The Influential Factors of Foreign Direct Investment, and It's Impact on Sierra Leone's Economy

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ABSTRACT

InAfricanandmostofthedevelopingcountriesintheworld,ForeignDirectInvestment(FDI)hasbeenoneofthegreatesttoolsignitingeconomicgrowth.SierraLeoneas one of the countries seeking rapid growth after a continuous break down through war ,and other economic challenges the country has gone beyond attracting foreign investment through many means but most especially, implementing favorable policies that do attract investors of FDI in our mineral resources which is our strong economic base. This work examines the initial fluctuation of foreign direct investment flows to Sierra Leone, the significance off oreign direct investment in a developing economy, and the recent drop of FDI inflows to the country. This research was to assess the factors influencing foreign direct investment in Sierra Leone between the periods 1980 and2016. In doing so, time series data were collected from the World Development Indicators (WDI) World Bank data base and the international financial statistics. The ordinary least squares (OLS) regression technique was employed to estimate the relationship between foreign direct investment and its influential variables.

Keywords: *Error Correction Model, Foreign Direct Investment, Ordinary Least Square, Macroeconomic Determinants, Unit Root, Sierra Leone.*

INTRODUCTION AND ECONOMIC BASE OF THE COUNTRY (SIERRA LEONE)

Sierra Leone is a country that is endowed with rich mineral resources with fertile lands for agricultural activities. This explains why the economic growth of the country largely depends on these minerals. By implications, it is the country main source of income generation. Thus, development is bound in the area of mineral exploration and mining of a variety of minerals including Chromite, iron ore, platinum, gold, diamond, bauxite, and Rutile, Umenite, zircon and rare earth elements such as columbite-tantanite. The mining sector has been the primary contributing factor to the country's Gross Domestic Product (GDP) and government revenues. It is important to note that the expansion of the industry is expected to intensify and as such, raise the country to a middle income status by 2035 (report, 2013). In order to achieve this, the government has become fully committed to improving the governance of the mining sector, and ensuring that it becomes transparent, accountable and promotes good investment. Practically, a world class mines and minerals act was instituted in 2009, and a National Mineral Agency (NMA)

was established in 2012 to take responsibility for the implementation of minerals sector policy. Diamond trading is in accordance with the Kimberly process certification scheme. All of these strategies including the effort by the government to improve the governance frame work for the mining sector makes Sierra Leone a global destination for investment in the mining sector. The country's tax regime is also competitive and investment are adequately protected by our laws or laid down principles. As stated above, the increasing importance of our minerals towards the economy cannot be overemphasized. The extractive sector in Sierra Leone is currently at across road, as large parts of the sector are moving from exploration to actual extractions of minerals. Diamonds have since become the main natural resource export in Sierra Leone. However, since iron ore production began in 2011, it is clear that the extraction of this resource will substantially increase value to the economy of the country. In 2012, investments and production from the two multinational companies, African Minerals and London mining-both extracting iron ore become main contributors to the country's economic growth of almost 20%. This was one of the

highest growth rates in the world, and the value of this precious mineral exported in this year was over $357 million almost half of the total value of all natural resource exports (natural resource watch, 2014). It is expected that iron ore production will continue to be a significant contributor to economic growth. The government expects GDP to grow by an average annual rate of 11.13% until 2017, when iron ore production alone would account for 4.8 percentage points of this growth. The increasing significance of iron ore demonstrate that royalties from diamond and gold are expected to double, whereas royalties from iron ore extraction are estimated to increase by more than four times in the same period. If this projection becomes realistic, it would mean that royalties from iron ore generate over three times more revenues than gold and diamonds combined. Besides, there is also another sector responsible for economic growth in Sierra Leone. The country which is ideal for agriculture has over 4.3 million hectares of cultivable, plentiful aquatic resources. Agriculture is one of the most significant areas of our economic base. It contributes about 45% of the gross domestic product (GDP) and employing about 65–70% of the population. Agricultural development in the country as it serves as a spring board for the development of other sectors of the economy. It is important to note that agricultural activities in Sierra Leone

are dominated by artisanal agricultural activity. With such an activity, there is always low production on their side with virtually low value added. The crop subsector, with rice dominating, contributes about 75% of agricultural GDP. Annual per capita consumption of rice is amongst the highest in sub- Saharan Africa, estimated at 104 kg. It is estimated that domestic production of rice currently accounts for about 75% of the total annual national requirement for rice of 557,297 metric tons. (FAO 2002) But the proportion of rice Cocoa and coffee alone account for 23% of the country's export. Our main export partners are: Belgium, Netherland, China and United States. Imports are as a percentage of total rice consumption remains high. The production of cassava and other food products, including sweet potato, poultry, small ruminants and cattle, also increased during the last eight years; the production of traditional export crops such as cocoa and coffee also increased (by 217% and 60% respectively). Cocoa and coffee exports increased between 2007 and 2011 by 105% and 220% respectively A number of offshore oil discoveries were announced in 2009-2010. It has been proven that crude oil is enough for marketing. Production is expected to commence in 2018. This latest development on the oil industry will definitely become a major boost to the much anticipated economic growth.

