

# Determinants of Trade Balance in Somalia: Regression Analysis using Time Series Data

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## Abstract

The study focuses on the Analysis of the Main determinants that have an impact on trade balance. Specifically this study focus on the main cause of Trade deficit in Somalia by analyzing the impact of Foreign Direct Investment (FDI), exchange rate and inflation rate; In this study The Ordinary Least Square method (OLS) under the E-View 7.1 software has been used for the econometric analysis with a sample period spanning from 1970-2010. This study adopted the two-country imperfect substitute model of Rose and Yellen which analyses the relationship of the real exchange rate and the trade balance. The regression result showed that there is only foreign direct investment variable impact on trade balance in Somalia. Foreign direct investment had negative impact on trade balance in Somalia. The other factors include exchange rate and inflation rate had no impact on trade balance in Somalia. According to the result, there are some recommendations to solve the trade deficits problem in Somalia. The government should keep the policies stable to attractive more investors and should have policies to support export such as investment incentive and taxes incentive.

**Keywords:** FDI, trade balance, Somalia, exchange rate

## 1. INTRODUCTION

In the recent year, international trade becomes more important in every economy. And there are many problems that all the multinational enterprises must face. Especially the government, they must know how to control the economy on the right ways. In 2011, world trade growth decreased very strongly. The global economy was faced with the influence of natural disasters, financial uncertainty and civil conflict. Namely, Earthquake in Japan 2010 and flooding in Thailand 2011 were impact on global supply chain. There was an expected the slowdown of in trade after these crisis. Besides that, there was an impact of fears of sovereign default in the euro area weighed heavily in the closing months of the year. The supply of oil is the important factor that affects the world trade. At this time, there was civil war in Libya that reduced the oil supplies and contributed to sharply higher price. All of these factors combined to produce below average growth in world trade in 2011. (World Trade Organization report, 2012)

Initially, a trade deficit is not a bad thing. It raises the standard of living of a country's residents, since they now have access to a wider variety of goods and services for more competitive price. It can reduce the threat of inflation, since the products are priced lower. A trade deficit can also indicate that the country's residents are feeling confident, and wealthy, enough to buy more than the country produces. Obviously, trade deficit is caused when a country cannot produce all it needs. However, the true causes run a little deeper than that. A country cannot have a trade deficit unless other countries are willing to loan it the funds needed to finance the purchases of imports. Therefore, a country with a trade deficit will most likely have a current account deficit. Friedman and other economists point out that a large trade deficit (importation of goods) signals that the currency of this country is strong and desirable. Citizens of such a country also receive the benefit of having the ability to choose between many competing consumables and lower prices than they would otherwise experience, if the currency was weaker and the country was enjoying a trade surplus. To Milton Friedman, trade deficit simply means that consumers get to purchase and enjoy more goods at lower prices, conversely, a trade surplus implies that a country exported goods that its own citizens did not get to consume and while paying high price for the goods that were consumed (Ashraf & Joarder, 2009)

The Trade balance of most of the Sub-Saharan African countries over many years has not been so encouraging. In fact a lot of these countries have been experiencing trade deficits in their economy. One of the main reasons for such performance is the poor economic strategies that have been adopted by these countries in their economic reforms and also most of these countries usually depends on certain specific primary products for their exports and import a lot of the manufactured goods hence huge trade deficit in their economy.

Somalia is not an exception of this group of countries that have implemented several economic policies with the purpose of improving trade balance and promote its economic development. Since early 1970's and 1980s the values of Somalia's Imports have greatly exceeded exports, resulting in large trade deficits in the economy. Somalia has, since independence, been confronted with the problem of adopting the appropriate exchange rate, inflation rate and foreign direct investment policy that will be suitable for economic growth and

stability. In order to achieve this objective, the country has to carry out several major reforms in the balance of trade systems.

Many developing countries especially Sub-Saharan African Countries have been experiencing Trade deficits for decades. Somalia specifically presents a very good example as one of these countries in which it has been experiencing trade deficit. Somalia's systemic trade deficit is the result of the country's dependency on imports of food, fuel, construction materials and manufactured goods. Main exports are: livestock, bananas, skins, fish, charcoal and scrap metals. Due to this prolonged trade imbalance then it makes sense to continue re-examining some factors that could be the main determinants of trade balance, therefore there is need to understand the relationship and effects of real exchange rate, inflation rate and foreign direct investment on trade balance in Somalia. Also, the consideration of other variables like broad money supply and the foreign income, domestic income and government expenditure would help to give more information on the increasing deficit on trade balance, but unfortunately the country's data unavailability would limit the importance of these variables.

