	-2.1	35.2
2015	21.5	10.9	10.3	11.88	11.6	21.1	0.549763	-8.4	-2.1	35.3
2016	23	5.8	10.2	11.88	9.8	27.3	0.358974	-9.3	-1.9	34.8

V. MODEL SPECIFICATION

A multiple regression analysis has been used that explains the effect of one variable on the other and its significance. The paper employs SPPS software application version 18. The theoretical model which was assumed to assess the important macro economic variables.

$$EXrate=\alpha+\beta Infl+\beta IR+\beta TOT+\beta GDP+\beta GD+\beta CAD+\beta Debt$$

Where EX rate is Exchange rate, α is constant term. β is the coefficient for that independent variables,

Inflisinflation, IR is interest rate, TOT is Term of Trade, GDP is Gross domestic product, GD is Government deficit, CAD is Current Account Deficit and Debt is refers to debt.

VI. CONCEPTUAL FRAMEWORK

This section concern about various factors which affecting the movement of exchange rate in FOREX markets. Factors affecting exchange rates and their volatility are depending on two major groups: economic and non-economic factors. The economic groups include both long term and short term factors.
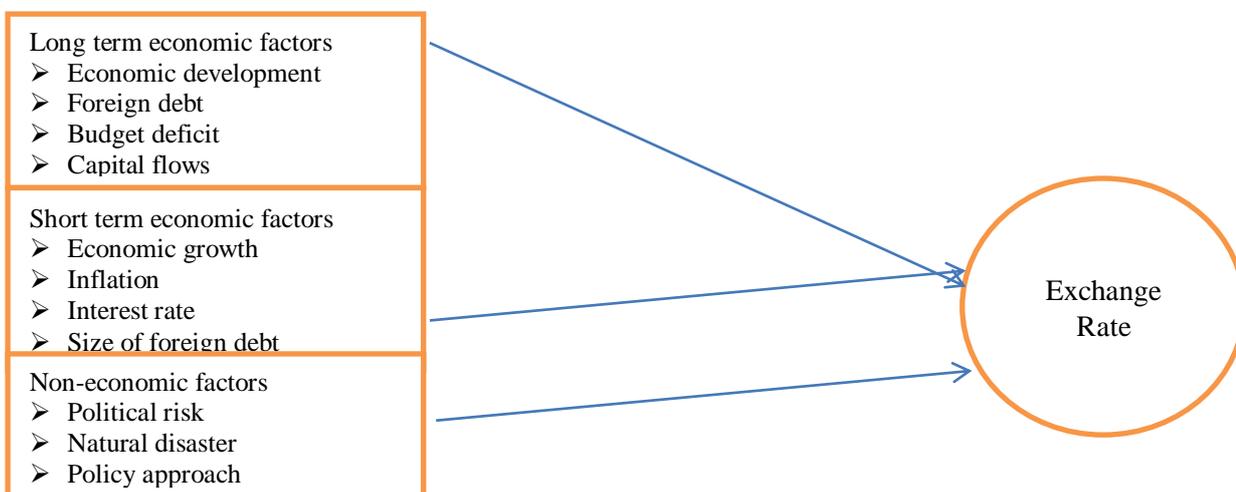
VII. GRAPHICAL DESCRIPTION OF RELATIONSHIP BETWEEN EXCHANGE RATE AND ITS DETERMINANTS

A. Inflation

It plays a very critical role in calculation of currency of any country in the world. Theory suggests that in an exceedingly country where inflation is high its domestic currency will depreciate. This increase in inflation will increase the demand for foreign goods and reduce the exports, resulting in an accounting deficit. On the opposite hand, the rate of exchange of the foreign currency will increase, leading to an appreciation of that currency (Madura, 2008). One among the foremost widely accepted theories explaining the connection between inflation and exchange rates is Purchasing Power Parity. This theory states that a basket of products in one country should have the identical cost in another country, taking under consideration exchange rates.

