

Impact of Change in Exchange Rate on Foreign Direct Investment: Evidence from Somalia

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Abstract

The purpose of this study is to examine the influence of exchange rate on foreign direct investment in Somali. The study used location theory to analyze the data by applying multiple regression models under OLS method. The results show that the overall model is significant. There is a negative and significant relationship found between exchange rate and FDI, while, a positive and significant relationship is observed between inflation and domestic investment on FDI, and a negative but insignificant relationship is observed between lack of government and FDI. The strength of this research lies in its time limit. The scope of this research was for the less than 50 years ending and including the year 2010. It is not known whether the results would hold if a longer period would have been researched upon. Further it is not possible to tell whether the same findings will hold for the period after 2010. There is need for the government to retain tight monetary and fiscal policies in order to stable exchange rate in the Somalia. Central bank should promote monetary authorities at managing exchange rate effectively to attract foreign direct investors. while utilization location theory, this study contribute significant to the literature by adding new variable to the model lack of government.

Keywords- exchange rate, foreign direct investment and Somalia.

1. INTRODUCTION

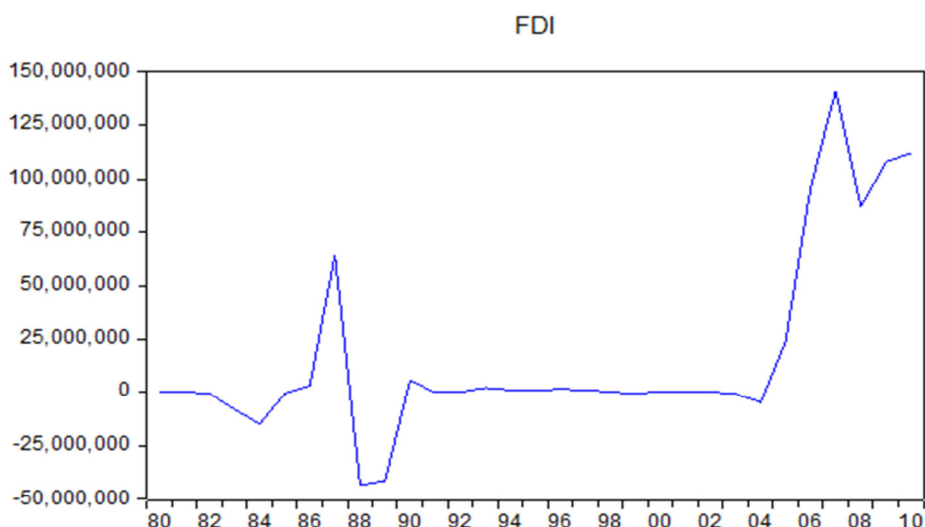
The Foreign direct investment (FID) plays a very important role in financial growth, economic development, living standard and gross domestic product. Given these significant roles of FDI in developing economies there have been several studies that tried to determine the factors that influence FDI inflows into these economies. One of such factors that have been a source of debate is exchange rate and its volatility. There is a significant relation between exchange rate volatility and foreign direct investment.

Foreign investment in Africa is increasingly being completed by developing-country Multinational activities, such as firms from China and India for now, a number of firms from developed countries were huge net investors from Africa during 2014, particularly in the finance, oil and gas sectors. Services account for the largest share of Africa's stock of inward FDI; although, the portion is lower than in the other regions, and determined in a relatively small quantity of countries including South Africa, Morocco and Nigeria. Services FDI; nonetheless, accounted for 48 per cent of Africa's total stock of FDI. That is more than twice the share of manufacturing (21 per cent) and significantly more than the primary sector (Patrick Hescot, 2015).

Unlike during the pre-civil war period, most services and the industrial sector were government run. But now there has been substantial unmeasured private investment in commercial activities that has been largely financed by the Somalia Diaspora including trade, money transfer services, transportation, telecommunications, education, health, construction and hotels (Ioary, 2012).

Since exchange rate may be a very factor that influences the world foreign direct investments, Somalia should make a lot of effort to attract for foreign investments through stability of exchange Rate.

Somalia is attempting to increase the foreign direct investment after 20 years of low FDI. Now Somalia starts new economic reform as government invites oil and energy companies to explore natural resources. These companies include: British petroleum, Chevron, Conoco, Eni and Shell those have signed contracts.