Over View of the Sierra Leone Economy

GDP by sector (percentage of GDP at current prices)		
	2010	2014
Agriculture, forestry, fishing and hunting	56.0	50.5
of which fishing	9.5	10.5
Mining and quarrying	4.2	20.2
of which oil	...	...
Manufacturing	2.3	1.6
Electricity, gas and water	0.3	0.3
Construction	1.4	0.9
Wholesale and retail trade; Repair of vehicles household goods; Restaurants and hotels	9.7	7.7
of which hotels and restaurants	0.4	0.3
Transport, storage and communication	6.1	3.8
Finance, real estate and business services	3.4	2.4
Public administration and defence	4.3	4.4
Other services	12.3	8.2
Gross domestic product at basic prices / factor cost	100.0	100.0

Source: *UNDP, 2015*

Public spending on agriculture has increased 1,150% in real terms over the last seven years, rising from Le 6 billion in 2000 to Le 75 billion in 2007 and to 76 billion in 2010. This increase

is consistent with the importance attached by government to the rapid revitalization of the agriculture sector. Increased spending to agriculture over these years has coincided with

strong growth in the sector. It is likely, however, that this growth is attributed as much to the restoration of peace and stability as to government's rehabilitation efforts and the government commitment to the Maputo declaration in 2003, where heads of states and governments of the African continent agreed to allocate at least 10% of the total national budget to agriculture. As part of the Post Ebola Recovery Plan, the objective of the government is to create 10,000 jobs across the agriculture supply chain, and increase agricultural production and productivity of targeted crops and livestock. To this end, the Ministry has distributed 65,000 bushels of seed rice; 42,000 bags of assorted fertilizers and millions of different varieties of tree crops seedlings to individual farmers and farming groups. Fifty-two Agricultural Business Centers have been selected for transformation into viable processing and marketing entities.

The fisheries subsector contributes 21% of agricultural production and livestock represents 4%. Fisheries are dominated by artisanal marine capture systems, and by small-scale fishing in inland waters. Industrial fishing is mainly done by foreign fleets. Aquaculture is not yet of significance. Total catch is currently estimated at 65,000 metric tons with artisanal production accounting for up to 70%. Overall the fishing industry accounts for about 10% of GDP. This is a huge success in this sector comparing to its previous performance over the years.

The broader objective of the research is to theoretically and empirically analyze the performance of foreign direct investment as an economic base to our Income Growth in Sierra Leone over the period 1980 – 2016. More specifically the study will seek:

- To analyze the trend of Foreign Direct Investment flows to Sierra Leone
- To examine the relationship between FDI and economic variables in Sierra Leone
- Recommend some policies that will help to attract and retain Foreign Direct Investment in Sierra Leone.

LITERATURE REVIEW

The study of Pravin Jadhav (2012) look at the role of economic, political and institutional factors in attracting foreign direct investment (FDI) as an economic base, in BRICS economy and the relative extent of these factors in attracting FDI. They had used ten years panel data (2000-2009) for them to study the major determinants of FDI in BRICS. In the analysis panel unit -root test and multiple regressions were used. Their study took into account, natural resources Trade openness, Market Size as economic determinants and Inflation Rate, Political stability, Effectiveness of Government, Regulatory Quality, Corruption control, count ability, Rule of significant than economic factors in BRICS economies. The results also indicated that market size measured by real GDP is a major determinates of FDI. Analysis of empirical data on his study also showed that openness to trade, natural resource availability, accountability and rule of law are statistically significant. The coefficients of, openness to trade and market size are positive which implied that they have positive outcome on inward FDI. Natural resource availability has negative effect Law as prospective institutional and political determinants of FDI. His findings indicated that institutional and political factors are less on total inward FDI; this result proved that FDI is not aggravated by resource-seeking purpose in these economies. Steve Loris Gui-Diby (2014) examined the impact of foreign direct investments on economic growth in Africa and presented estimations based on panel data of 50 African countries during the period 1980 to 2009, and the system generalized method of moment (SYS-GMM) estimators were used. He founds that FDI inflows had a significant impact on economic growth in Africa in the period of study. He also found that while the low level of human resources did not limit the impact of FDI, and that the impact of FDI on economic growth was negative during the period from 1980 to 1994 and positive during the period from 1995 to 2009. His study suggested that the negative impact of FDI for the period1980 to 1994 may be linked to the implementation in many African countries of structural adjustment programs, including privatization, the orientation of FDI in resource-seeking activities, weak economic links between multinational enterprises and local firms, and the low capacity of local enterprises to mobilize adequate resources to launch production. The positive impact for the period 1995 to 2009 was found to be partially explained by the improvement of the business environment and the contribution of resource-based industries to economic growth due to the export of commodities. He concluded by recommending Policy makers to design policies aimed at attracting foreign investors. He further stated while human capital has not been found to be a contingency to the impact of FDI on economic growth, maximizing the benefits