The main objective of this study is to examining and identifying the main factors that affect Somalia's trade balance while the specific objectives of the study is to find out the main cause of the trade deficit so that new policy measures can be raised up to reduce the range of trade deficit which lies in Somalia's trade balance.

## 2. LITERATURE REVIEW

Research examined the determinant of trade balance in Tanzania by focusing on trade in goods from the year 1970's until 2002 using the variables like real exchange rate, foreign income, FDI, household consumption, Government expenditure and Trade liberalisation. In his study he used the ordinary least square (OLS) method for the estimations of the variables and found out that only three variables namely Government expenditure, household consumption and trade liberalization were the main determinant of balance of trade in Tanzania. His study will differ with this study by employing three more variables like the human capital development, availability of natural resources, inflation and the period covered for the study. (Sayuni, 2016)

The literature investigated the determinants of trade balance in Kenya by using OLS for the period between 1970 to 2010. In his studies he used variables like real exchange rate, governments consumption expenditure, foreign income, domestic income, foreign direct investment and money supply (M3) and discovered that real exchange rate, governments consumption expenditure, domestic income, and money supply (M3) were the main significant factor in Kenya while the results found foreign income not to be significant factor. (Edward nienga, 2010)

According to (Fuller, Dickey, D.A. & W.A. Fuller, 1979) In their study of the effects of budget deficit on trade balance in Nigeria found some evidence from policy simulations and shows that budget deficit arising from increased government spending adversely affects the trade balance irrespective of whether it is money-financed or by external borrowing. (Dickey, F., 1979). Did studies on the trade balance effects of U.S. foreign direct investment in Mexico? His analysis shows that the rise of intrafirm exports and imports following U.S. FDI in Mexico suggests that FDI affects trade flows.

Contrary to other authors argues that "response of the trade balance to the real exchange rate varies by country with the nature of the trade." They then investigated the short-run and long-run response of the bilateral trade balance to a change in real bilateral exchange rate between the United States and each of its major trading partners (Canada, France, Germany, Italy, and Japan) and concluded that there is no statistically significant relationship between trade balance and real exchange rate, either in the short run or in the long run. (Rose & Yellen, 1989)

Magee (2008) was the first to notice that the U.S. trade balance deteriorated despite devaluation of the dollar in 1971. He then theoretically argued that it is possible for the trade balance to deteriorate subsequent to currency depreciation, mostly due to lags in the response of trade flows to a change in exchange rate but once the lags are realized then eventually the trade balance improves. (Magee, S.P., 1973)

Browsers investigated real exchange rate and trade balance relationship in Malaysia for a period between 1955 to 2006, their empirical study showed that there is an existence of long run relationship between trade balance and exchange rate, other major variables that were significant includes the domestic income and foreign income. Their results also indicated the no j-curve effect in Malaysia. (wai-mum, yuen-ling & Geoi-Mei, 2008)

According to (Korap & Levant, 2011) analyzed the determinants of the Turkish trade balance using the ARDL bounds testing, his estimation results indicated that real exchange rate depreciations improves the trade balance with a strong and significant value while domestic real income affects the trade balance negatively and that trade balance is strongly improved due to an increase in foreign real income. No significant effect of crude oil prices can be observed on trade balance. Furthermore (Ismail, 2012) analyzed a dynamic panel data analysis on the determinants of trade balance of Bangladesh for about 26 years with variables like real GDP, relative GNI, real exchange rate and import weighted index and discovered that import weighted index is significant in both short run and long run while other remaining variables were significant only in short run.

Moreover, researchers examined the determinants of Pakistan's trade balance using ARDL Co integration approach for a period between 1970 and 2005 and found the existence of a stable relationship between trade balance and income, money supply and exchange rates. The exchange rate results confirmed the marshal learner condition with a depreciation which was positively related to trade balance. (Waliullah, Mehmood k.k, Rehmatullah.K and wekeel.k. , 2010)

Imam sugema(2005) Investigated the determinants of trade balance and adjustment to the crisis in Indonesia. His results suggested that trade balance will improve due to the devaluation through an increase in exports and a collapse in imports. Since the elasticity of import with respect to real exchange rate was higher than that of export then according to him that phenomenon implied that trade balance improvement would come from the import compression. (Imam Sugema , 2005)

Research Found the strong association between balance of trade and real effective exchange rate but most of the studies show weak statistical correlation among macroeconomics variables and balance of trade. (Rahman 1997, Mahdavi and Sohrabian 1993-1994, Greenwood 1984 and Mustafa 1996), and a number of the researchers explain the changes in real effective exchange rate which would affect the balance of trade positively in some nation but it is not consistent for all nations. It can conclude that the direction between balance of trade and real effective exchange rate is uncertain. (Liew, 2003)) had a study on the ASEAN (Association of South East Asian Nations) found that balance of trade affected in those nations who change real effective exchange rate not in nominal effective exchange rate. (Himarios (1989) and Bahmani-Oskooe, (2001) )

In the writings of (Duasa, 2007) Had a research work on the short run and long run correlations among the balance Of trade, exchange rate, income and money supply in case of Malaysia. Monetary absorption approach was used instead conventional absorption approach to find out the elasticity of exchange on balance of trade.