Source: mundi index.com

Figure 1.1 this shows the trend of FDI over years. It shows that FDI has been relatively increased between 1980 and 1986 after decrease between 1990 and 2004 has not been increased after 2008 once peak up and then was decrease as well as ER are fluctuated between 1980-2010.

Foreign direct investment is influenced by exchange rate but this influence is not pure that we can decide on because the influence may be high or low, other variables may also influence foreign direct investment however, the level of FDI tends to fluctuate sharply over time, A popular claim is that exchange rate none volatility is one of the most important factors in FDI decision, high influence of exchange rate disincentive for FDI inflows (Omorokunwa and Ikponmwosa, 2014). Somalia ranked poorly among her African neighbors but showed a greater potency to attract investors. East Africa foreign direct investment inflows increased 11 per cent to hit USD 68 billion. Tanzania's gas sector defied political wrangling to attract huge investment interests. Ethiopia also reaped more foreign direct investment to its textile sector owing to its cheap power and low wages while the foreign direct investment into Somalia is the lowest in the last five years. After the country received 107 million USD in both 2013 and 2012 with 2011 being the lowest recorded at 102 million USD (Nyarko, Amponsah and Barnor, 2011).

Low foreign direct investment of Somalia may cause to decrease these factories including financial growth, economic development, living standard and gross domestic product. If the foreign direct investment of Somalia increases it may cause these factors to increase and the FDI will play significant roles in developing economies.

This paper investigates the influence exchange rate on inflow foreign direct investment in Somalia by measuring, domestic investment, lack of government and inflation rate; those are linked to the FDI. The scope of the paper is based on the federal republic of Somalia. This study is expected to examine the influence of exchange rate on foreign direct investment in Somalia. With secondary data obtained from SESRIC and world bank. The study is empirical analysis using times series data for the period 1970-2010 in Somalia. The Finding of this paper will benefit Somalis economic policy makers and the central banks of Somalia to comprehend and get insight pertaining to the influence of the exchange rate volatility on the foreign direct investment. Study will help them get proper tools to gain exchange rate stability that may attract the FDI. Study will also be benefited by the foreign investor to experience exchange rate economy of Somalia so they can account on, the influence of the exchange rate volatility on the investment in Somalia. This paper encompasses into three parts structured as follows: First reviews related literature, second gives result and discussion and finally conclusion and policy implication.

2. LITERATURE REVIEW

Real exchange rate impact on foreign direct investment according to the previous literatures that have investigated the relationship between exchange rate and foreign direct investment and the conclusions are different one set of researchers supports a negative relationship between exchange rate and foreign direct investment. (Melku, (2012), Osinubi, tokunbo S, amaghionyeodiwe and lioyd, (2009), Chen, Hua and lin (2006) and Ellahi (2011)), the second finds a positive relationship between exchange rate and foreign direct investment (Udomkerdmongkol, Görg and Morrissey (2006), Phillips and Esfahani (2008), Nyarko, Amponsah and Barnor (2011), Omorokunwa and Ikponmwosa (2014) and Joshua aizenman (1992)) and the third argued that causal relationship between exchange rate and foreign direct investment (Adu Boahen Emmanue and Ntim Adjei

Luther(2014)) and finally the summary and conclusion fills the gap.

Melku (2012), using panel data, investigated Exchange Rate Volatility and Foreign Direct Investment in sub Sahara Africa. The study findings of foreign direct investment determinants have found a significant negative impact of exchange rate volatility on foreign direct investment, out of that a 1% increase in exchange rate volatility results in a 0.11% falls in foreign direct investment in the long run with a disequilibrium adjustment speed of 68.9% speed of adjustment. The result of the study supported that Erik Kehinde (2009) found similar results on the relationship between FDI and exchange rate volatility on a particular country case focus on South Africa and Nigeria.

Osinubi, Tokunbo, Amaghionyeodiwe and Liloyd. (2009), time series data from 1970 to 2004; examine the effect of exchange rate volatility on foreign direct investment (FDI) in Nigeria. The study findings that the structural adjustment program (introduced in Nigeria in 1986) had a negative impact on real inward FDI, which could be due to the deregulation that was accompanied by exchange rate volatility. As such, a major challenge before the Central Bank of Nigeria, therefore, is to attain a stable and realistic exchange rate that will boost domestic production, increase real inward FDI and maintain internal and external balance. However, the result of the study agrees with those of Gorg and Wakelin (2001), Froot and Stein (1991), and Blonigen (1997).