from FDI would still require governments to improve the availability of a well trained workforce, and to improve the business environment.

Chor Foon Tang, Chee Yin Yip, Ilhan Ozturk (2014) attempted to analyze the determinants of inward FDI in the electrical and electronic industry in Malaysia using bounds test approach for the 1980–2008 period.

It was found that GDP, exchange rate, corporate income tax, financial development, macro-economic insecurity and social insecurity factors significantly affect inward FDI in electric and electronic sector in Malaysia. Empirical results indicated that GDP, exchange rate, macro-economic insecurity and financial development are positively related to inward FDI in electric and electronic sector in the long run.

However, social insecurity and income tax were found to have a negative impact on inward FDI in electric and electronic sector. Furthermore, the Granger causality results also indicated that all explanatory variables Granger-cause FDI in the long-run, but in the short-run only macroeconomic and social insecurities Granger-cause FDI.

The impact of social insecurity was found to be greater than macroeconomic uncertainty. Thus, foreigners that invest in electric and electronic sector appear to be more worried about the level of social security when deciding their investment destination.

Their findings suggested that those in authority should provide a stable economic growth, reduce the exchange rate volatility, increase the competence of the financial institutions, make use of tax incentives and reduce social insecurity to attract more FDI and foreign investors to the country purpose. Its findings, if implemented will cause for sure a real improvement in FDI inflows to Sierra Leone.

METHODOLOGY

The ordinary least square (OLS) estimation is used. The choice of this model is based on the fact that OLS is best suited for testing specific hypothesis about the nature of economic relationship (Guajarati 2004).

The time series properties of the variables are examined in the process. The methodology involves estimating an econometric model in which the factors that influence foreign direct investment in Sierra Leone is investigated. In this study we employ a multiple linear regression model to estimate the relationship between FDI and its influential variables. Following FDI theories such as the one put forward by Dunning and Lundan (2008), it is clearly vision that Natural resource is an important determinant of foreign direct investment.

Our empirical model specification for estimating the factors that influence FDI specifies natural resource availability and other key determinants of FDI as commonly suggested in the FDI literature. Thus, in deriving our empirical model for estimating this relationship for Sierra Leone, we posit that:

$$FDI = F (N, Q) \qquad (1)$$

Where FDI denotes foreign direct investment inflows and N and Q are vectors of Natural resource and other FDI influential variables respectively as found in the empirical literature and which are crucial for attracting foreign investors.

Their model in particular emphasizes in general the importance of market size and policy for promoting FDI inflows. On this basis, the above theoretical model motivates the general empirical FDI model for the time series regression, which is specified as follows:

$$FDI_t = \alpha + \beta N_t + \gamma Q_t + \varepsilon_t \qquad (2)$$

Where FDI is foreign direct investment inflows, and N and Q are as previously defined. ε_t is the error term, while subscript t, denotes time. Critical influential factors of FDI of developing countries like Sierra Leone comprise trade openness and market size.

$$\text{Thus } Q = F (Open, MS) \qquad (3)$$

Where open denotes openness of trade to the rest of the world which is calculated as import plus export scaled up by GDP and MS denotes market size which is a proxy of GDP.

This assumes that open, which constitutes import and export and market size, are critical sources of FDI in addition to natural resource endowment that can attract foreign investors. As found in the literatures, other FDI determinants considered as control variables are:

$$R = F (Policy, PI) \qquad (4)$$

Where 'policy' denotes macroeconomic policy which is proxies of the rate of inflation (INF), and PI denotes political instability (the period of war, where 1991-2001=1 and 0 otherwise).