Regarding to (shao, 2008)investigate Exchange Rate Changes and Trade Balance: An Empirical Study of the Case of Japan. He used time-series data for 26 years. He used the multivariate Johanson-Juseliuscointegration method using indicates three long-run relationships among five macro variables: trade balance, domestic income, foreign income, net foreign assets and real exchange rate. Short run adjustment parameters are identified as coefficients of the error correction terms.

He found the valuation effect of the net foreign asset position into account, the final effect of the exchange rate changes on trade balance is undetermined. Although appreciation can reduce trade surplus in the short run, in a longer horizon, there is no stable relationship. The positive sign of the relation is not guaranteed in this case, and appreciation is not surely able to correct the trade imbalance between countries.

He concluded that relationship of exchange rate and bilateral trade balance long-run relationships of the cointegrating variables and short-run adjustment coefficients for the error correction terms.

One of the factors could affect trade balance is foreign direct investment. There are a few studies and research that examined about the impact of FDI on trade balance.

Research examined about the relationship between FDI and Trade balance, bring about an assertion result that there is an effect of FDI on exports ((Blomstrom 1988, pfaffmayr 1994, lin 1995).

Literature shows (Lardy 1996 and Zhang 1999 and LIU , 2011) had worked on foreign direct investment and balance of trade with reference to china. The study pointed out that FDI affects expansion of export and economic growth in china significantly. Panel data was used to find out the result for the period of 1987-1999 simultaneously pooled least square method was applied.

With respect to (Tse, 1997) carried out the result that FDI positively impacts provincial and regional manufacturing, export growth in China. especially in coastal region and central region of China.

The research in the trade balance effects of foreign direct investment in United State Manufacturing, (Orr, 1991)showed a lot of result for the impact of FDI on the trade balance. During the latter half of the 1980s, the rapid growth in foreign control of United State manufacturing assets suggest the consequence that FDI is likely impact on the trade balance. One of the realities at that time is the exception for the Japanese investors who established automobile assembly plants in their country, the almost foreign investors generally chose the way to acquiring existing United State firms to enter the United State market rather than to setup the new firms in this market. Estimate about 93% of annual foreign direct investment outlays for manufacturing to acquisition United State firms in this period. The transferring ownership of existing firms doesn't add directly the capacity of production in the national industry. The FDI through acquisitions seemly not lead to an impact immediately and significantly on import or an expansion on export. More clearly, by examine the role of FDI in promoting economic growth in the industrial countries and developing countries during the period 1970 – 1989,

According to (Borensztein et al., , 1998) showed that, FDI is an important factor that could become the vehicle of technology transfer which could contribute an increase to economic growth more than domestic investment. Furthermore (Feder (1983), Ram (1985), Salvatore and Hatcher (1991) )showed that the productivity of exports is increase because that economy exploits and uses the capacity better and the economies of scale better. They also showed that, export has the ability reduce the flowing of foreign currencies to the outside,

creating more advantage to import the modern technologies and production methods.

Examine about the impact of foreign direct investment and trade on economic growth, (Makki, 2004)) showed that, FDI has a strong positive impact on trade. FDI is the main factor that could bring more transfer in advanced technologies to developing countries.

For the impact of FDI on import (Orr, 1991)) hypothesized that FDI should lead to lower United State import. But, the empirical results showed that there is no decreasing significant in imports when the foreign ownerships of United State manufacturing increase. And in several years after that when the investment took a place, an increase in FDI will impact an increasing on imports.

Findings of previous study shows that the variables taken as determinants accordingly. Households' expenditure, real effective exchange rate and foreign direct investment and foreign income are the major component of balance of trade deficit. Other factors that would determine trade balance deficit-surplus such that inflation rate have not been addressed properly; hence this study tends to lighten that gap.