According to Bleaney (1996) there exists a powerful correlation between rate of exchange and inflation. He stated that this value of any investment opportunity depends on expected demand, indicant and relative prices. Since relative prices movements aren't certain this uncertainty effects investment decision yet. There's negative relationship between inflation and charge per unit.The following figure shows that for Ethiopian trend of inflation and rate of exchange for the ten years between 2007 and 2016. As inflation reaches at 25.3 and through this point the rate remains 9.24. Next to the present year the rate rapidly decreases and comes all the way down to 2.7 but the charge per unit depreciates to 10.42. This seems contradict to the theories and empirically evidenced about the relation between inflation and rate in Ethiopia. The rate of Br is devaluated with considering the up and down of inflation.
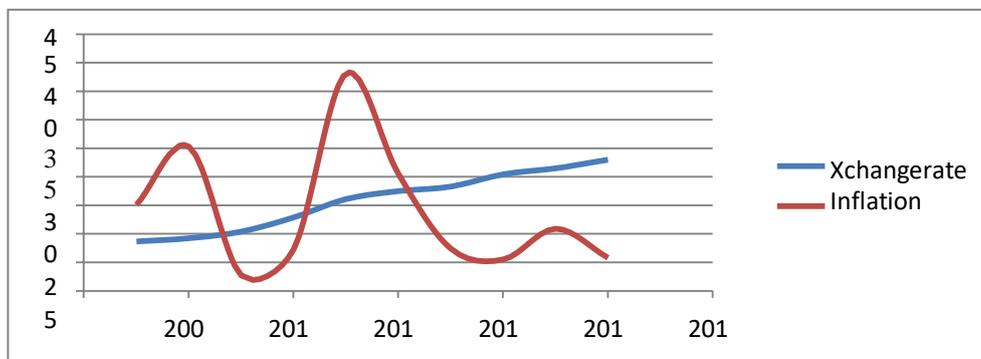
Chart 1: Graphically shows how inflation relate to x-change rate

B. Terms of Trade

It describes as results of abroad demand provide on internal marketable goods or service sector. The impact of a change within the terms of trade on exchange rate per unit is under the condition of vagueness (Edward, 1989). It depends on the relative strength of the income and substitution effects, which emerge from changes within the prices of both imports and exports. The figure below shows the relation of trade balance and exchange rate. Term of trade line is passes through the x axis because of it express in the ratio of export and import and all amounts are in decimal. The line is shows that when the term of trade improves the exchange rate of Ethiopian Br is devaluating in the contradiction of theories and empirically evidenced of their relationship.
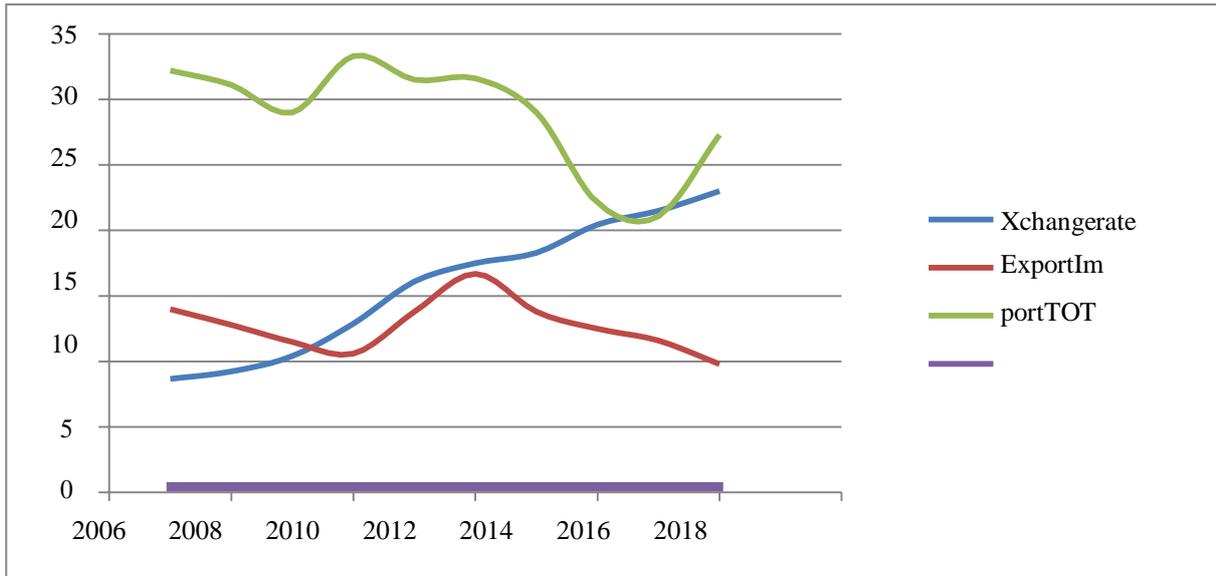
Fig. 2: The relation between exchange rate and X, M and Term of Trade