Chen, Hua and lin (2006), used panel data of 11 years, examined impact of exchange rate movement on FDI in Taiwanese firms. The study found reveal that the relationship between exchange rates and FDI is crucially dependent on the motives of the investing firms. Without considering this fact in an empirical model, the testing results might suffer from aggregations bias.

Exchange rate uncertainty has had a negative impact on Taiwanese firms' FDI, particularly for those firms facing considerable sunk investment costs. Thus the relationship between exchange rates and FDI vary with the motives of investing firms, which suggests that it is important to consider this fact in investigating the determinants of foreign direct investment, finally they could establish exchange rate uncertainty that has a negative impact on a firm's outward FDI regardless of whether the firm is market-oriented or cost-oriented. In addition, while the depreciation of a host country's currency tends to stimulate the outward FDI activity of cost oriented firms, it does tend to deter the outward FDI activity of market-oriented firms.

Ellahi, (2011) time series data set is utilized over the period 1980 to 2010, investigate Exchange rate volatility and foreign direct investment (FDI) behavior in Pakistan: A time series analysis with auto regressive distributed lag (ARDL) application, the study might establish the long run Relationship multivariate vector error correction method (VECM) causality test has been applied to find the direction of causality between the aforementioned said variables.

This analysis included real gross domestic product (GDP), capital account balance, trade openness, real exchange rate and volatility of exchange rate as independent variables along with the introduction of a dummy variable for the structural adjustment programmer implemented during the late 1980s as explanatory variable, while foreign direct investment as dependent variable.

The study found that exchange rate volatility has negative impact on FDI inflow in short run while this impact is positive in the long run. It has found that adjustment and liberalization programme has favorable outcomes in the short run for Pakistan, but short run that structural adjustment programmer has caused positive and favorable impact on inflow in short run.

Manop, Holger and Oliver (2006), using of 16 emerging market countries using panel data for the period 1990-2002, the study investigated the impact of exchange rates on US Foreign Direct Investment (FDI) inflows. The study might that exchange rate volatility has probably a significant role on FDI flows into the countries. The study result supports the 'Chakrabarti and Scholnick' hypothesis that, *ceteris paribus*, there is a positive relationship between the expectation of local currency depreciation and FDI inflows. Cheaper local currency (devaluation) attracts FDI while volatile exchange rates discourage FDI.

Nyarko, Amponsah and Barnor (2011), using time series data over a 39 year period (1970-2008) and investigated Effects of Exchange Rate Regimes on FDI Inflows in Ghana, the study found indicated that exchange rate regime has no discernible effect on Ghana's FDI. At best, the link is weak since it was only found to be significant at the 10% level.

Democracy was found to have the expected positive sign and to be a robust determinant of FDI in Ghana. By implication, Ghana's quest to attract FDI should go hand in hand with her efforts at sustaining the ongoing democracy. The contribution of this paper to the empirical literature lies in modeling exchange rate regimes and FDI inflows to Ghana. Previous studies on Ghana had concentrated on exchange rate misalignment and pass-through and the effect on FDI. Unraveling the empirical relationship between the FDI and exchange rate regime nexus on Ghana makes modest contribution to the empirical literature. The authors argued positive relationship between the Exchange Rate Regimes and FDI inflow.

Shauna and Esfahani (2008), using panel data of 20 years (1983-2003), investigated Exchange rates and foreign direct investment: theoretical models and empirical evidence, the study found that is no consensus about the nature of this relationship in either the theoretical or empirical work. In this article, we critically apprise this

body of work, and find the theoretical studies to be making ground in exploring the complexities of FDI, but the empirical evidence to be constrained by data problems. the study argue supported Blonigen (2005) that might exchange rate has probably a significant role on FDI flows into the countries, and the authors argued positive relationship between the Exchange Rate and FDI inflow.

Omorokunwa and Ikponmwosa (2014), using time series data of 31 years 1980 to 2011, investigated Exchange Rate Volatility and Foreign Private Investment in Nigeria they used economic tool the Error Correction Model (ECM) after a battery of preliminary investigations which include the Augmented Dickey Fuller (ADF) test for stationarity and the Engle and Granger two-step cointegration procedure, they argued that Exchange rate volatility has a weak effect on foreign portfolio investment in the short run but a strong positive effect in the long run. This pattern of relationship was proposed to be as a result of activities of arbiters in the foreign exchange market in the long run.