### 3. THEORETICAL FRAMEWORK RESEARCH METHODOLOGY

#### 3.1 theoretical Framework

Balance of trade: The difference between the value of goods and services exported out of a country and the value of goods and services imported into the country. The balance of trade is the official term for net exports that makes up the balance of payments (Satija, 2015)

The balance of trade is the account that details the value of exported goods and the value of imported goods. To calculate the balance of trade, the national accounts service evaluates imports and exports of goods based on customs statistics on goods. (Christine Riffart (OFCE) and Danielle Schweisguth (OFCE), 2013).

Operational definition of trade balance is the difference between a country's total merchandise exports and imports for a specific time period (James Gwartney, Richard Stroup, Russell Sobel, David Macpherso, 2015).

#### 3.2: The Two Country Imperfect Substitute Model

The two country imperfect substitute model of Rose and Yellen (1989) is another approach to trade balance. This approach shows the nature of the relationship of real exchange rate on trade balance in both short and long run. It stipulates that depreciation of the real exchange rate improves trade balance. Besides, the model assumes that there are no perfect substitutes in the imports and exports for the locally produced goods and services (Rose and Yellen 1989).

The model assumes also the following; first, price elasticities of demand and the domestic and foreign income elasticities are positive. Secondly, the income in the foreign or importing country may influence the level of exports by the domestic economy besides the price of domestic substitutes and the price of the imported goods. Moreover, there is need to prevent money illusion by considering that demand function is homogenous.

The model is expressed as the partial reduced form of the domestic trade balance which is a function of the real exchange rate, domestic and foreign income. The reduced form equation was derived from the incorporation of the relative price of imports which was a function of real foreign price, real income and the real exchange rate. By the adoption of this model by Rose and Yellen (1989), it was concluded that

Foreign income and the real exchange rate have positive effects on trade balance while on the other hand the domestic income has negative effect on trade balance. The advantages of this model are that a single equation is adopted in the analysis process. Also, there is no need of the structural parameters and as a result it is likely to give the desired or undesired relationship/effect of the real exchange rate on the trade balance (Rose 1991). However, the model incorporates variables from other approaches and hence is not 'stand alone' model. These variables as outlined are RER, domestic income and foreign income. Other variables may also be included in the model.

$$TB = F(RER, Y - Y^*) \dots \dots \dots (1)$$

Where:

- TB: is trade balances,
- RER: is the real exchange rate,
- Y: is the domestic income and
- Y\*: is the foreign income.

This model was adopted by some authors like Bahmani-Oskooee and Ratha (2004) who showed no evidence of the existence of the long-run relationship between exchange rate and trade balance. Also, the study by Baharumshah (2001), and Arize (1994) by adopting the model showed the evidence of the existence of the long run relationship between exchange rate and trade balance. In addition, Rose (1991) and Rose and Yellen (1989) showed that there was insignificant effect of the exchange rate on trade balance upon adopting the model.

#### 3.3 Source of Data

The annual data in this study consists of determinants of trade balance; data will obtain from International

Monetary Fund, World Bank, trading economics and Mundi Index. Yearly time series data of 30 years, from 1972 to 2010 is used to examine the determinants of trade balance in Somalia. The dependent variable is trade balance and the independents are exchange rate, FDI and inflation.

### 3.4 model specification

To test the hypotheses, the full econometric model to estimate is specified as follows and this study adds the model FDI is measuring at times currency of US dollar and ER is measuring real exchange rate at times currency of shilling Somali, INF measuring by rate change in price level and TB measuring at times currency of US dollar.  

$$\ln TB = \beta_0 + \beta_1 \ln ER + \beta_2 \ln FDI + \beta_3 \ln INF + \varepsilon_t \dots \dots \dots (2)$$

Where

TB: trade balance

E: exchange rate

FDI: foreign direct investment

INF: inflation rate

$\varepsilon_t$ : error term

## 4. RESULTS AND DISCUSSION

This section presented the statistics result of the determinants of trade balance in Somalia. This study annual secondary time series data during the period 1970 – 2010, this period has been chosen because data to be used in the trade balance function was likely to be available. Equation is estimated using ordinary least square (OLS) technique with selected data on Somalia. For all of the factors include dependent variable trade balance and independent variables FDI exchange rate and inflation. This chapter will highlight Descriptive Statistics, test of the model strength, Estimation of the model parameters and results and major findings.

### 4.1: Descriptive Statistics

To provide a useful summary of determinants of trade balance when running empirical and analysis data, this study used descriptive statistics function. Descriptive statistics are ways of summarizing large sets of quantitative (numerical) information. Namely, The Mean or average is probably the most commonly used method of describing central tendency. To compute the mean, need to add up all the values and divide by the number of values. The Median is the score found at the exact middle of the set of values. One way to compute the median is to list all scores in numerical order, and then locate the score in the center of the sample. The standard Deviation is a more accurate and detailed estimate of dispersion because an outlier can greatly exaggerate the range. The Standard Deviation shows the relation that set of scores has to the mean of the sample. Maximum is the highest value in the sequence data. Minimum is the lowest value in the sequence data. Observations are the total sample that the researcher using. The results show in Table: 4.1.