C. Rate of Interest

Interest rate can be one macroeconomic factor that determines exchange rate movement. Interest rates are among the foremost significant factors affecting rate fluctuations. A rise within the exchange rate unit of the domestic currency will increase the amount of currency deposits. A better rate means higher rates of return, thus the demand for home currency will increases. These situations result in an appreciation of home currency relative to foreign currency.
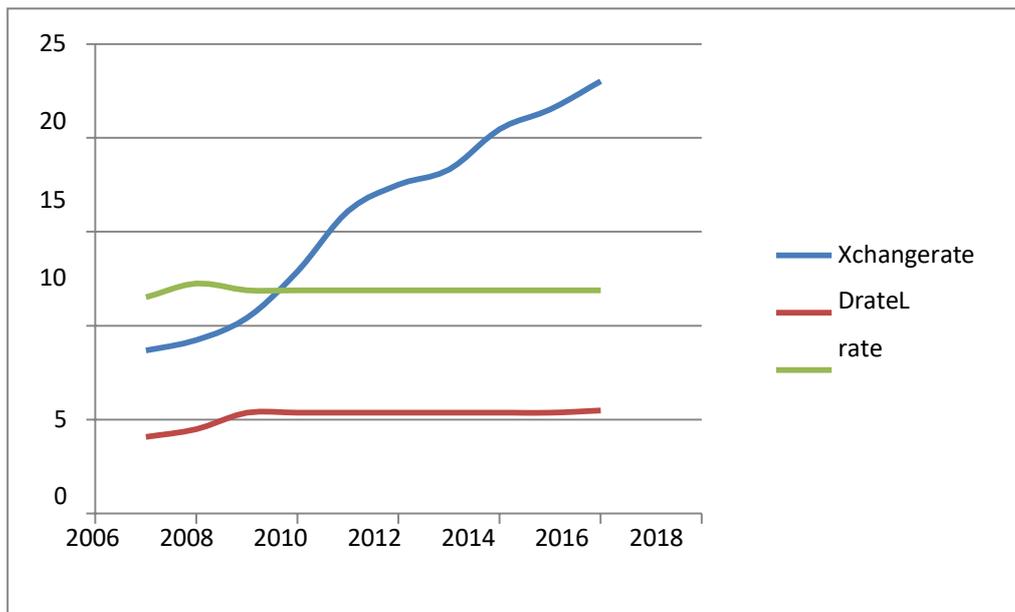
Fig. 3: The relationship between exchange rate and interest rate

D. Gross Domestic Product

It can be measured by total of finished goods and service which generate within a single country. And it can be defined as economic growth of a nation that generated during a given period. GDP gives best measure of health of country's economy. GDP consists money spent by business, private consumption and exports of the country. Increment in value of GDP indicates the development of country is good. Most time foreign investors have willingness for those countries their economy was strong. It results in better valuation of the currency of the country because more and more cash involves the country. Ranging from 2007 the worth of Br is decrease or devalued no matter variation of GDP. As we show from the figure the movement of GDP slightly fixed but the rate line was steadily get into upward direction.
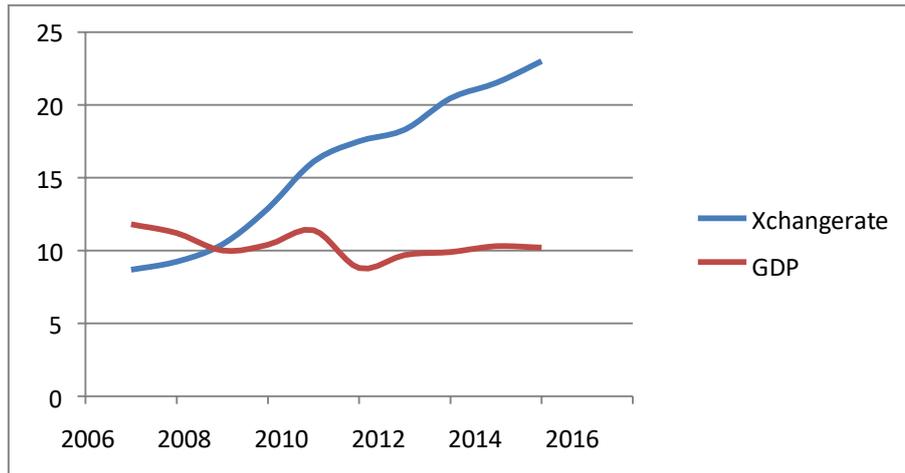
Fig. 4: The relation between GDP and exchange rate of Ethiopia

E. Government Deficit

High deficit in nation increases the gov't borrowing within the securities industry. The foreign banks and investors together with the domestic banks and financial institutions are the most creditors who buy government bonds and treasury bills to hide this deficit. High borrowing by the govt. and bond buying by the foreign investors generates high foreign currency inflow within the domestic market that supports the fiscal expansion. It increases demand of the domestic currency and its appreciation. Analyzing the link between government deficit and rate of exchange, it should be taken under consideration, that it's complex and multidirectional. In line with S.