The result of the study was supported by the indications of the study presented by Kapur (2005). The study finding include among other things that; exchange rate volatility has a very weak effect on the inflow of Foreign Direct Investment (FDI) to Nigeria, both in the long run and in the short run. And that exchange rate volatility has a weak effect on foreign portfolio investment in the short run but a strong positive effect in the long run. Based on the study findings, an array of recommendation was made, which include the need for policy makers to develop sound exchange rate management system in the country.

Joshua (1992), using panel data of 24 years for the period 1965 –1990, short-run Phillips curve, Investigate Exchange Rate Flexibility, Volatility, and Domestic and Foreign Direct Investment, the study was argue supported Frankel and Froot (1990) for an analysis of bubbles as a potential driving force in the evolution of exchange rates. The study found that a positive correlation between real exchange rate flexibility and foreign direct investment, and may seem to differ from the prediction of the model presented here.

He established foreign direct investment leads to the conclusion that if fluctuations in the real exchange rate are large enough, a corporation for an analysis of bubbles as a potential driving force in the evolution of exchange rates, Will benefit by expanding production and employment in the country experiencing a decline in its real exchange rate thus, the corporation obtains a higher expected profit than it would have if it had not diversified internationally by foreign direct investment.

Emmanue and luther(2014), Using times series data of 45 years (1960-2005). Vector Autoregressive (VAR) model, examine Causality Analysis of Foreign Direct Investment, Exchange Rate and Interest Rate Volatility in Ghana, They could establishes that a stable exchange rate improves Foreign Direct Investment inflow into the country and likewise a high FDI inflow improves stability of exchange rate in the country, they provided an empirical illustration of the bias this endogeneity can cause when regressing measures of exchange rate volatility on foreign direct investment. It is a detailed study that uses pair wise granger causality test.

The study found directly affects exchange rate and market attractiveness which then affects Foreign Direct Investment in the long run. The paper therefore concludes that government should implement policies that will stabilize both the exchange rate and the interest. Volatility of exchange rate is insignificant for both entire sample and Pre-SAP period and the null hypothesis that volatility of exchange rate Granger Cause FDI can be accepted at 5% significant level for Post-SAP period. Hence volatility of exchange rate must be treated as endogenous variable. FDI is insignificant for all the variables and hence must be treated as endogenous variable in the model.

This paper has analyzed the ideas, opinions and concepts of the authors and also this paper has critically analyzed the real Exchange rate on foreign direct investment. The literature identifies that there was mostly negative relationship between exchange rate and foreign direct investment. Therefore this study contributed the body of knowledge by measuring foreign direct investment by exchange rate, domestic investment, and lack of government and inflation rate.

3. DATA AND METHODOLOGY

This study consists of FDI and exchange rate of Time series data from World Bank and SESRIC, 41 years from 1970 to 2010 of Somalia and balanced data; the statistical technique in used in this study is Ordinary Least Squares (OLS) econometric technique.

Foreign direct investment inflow: Foreign direct investment inflow as Dependent variable using data from Somalia reported by WORLD BANK from 1970 up to 2010.

Exchange rate: Obtained from WORLD BANK and SESRIC it is the value of Somali shilling measured against US Dollar from 1970 up to 2010.

inflation: Inflation represents GDP deflator date obtained from SESRIC from 1970 up to 2010.

Lack of government: This variable indicates lack of financial institutions or weak government by using dummy variable.

Domestic investment : Gross capital formation in Somalia country by using date from 1970 up to 2010 the data obtaining from SESRIC.

The horizontal motive for FDI reflects what Brainard (1997) has called a “proximity-concentration trade-off”: building a local plant saves on trade costs and so has the advantage of proximity; but it loses the benefits of concentrating production in the firm’s home plant.

Let $\pi^*(t^*)$ denote the operating profits which a potential MNE can earn from selling in a foreign market subject to per unit trade costs (t^*) (which can include both tariffs and transportation costs). These operating profits are decreasing in (t^*): higher trade costs reduce operating profits. Constructing a local plant avoids the trade costs, leading to higher operating profits of $\pi^*(0)$ (); however, it requires an additional fixed Cost f . Hence the trade-cost-jumping gain, the difference between the total profits from FDI Π^F , and those from exporting, Π^X equals:

$$\gamma(t^*, f) \equiv \Pi^F - \Pi^X = \pi^*(0) - f - \pi^*(t^*) \tag{1}$$

Thus FDI is encouraged relative to exports by proximity (lower trade costs t^*) but discouraged by the benefits of concentration (higher fixed costs f).