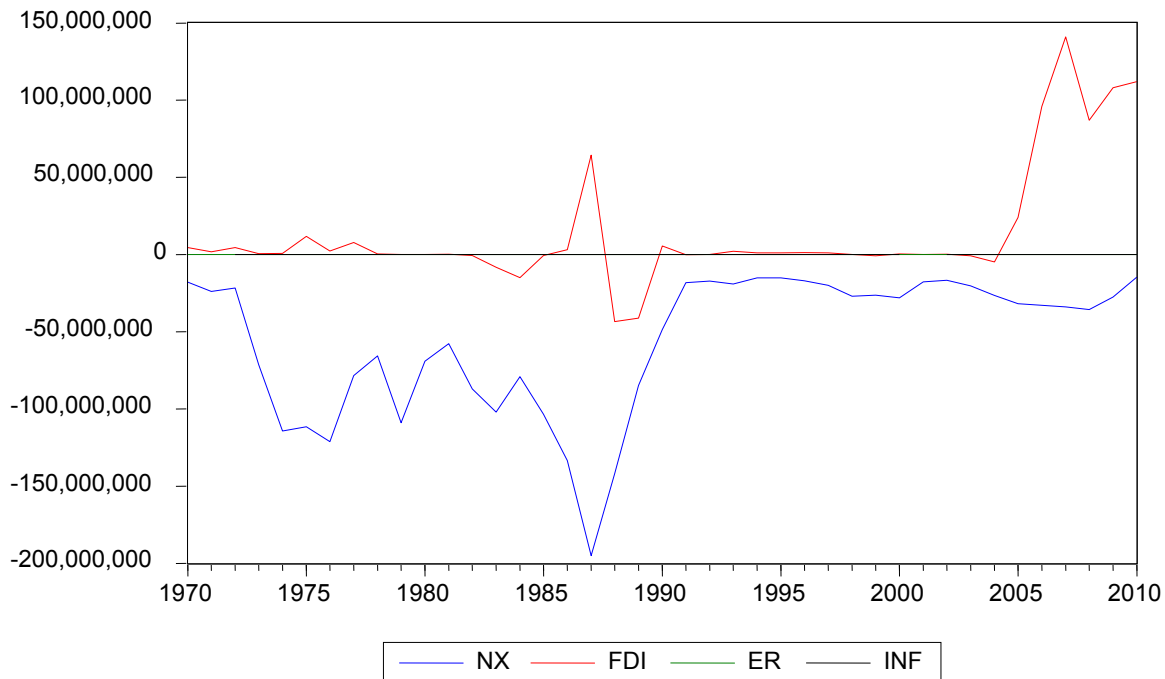
**Table: 1. Summary statistics of the variables**

Variable	Mean	Median	minimum	maximum	Std. Dev	Observations
FDI	1.381	7	-4.339	1.41	3.9358	38
ER	7163.9	4000	6.3	31585	9453.2	38
INF	30.447	18	-15	215	39.443	38
NX	-5.6109	-3.297	-1.9516	-1.47	4.4802	38

With the dependent variable, the descriptive results in Table1. show that, ratio of export to import displays The average of net export is (-5.6109) unit, and its standard deviation is (4.4802). The lowest of net export is (-1.9516) unit and the highest is (-1.4700) unit.

With the independent variables include FDI, ER and INF. The results in the table 4.1 show that, the Variable FDI displays the capital from the foreign investors of the economy. The average of FDI is (1.3810) units and its standard deviation is (3.9358) unit. The lowest of FDI is (-4.3390) units and its highest is 1.4100 units. The average of ER is (7163.9) units and its standard deviation is (9453.2) units. The lowest of ER is (6.3000) units and its highest point is (31585) units. The average of INF is (30.447) units and its standard deviation is (39.443) unit. The lowest of FDI is (-15.000) units and its highest is 215.00 units

**Figure 1:** Trend of trade balance, foreign direct investment, exchange rate and inflation rate



The figure1. shows the trend of the trade balance, foreign direct investment, exchange rate and the inflation rate. It is observed that INF and ER is at a steady state but trade balance seems to fall and fluctuate in the period from 1970 to 1987, and then starts to get rise in a stable mood. On the other hand FDI is moving in a steady rate and somehow fluctuates in the mid 1980s. But FDI seems to get increase in the long run.