Wijnbergen, under floating exchange rates, external shocks or internal structural reforms may cause jumps in inflation and therefore the rate through their impact on the gov't budget (Wijnbergen, 1987). So as to attain a sustainable reduction in inflation, a hard and fast rate is employed to need restrictions not only on domestic credit, but also on the speed of increase in interest—bearing debt. Government deficit is express as percentage of GDP and after we see the figure the ratio of presidency deficit in terms of GDP comes down while the worth of Br is devaluing. It also seems contradict to the theories for the connection between X change rate and government deficit.
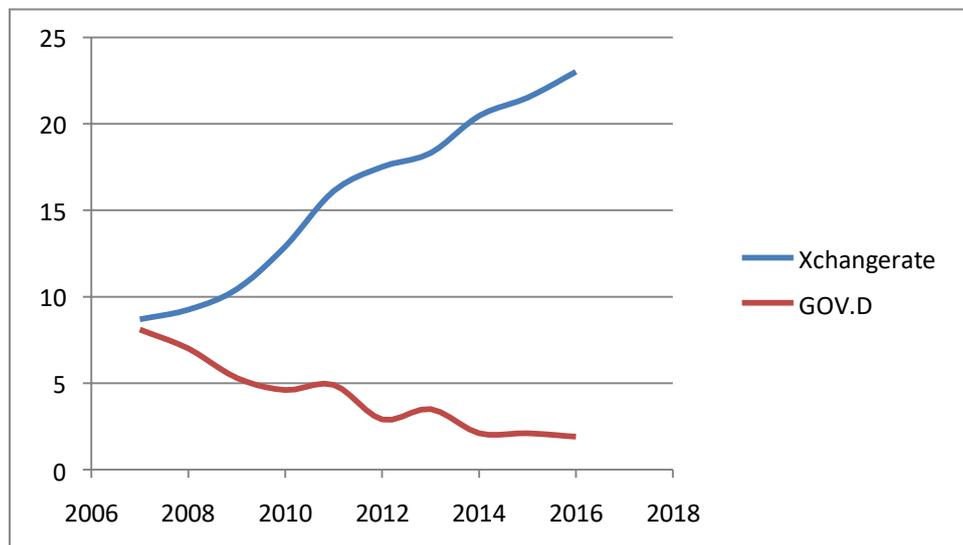
Fig. 5: The impact of government deficiton exchange rate

F. Current Account Deficit

Current accounting deficit also express as percentage of GDP. The figure below shows the link between rate and accounting balance. Current

accounting balance comes up and down again and again between 2007 and 2016 while the worth of Ethiopian currency was devaluating without revaluating once.
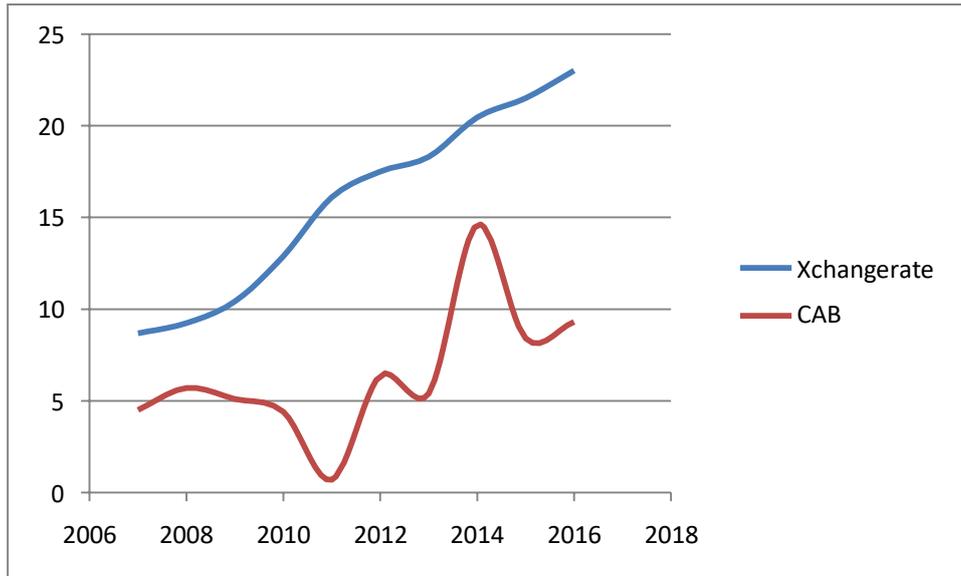
Fig. 6: The relationship between current account deficit and exchange rate