$\pi(t^*)$ where c includes both factor costs and trade costs. If the firm remains a domestic firm and supplies its home market from its parent plant, where w is the local wage rate, it incurs no trade costs so its profits Π^D will equal $\pi(w)$. Alternatively, it can engage in FDI and locate a new plant in the host country, exporting all its output back to the source country and incurring a trade cost of t . In that case, it incurs a plant specific fixed cost f as in the case of horizontal FDI, and earns operating profits of $\pi(w^* + t)$, where w^* is the host-country wage. The relative profitability of FDI is therefore:

$$\Pi^F - \Pi^D = \mu(w^* + t, w) - f \tag{2}$$

Where

$$\mu(w^* + t, w) \equiv \pi(w^* + t) - \pi(w) \tag{3}$$

Now the decision to engage in FDI depends on the trade-off between the benefits of concentration on the one hand and the cost savings from off shoring on the other, where the latter are denoted by the term $\pi(w^* + t, w)$. This off shoring gain depends negatively on the host-country wage w^* and positively on the source-country wage w : the vertical motive for FDI attaches great importance to comparative costs of production. In addition, the gain is decreasing in the source-country trade costs t , implying plausibly that trade liberalization will encourage FDI.

3.1 Model specification

To make econometrics test and hypothesis to specify the model used by this study cited a variety of the models has been specified to facilitate the test of hypothesis that whether explanatory variables effects foreign direct investment.

$$FDI = \beta_1 + \beta_2 ER_t + \beta_3 INF_t + \beta_4 GCF_t + \alpha LG_t + \varepsilon_t$$

Where

FDI: foreign direct investment inflow.

INF: GDP deflator.

GCF: gross capital formation

LG: dummy variable lack of government

ε_t Error term

4. RESULT AND DISCUSSION

In the following table, descriptive analysis shows the Maximum, Minimum and Mean average. Mean. Value stands highest average and stander deviation.

Table 1: Descriptive Statistics

	FDI	ER	GCF	INF	LG
Mean	13809476	7163.895	5.22000000	45.52146	1.463415
Median	700000.0	4000.000	4.99000000	31.05000	1.000000
Maximum	1.41000000	31585.42	8.95000000	198.0100	2.000000
Minimum	-43390000	6.300000	3.80000000	3.510000	1.000000
Std. Dev.	39358153	9453.234	1.16000000	51.22657	0.504854
Skewness	1.852942	1.294826	1.382364	1.898095	0.146735
Kurtosis	5.722859	3.693272	4.609589	5.416435	1.021531
Jarque-Bera	36.12705	12.27766	17.48393	34.59411	6.834125
Probability	0.000000	0.002157	0.000160	0.000000	0.032809

With the dependent variable, the descriptive results in Table 4.1 show that average of FDI is (13809476) unit, and its standard deviation is (39358153) and the highest FDI is (1.41E+08) unit. With the independent variables include exchange rate, gross capital formation, lack of government and inflation. ER is (7163.895) unit, and its standard deviation is (9453.234) and the highest ER is (31585.42) unit. The average of GCF is

(5.22E+08) unit and its standard deviation is (1.16E+08) and the highest of GCF is (8.95E+08) unit. The average of LG is (1.475000) unit. And its standard deviation is (0.505736) and the highest of LG is (2.00000) unit.

FDI has the highest average number were 13809476 while LG has the lowest average number was (1.463415) Highest Stander derivation variable is FDI (39358153). While and LG has the lowest Stander derivation (0.505736).

4.1 unit root test

To test the stationary of the data, we test ADF (Augmented Dickey Fuller) were conducted. The presences of non-stationary variables might produce false regression result.

The result shows that the null hypothesis of non- stationary at level for all the time series fails to be accepted. However, all null hypotheses were rejected for every test at first difference. It indicates clearly that all variables are stationary at (first difference).

Table 2: unit root test

Variables	ADF		PP	
	At level	1st difference	At level	1st difference
FDI	-2.35	-6.33	-2.31	-13.77
ER	1.13	-4.44	-0.57	-8.51
GCF	-2.27	-7.77	-2.16	-7.76
INF	-3.63	-4.10	0.98	-4.04
LG	-2.06	-6.16	-2.11	-6.16

4.2 Regression result

After testing the unit root test and having established the presence of a unit root in the first difference of each variable, the next step is to test whether there is OLS among dependent variable and independent variables.