#### 4.2 Test of the Model Strength

##### 4.2.1 Goodness-of-Fit

Study measures how explanatory variables explain the variation of the dependent variable. It uses to compute the number that measure how OLS regression fits to the data line. We assume that Total Sum Square is not equal to zero which is true unless all dependent variable has equal value.

We compute R square to the equation

$$R^2 \equiv \frac{SSE}{SST} = 1 - \frac{SSR}{SST}$$

However, in this study R square is 40%. Mean that, from the equation, the estimate equation can explain the change of independent variables by 0.4041%. The R squared ( $R^2$ ) value for this model is 40% it implies that our independent variables explain about 40% 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  $\epsilon$ . 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  $DW = 0.611857$  is greater than  $R^2 = 40\%$ , and also F-statistic are significant, this modal has validity.

##### 4.2.2 Multicollinearity Test

This study uses Correlation Matrix Test to check for the correlation between independent variables and determine whether there is multicollinearity between independent variables. The results show in the Table 4.3 as the following:

**Table 2: correlation matrix test result**

	FDI	ER	INF
FDI	1.0000	0.6533	-0.381
ER		1.000	-0.3645
INF			1.0000

The results from table 3. above show that, the correlations between all the independent variables below the limit value set of the multicollinearity. It means less than 0.8. Namely, the correlation between FDI and ER is equal to 0.6533 and lower than 0.8. Mean that, there is no multicollinearity problem between FDI AND ER .The correlation between FDI and INF is equal to -0381 and less than 0.8. So, there is no multicollinearity problem between FDI and INF. The correlation between ER and INF is equal to -03645 and is less than 0.8. Then, there is no multicollinearity problem between ER and INF.

In the overall, there are no multicollinearity problems between independent variables. All the three independent variables include FDI, ER and INF can be used to run regression.

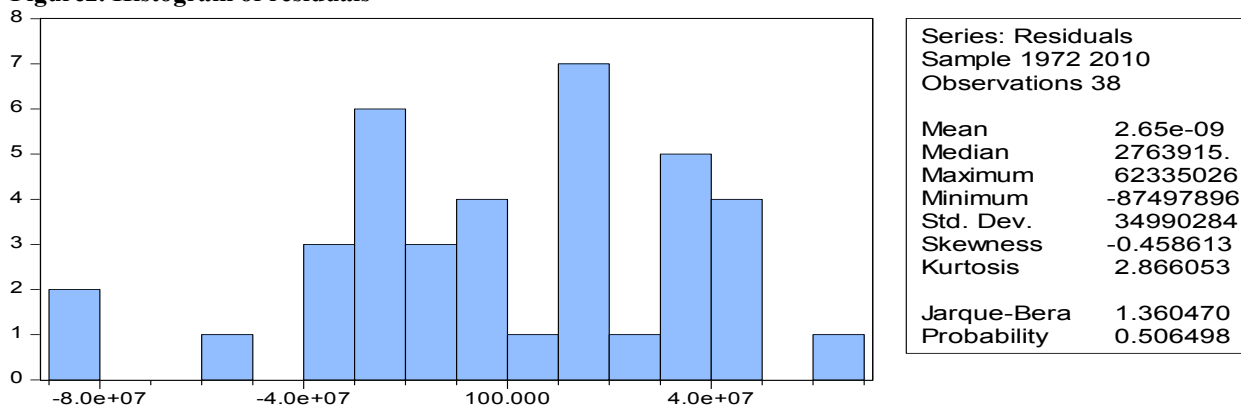
#### 4.2.3 Asymptotic Normality test:

The figure below shows the data distribution employed in this study, data is accurately in a normal state, which means its probability is highly encouraging at 50%. And moreover jarque-Bera is about 1.3604 that means the data distribution is approximately greater than 5%.

This diagram shows that the residuals are perfectly normally distributed; for a normally distributed variable the skewness (a measure of symmetry) should be -0.458613. And kurtosis (which measures how tall or squatty the normal distribution is) should be 2.866053.

But it is always good practice to plot the histogram of residuals from any regression as rough and ready method of testing for the normality assumption. For the determinants of trade balance regression, the histogram of the reseals is as shown in figure .2

**Figure2. Histogram of residuals**



#### 4.4 Estimation of the model parameters

According the result, the Probability is equal to 0.0005 and less than 5%. Mean that, all the independent variables in this model can be using to determine their impact on the dependent variable trade balance at significant 5%. R-squared is equal to 0.4041. Mean that, from the equation, the estimate equation can explain the change of independent variables by 0.4041%.