The current account is that the balance of trade between a rustic and its trading partners, reflecting all payments between countries for goods, services, interest and dividends. A deficit within the accounting shows the country is spending more on foreign trade than it's earning, which is borrowing capital from foreign sources to create up the deficit. In other words, the country requires more foreign currency than it receives through sales of exports, and it supplies more of its own currency than foreigners demand for its products. The surplus demand for foreign currency lowers the country's charge per unit until domestic goods and services are cheap enough for foreigners, and foreign assets are too expensive to get sales for domestic interests.

VIII. DEBTOFTHECOUNTRY

Countries will engage in large-scale deficit financing to shop for public sector projects and governmental funding. While such activity stimulates the domestic economy, nations with large public deficits and debts are less attractive to foreign investors. Thanks to an outsized debt encourage inflation, and if inflation is high, the debt are serviced and ultimately paid off with cheaper real dollars within the longer term. Within the worst case scenario, a government may print money to pay a component of an oversized debt, but increasing the cash supply inevitably causes inflation. Moreover, if a government isn't able to service its deficit through domestic means (selling domestic bonds, increasing the cash supply), then it must increase the supply of securities purchasable to foreigners, thereby lowering their prices. Finally, an outsized debt may prove worrisome to foreigners if they believe the country risks defaulting on its obligations. Foreigners are less willing to possess securities denominated in this currency if the chance of default is great.
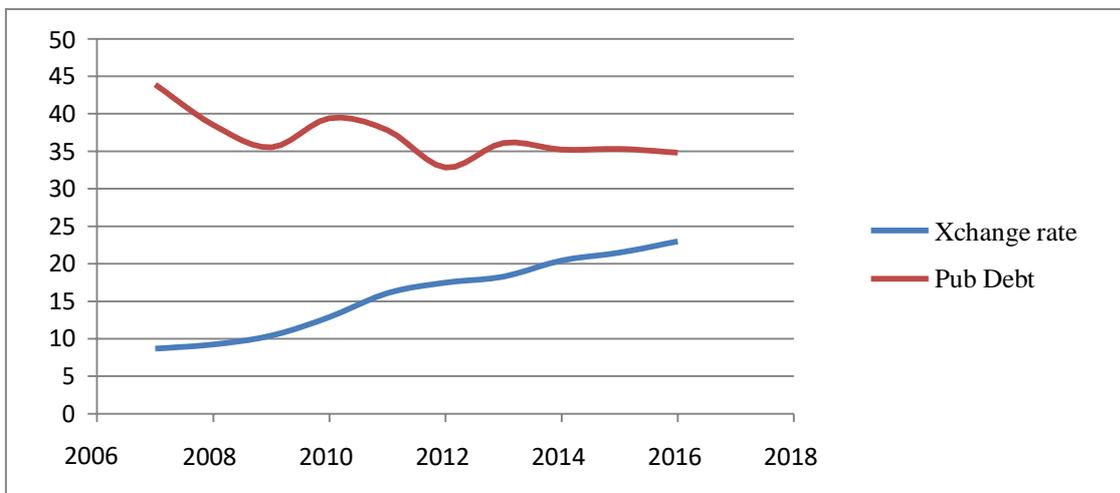
Fig. 7: The relationship between exchange rate and public debt

IX. POLITICAL STABILITY AND ECONOMIC PERFORMANCE

Foreign investors inevitably seek out stable countries with strong economic performance within which to take a position their capital. A country with such positive attributes will draw investment faraway from other countries seemed to have more political and economic risk. Political turmoil, for example, can cause a loss of confidence during a currency and a movement of capital to the currencies of more stable countries. This policy challenges revolve around the undeniable fact that whenever there are external shocks hitting the economy and driving prices from the supply side, and there are imbalances within the economy, these are reflected responsible per unit movements. Now on a daily basis many developing countries like Ethiopia recommended by various development organizations including IMF to depreciation/devaluated of their own currency in terms of foreign currencies. Because they assume that's great growth issue for countries under this economic zone.