Table 3: Estimation of the Model Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER	-2655.832	1328.837	-1.998613	0.0535
DINF	845935.6	372532.0	2.270773	0.0294
DGCF	0.192488	0.046332	4.154551	0.0002
LG	-6163104.	7511480.	-0.820491	0.4175
C	9244891.	10977496	0.842168	0.4054

The result of the model shows that the coefficients of Exchange rate (-2655.832), lack of government (-6163104), are negative indicating that in this stage we accept the hypothesis which predicted that these variables have negative relationship with foreign direct investment, It means that one percent appreciate (depreciate) in each one of these variable will result in one percent appreciate (depreciate) in value of Somali shilling while holding other variables constant. The model also shows that INF (845935.6) has positive relationship with foreign direct investment.

Furthermore, Exchange rate may have a negative relationship and significant effect on Somalia foreign direct investment, appreciate exchange rate have adverse on investment behavior and that attempts to Disencourage may foreign direct investment but foreign investors benefit by adapting a fixed exchange rate. It means that one percent appreciate (depreciate) in each exchange rate will result in one percent increase (decrease) foreign direct investment in Somalia.

Domestic investment has also a positive relationship and significant effect on Somalia foreign direct investment, when increasing domestic investment will increase gross domestic product that will attract and benefits may occur indirectly by encouraging foreign investors.

The positive relationship between inflation and FDI signifies that high inflation encourages FDI in Somalia. However, price stability may attract FDI because investment behaviors are to get goods into the price, High FDI is central to high levels of inflation in Somalia.

It is obvious from residual diagnosis that neither Heteroskedasticity nor serial correlation exist which means the model of choosing is good and fit. The R squared (R^2) value for this model is 45% it implies that our independent variables explain about 45% systematic variation on the model over the observed years while the remaining variation is explained by other determinant variables outside the model counted in residual term ϵ . The validity of the model is tested with comparing R^2 with Durbin-Watson test, if DW is greater than R^2 the model is valid otherwise not. Since DW= 2.305279 is greater than $R^2= 45\%$, and also F-statistic are significant, this modal Has validity.

Table 4: correlation matrix

	FDI	ER	GCF	INF	LG
FDI	1				
ER	0.65	1			
GCF	0.04	-0.14	1		
INF	0.85	0.88	0.04	1	
LG	0.39	0.76	-0.31	0.59	1

Table 5: Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.639945	Prob. F(4,31)	0.1892
Obs*R-squared	6.985963	Prob. Chi-Square(4)	0.1366

Table 6: Heteroskedasticity

Heteroskedasticity Test: ARCH			
F-statistic	1.440854	Prob. F(4,31)	0.2440
Obs*R-squared	5.643734	Prob. Chi-Square(4)	0.2274

From the above, there is no serial correlation in the model because the probability of the observed Prob. Chi-Square (0.1366) is greater than 0.05 on the other hand, there is no heteroskedasticity in the model owing to the fact that the probability of the observed R-square (0.2274) is less than 0.05 and all independent variables are significant.

4.3 Main finding

1. exchange rate affects in foreign direct investment negatively
2. Gross capital formation affects changes in foreign direct investment negatively.
3. Inflation affects changes in foreign direct investment positively.
4. Lack of government not affects in foreign direct investment negatively.

5. Conclusion

This study has investigated the effect exchange rate on foreign direct investment in Somalia for the period which spanned between 1970 and 2010. An augmented Internationalization Theory was estimated via the Ordinary Least Square (OLS) techniques to ascertain the relationship between various macroeconomic variables and foreign direct investment in Somalia. The study also reveals that exchange rate, domestic investment, lack of government and inflation that are affected foreign direct investment in Somalia.

There is a need for the government to retain tight monetary and fiscal policies in order to stabilize the exchange rate in Somalia, since exchange rate has a negative influence on investment, and there are needs to put stringent policy in place to minimize strike in exchange rate of Somalia should pay more attention to the proper and appropriate trade strategies and policies.

Central bank should promote monetary authorities at managing exchange rate effectively to attract foreign direct investors.

The inflation is higher and the study recommends having a good government to recover the financial institutions that manage the monetary policy of Somalia.

The strength of this research lies in its time limit. The scope of this research was for the less than 50 years ending and including the year 2010. It is not known whether the results would hold if a longer period would have been researched upon. Further it is not possible to tell whether the same findings will hold for the period after 2010.

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