There are two significant variables include foreign direct investment –FDI and exchange rate –ER. The relationship direction can be explained as the following: The probability of FDI is equal to 0.0531 or significant at level 5%. The coefficient of FDI is equal to -0.409494 mean that FDI has negative impact on trade balance or FDI has negative impact on trade balance in Somalia. If FDI is increasing 1% the trade balance will be decreasing -0.409494%.

The coefficient of exchange rate is 3970.831 mean that exchange rate has positive impact on trade balance and its probability is therefore equal to 0.0001 and lower than 5% or significant at level 5%. If exchange rate increases (decreases) by 1% the trade balance will be decreasing (increasing) by 3970.831. However, there is one insignificant variable which is inflation rate. The probability of inflation rate is equal to 0.8563 and greater than 5% or insignificant at the level 5%. The coefficient of inflation rate is 30406.88 mean that inflation rate has positive impact on trade balance. If inflation rate increases (decreases) by 1% the trade balance will be increasing (decreasing) by 30406.88.

**Table 3: Estimation of the model coefficients**

Variable	Coefficient	Std.Error	t-statistic	Prob.
C	-82594169	10085598	-8.189318	0.0000
FDI	-0.409494	0.204348	-2.003901	0.0531
ER	3970.831	870.8887	4.559516	0.0001
INF	30406.88	166592.6	0.182522	0.8563

R-squared  
0.404111

F-statistic  
7.685877

Prob.(F-statistic)  
0.000473

#### 4.5 Major findings and discussion

From the table 4. the hypotheses summary of study about the factors impact trade balance in Somalia. It found that the changing of FDI had negative impact on Trade balance in Somalia. The hypothesis FDI is accepted. ER and INF did not impact trade balance, the hypotheses rejected.

**Table 4: Summarize for testing hypothesis**

variable	Statistical significant	Directional relationship	direction is the same as expected
<b>FDI</b>	√	-	√
<b>ER</b>	√	+	<b>X</b>
<b>INF</b>	<b>x</b>	+	<b>X</b>

##### 4.5.1 Result 1: foreign direct investment and trade balance

The first factor used to determine its impact on trade balance in Somalia is FDI. According the result, there is negative impact of foreign direct investment (-0.409494) on trade balance in Somalia, hypothesis accepted. Mean that, an increase of FDI will lead a decrease on trade balance or increase the imports in Somalia. Such as Blomstrom (1988), Pfaffermayr (1994), Lin (1995). However, Orr (1991) showed that there is likely limit impact of FDI on trade balance in the long term. But in the short – term FDI seemly not lead to an impact on import and expansion export. But in this situation, the political instability is the reason that created a large barrier for the foreign investors to invest in Somalia. In these 38 years from 1970 – 2010, the FDI of Somalia was very low, especially decreasing quite strongly from 1986 to 1990s. This is the reason that FDI had negative impact on trade balance in Somalia.

##### 4.5.1 Result 2: exchange rate, inflation rate and trade balance

The results show that the real exchange rate has a positive effect (3970.831) on trade balance. This effect is significant at 5 percent level. The positive sign of the coefficient of real exchange rate was the one anticipated by the model. This implies that rise in the real exchange rate leads to improvement of the trade balance. Therefore, trade balance in Somalia would have been worse if depreciation of the real exchange rate reduces would not have played a role to reduce the deficit. Therefore, devaluation policies need to be advocated for improved trade balance. Nonetheless, the government does not make some intervention also to control the level of the real exchange rate movement with the other currencies especially the USA dollar.

Results suggested that trade balance will improve due to the devaluation through an increase in exports and a collapse in imports. Since the elasticity of import with respect to real exchange rate was higher than that of export then according to him that phenomenon implied that trade balance improvement would come from the import compression. (Imam Sugema , 2005)

The result was supported by Nusrate (2008) who established a positive and significant effect of the real exchange rate on the trade balance in Bangladesh. Also, it was established that the shift in the exchange rate regime from fixed to flexible exchange rate has no effect on trade balance in the Bangladesh economy in the long run. Therefore, the change in the exchange rate regime would have less effect on trade balance and hence the government should maintain the flexible exchange rate system even though the Central Bank of Somalia makes no visible intervention to control depreciation and may not entirely leave it the market forces.

Moreover, the inflation rate had a positive effect on trade balance with the coefficient of 30406.88 which was contrary to the expected sign. The result was highly insignificant at both 5 and 10 percent level of significance. Therefore, the results shows that increase in inflation rate improves trade balance but according to Keynesians approach, decrease in inflation rate leads to more purchase of the foreign goods hence decline in trade balance. As a result, the government needs to implement monetary policies that would reduce trade deficit. Also the policies may aim at reducing inflation level to below 5 percent.