A. Correlations Matrix between Variables

	Inf	GDP	Int	TOT	CAD	GD	Debt
Inf	1.00						
GDP	0.45	1.00					
Int	0.56	0.53	1.00				
TOT	0.34	0.12	0.48	1.00			
CAD	0.24	0.32	0.21	0.34	1.00		
GD	0.04	0.21	0.32	0.37	0.34	1.00	
Debt	0.35	0.57	0.23	0.38	0.44	0.33	1.00

Source: SPSS Output

B. Regression Results and Findings

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	237.220	7	33.889	7.446	.123[b]
	Residual	9.102	2	4.551		
	Total	246.322	9			

- Dependent Variable: EX rate
- Predictors:(Constant),Debt,Infl,TOT,IR,CAD,GD,GDP.

The model seems best because the value of Fis greater than 1, from this Exrate model the value of indicate 7.446. F can be determining the ratio of Model sum of squares (MSS) and Residualsumof squares (RSS).

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.981[a]	.963	.834	2.1332954

- Predictors: (Constant), Debt, Infl, TOT, IR, CAD, GD, GDP
- Dependent Variable: EXrate

The above model summary shows the value of Adjusted R square was 0.834. This implies Inflation rate, Interest rate, Term of trade, Current account deficit, Gross domestic product, Government deficit and Debt account for 83.4% of the variance of exchange rate in Ethiopia.

Regression weight for the given variables

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	39.539	84.755		.467	.687
Infl	.051	.122	.108	.416	.718
GDP	1.604	1.965	.272	.816	.500
IR	-2.637	5.995	-.089	-.440	.703
1 TOT	2.119	13.998	.033	.151	.894
CAD	-.030	.386	-.021	-.076	.946
GD	2.896	.753	1.184	3.844	.061
Debt	.038	.742	.023	.051	.964

a. Dependent Variable: EX rate

EXrate= 39.5+.108Infl-.089IR+.033TOT+.272GDP +1.184GD-.021CAD+ 0.023Debt

X. CONCLUSION

The preceding section shows the relation between the major factors which influence exchange rate movement and proof whether this determinants affect exchange rate of Ethiopian currency of or not. By referring the above explanation, this paper is complete by reaching the following conclusion.

- The relation between factors and exchange rate is consistent with theory and it is so difficult to say the exchange rate movement is as a result those major factors.
- The regression weight result shows that the above factors are not significant to determine the exchange rate. GDP seems that had significant impact for the determination exchange rate, however the correlation matrix evidence that the relation between GDP and exchange rate was positive. This is not support the theoretical relationship between this two variables.
- Political stability can be taken as the major factors of exchange rate volatility in Ethiopia. If the political situation of the country was unstable the flow of currency for various reasons like the foreigners had not any willingness to invest in the country and then the government faces shortage of currency to pay its debt. All this and other related factors enforce the government to depreciate the home currency.

REFERENCE

[1.] Abdoh,Yusuf, Zulkifli, Bulot & Ibrahim. (2016). Macro economic Factors That Influence Exchange Rate Fluctuation in ASEAN Countries. International Academic Research Journal of Social Science, 89-94.

[2.] Bilson & Richard,(1984). Exchange Rate Theory and Practice. In M. L. Mussa, The Theory of Exchange Rate Determination (pp. 13-78). Chicago: University of Chicago Press.

[3.] Nandeeswara, Tassew. (2016). DETERMINANTS OF REAL EXCHANGE RATE IN ETHIOPIA. International Journal of Research Granthaalayah,183-210.

[4.] Narendra, Patel & Ashok. (2014). Factors affecting Currency Exchange Rate, Economical Formulas and Prediction Models. International Journal of Application or Innovation in Engineering & Management, 53-56.

[5.] Lencho.(2013). THE EFFECT OF EXCHANGE RATE MOVEMENT ON TRADE BALANCE IN ETHIOPIA.

[6.] Rao & Tolcha.(2016). DETERMINANTS OF REAL EXCHANGE RATE IN ETHIOPIA. International Journal of Research Granthaalayah,183-210.

[7.] Twarowska & Kąkol. (2014). ANALYSIS OF FACTORS AFFECTING FLUCTUATIONS IN THE EXCHANGE RATE OF POLISHZLOTY AGAINST EURO. Management Knowledge and learning,(pp. 889-898). Portoroz, Slovania.

[8.] Twarowska & Magdalena, K.(2014). ANALYSIS OF FACTORS AFFECTING FLUCTUATIONS IN THE EXCHANGE RATE OF POLISHZLOTY AGAINST EURO.,(pp.889-898).Slovenia.