The Central Bank of Somalia manages the supply of money through other channels like the management of the reserve requirements and the management of the interest rate with the commercial banks. Thus, When inflation is low, it implies that the economy is in the "loose money cycle" and when inflation is high, it means that the economy is in "tight money cycle". In theory, when the economy is in the "loose money cycles" usually there is a higher trade deficit due to the monetary policy of allowing more credit with lower interest rates. As the rates increase the money will get tighter and fewer will be willing to lend the money as ownership becomes more attractive. This will trickle into the creating lower costs of production (labor, Environment, and other production factors) there-by leading to the improvement of trade balance positively. (Moses Joseph Shawa\*, Yao Shen, 2013)

## 5. CONCLUSION AND POLICY IMPLICATION

This research studied about the determinants of Trade balance in Somalia during the period 1970 – 2010. Base on the annual time series data collected trading economics, World Bank mundi index and world development indicators. The main objective of the study was to identify the determinants of trade balance. Some statistics function applied to analyze the data of each factor. First, the study used the descriptive statistics approach to summarize and describe all the data series before running the analysis. Then, it's estimated the parameters of the



model, Correlations Matrix approach used to find out the multicollinearity problem between independent variables. Hence, Heteroskedasticity test used to check problem of the variance of residual is unstable. After that, this study used ordinary least square (OLS) through the usage of E-views software package.

In the result for the determinants of trade balance in Somalia, the study found out that there was foreign direct investment factor. Because its probability was significant at level 5% FDI had negative impact on trade balance in Somalia. Whereas exchange rate and inflation rate has positive impact on Somali trade balance.

This study used three factors to determine their impact on trade balance in Somalia by using regression analysis during the period 1972 – 2010 include FDI, exchange rate and inflation rate. This research found out exactly which factors can impact trade balance in Somalia and the result can help improve trade balance. From the result of this study, there is a negative impact of foreign direct investment on trade balance in Somalia, meaning that, an increasing FDI will lead to and decrease (increase) of trade balance. Foreign direct investment is one of factors that are very important. Mean that, Somalia must facing with the trade deficits for a long time. To solve this problem, FDI is one of factors needs to pay special attention, and find the ways to deal with this factor.

According to the result, there is foreign direct investment which had negative impact on trade balance in Somalia. The other factors didn't impact trade balance including exchange rate and inflation rate negatively. Based on the results, here are some recommendations that this study suggest:

Policy formulation should base on these out listed factors in order to improve the trade balance in Somalia. Some policy advice like continuation of a more conducive investment climate in Somalia is important to encourage more multinational companies to come and invest in the country especially those with that target to export from the country. More facilities and opportunities for the people to get more education are necessary to increase the number of educated people in the country that can increase the production level hence improve the trade balance. Also other good measures of currency stabilization are necessary to improve trade balance. The government should spend more budgets to support and encourage the local company to produce and export the products to another country and expand the business to the other countries. Besides that, the government should keep the policies stable (do not adjust the policies in a short – time) to attract more foreign investors, especially in the projects to exploit the crude oil which is available somewhere in the country.

For export, the government should have some policies to support export. Such as investment incentive, taxes incentive, support the enterprises to set up and expand their business to the other area by creating policies loan with the zero-interest rate.

For import, the government should have the policy to limit the import goods that caused to exceed its export by using terms of trade policies. Besides that, the government should support the local company increase producing, to ensure the output enough for the local consumers.

#### **5.4 Limitations and further research**

The main limitations of this study are including:

First, there are a lot of factors impacted on trade balance. But in this study just researched in three factors include FDI, exchange rate and inflation rate. There might be some missing factors that this study didn't examined. In further research should be adding more factors when examined the factors impact on trade balance to find out more results.

Second, the study used totally 38 observations during the period 1970 – 2010. Further research should add more observations for the analysis.

Third, trade balance is the difference between exports and imports. It will be beneficial to explain factors that affect trade balance if the impact of the same set of the factors is examined on exports as well as imports. But in this study just examine only factors impact on trade balance. So, further research should use exports and imports as the dependent variables as well.

In general, the analysis and the result of this study are very clearly. This study also provides some implications and recommendations. It will be useful for the government in Somalia or organizations that make policies. Besides that, this study also provides some information to contribute further research. Further research can use the information, suggestion and result of this study to support or improve the research in the same or the other areas. Besides that, this study provides more information about the trade balance in Somalia, especially the factors that impact it.

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