Hence, substituting equation (3) and (4) in (2), provides our detailed empirical FDI model as:

$$FDIt = \alpha + \beta(NRA, open, MS)t + \gamma(INF, PI)t + \varepsilon t \quad (5)$$

Simplifying and rearranging yields:

$$FDIt = \beta_0 + \beta_1 INFt + \beta_2 MSt + \beta_3 NRAt + \beta_4 PIt + \beta_5 Opent + \varepsilon t \quad (6)$$

Natural logarithm has been taken for each variable to estimate the elasticity (degree of responsiveness) of FDI with respect to inflation, market size, natural resource endowment, political instability and economy openness:

$$\ln FDIt = \beta_0 + \beta_1 \ln INFt + \beta_2 \ln MSt + \beta_3 \ln NRAt + \beta_4 \ln PIt + \beta_5 \ln Opent + \varepsilon t \quad (7)$$

Unit Root Tests

In compliance with recent development in macroeconomic time series modeling, unit root tests of the variables in the model were executed to determine their time series properties. The order of integration of each series was established using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. The ADF test equation is given as:

$$\Delta xt = \alpha + \delta xt\text{-}1 + \ldots \sum ki=1 \ \delta i\Delta xt\text{-}1 + \ldots \delta m \ \Delta \ xt\text{-}m + \varepsilon t \quad (8)$$

$$\Delta xt = \alpha + \beta t + \delta xt\text{-}1 + \ldots \sum ki=1 \ \delta i\Delta xt\text{-}1 + \ldots \delta m \ \Delta \ xt\text{-}m + \varepsilon t \quad (9)$$

The Phillip-Perron test equation is similar to the Augmented Dickey-Fuller test but the lag m, is omitted to adjust for the standard error in view to correct for hetero skedasticity and autocorrelation. Consequently The PP test equation is specified as:

$$\Delta xt = \alpha + \delta xt\text{-}1 + \ldots \sum \delta i\Delta xt\text{-}1 + \ldots \delta m \ \Delta \ xt\text{-}m + \varepsilon t \quad (10)$$

Cointegration Tests

After validating that the series are integrated of order one denoted as I(1), it is now feasible to check for co integration between foreign direct investment and its influential factors via the Johansen's multivariate framework. The Johansen co integration test is carried out in view of a vector autoregressive model (VAR) of the form:

$$\Phi (Z) X t = \Psi t \quad (11)$$

Where β_0 is a Constant and β_1- β_5 are coefficients to be estimated. The A priori expectation signs of the coefficients are that β_2, β_3, β_5, & gt; 0 and β_1, and β_4< 0 and εt is

the to chastic error term. The E-views 7.2 software is used to estimate the model.

In determining the number of co integrating vectors in the regression model, we utilize the Johansen likelihood ratio (LR) test procedure. This technique enables us to test for the presence of non-unique co- integration relationships. The use of two statistical tests i.e. the trace test and the maximum eighteen value test statistics were suggested. The trace test (trace) is defined as: Where as the maximum eighteen value tests (max) is defined as: (12) (13)

Where T = number of usable observations

I = Eigen values or estimated characteristics root trace test the null hypothesis

r = 0 against the alternative of r > 0 max test the null hypothesis

r = 0 against the alternative of r =1

Error Correction Model (ECM)

The error correction model (ECM) can be presented thus: Where Zt is the ECM variable in

$$yt = \beta_0 + \beta_1 Xt \quad (14)$$

$$yt - \beta_0 - \beta_1 Xt = 0 \ Zt = yt - \beta_0 - \beta_1 Xt \ \Delta yt = \delta_1(L)\Delta yt\text{-}1 + \text{\DJ}_1(L)\Delta Xt + \gamma_1 Zt\text{-}1 + \varepsilon_1 t \quad (15)$$

The ECM variable is tested for the significance of Zt-1: i.e. γ_1< 0 substituting equation (7) into equation (15) in incorporating the error correction term to reflect the short run dynamics yields: $\beta \ \beta \ \beta \ \beta \ \beta \ \beta$ (16)

Where Δ is the first difference operator, q is the lag length, is the speed of adjustment and ECMt-1 is the lagged error term and all other variables are as previously defined.

ANALYSIS OF EMPIRICAL RESULTS AND DISCUSSION

This chapter analyses the regression results. The empirical investigation commences with an analysis of the descriptive/summary statistics of the variables under investigation.

The mean and median were used as measures of central tendency and location respectively, whereas the standard deviation is used as measure of dispersion. Skewness and Kurtosis denotes the measures of Skewness and Peakedness respectively and the maximum and minimum values for each variable are also computed (table 5.1.)

Table5.1. *Descriptive statistics*

Variables	FDI	INF	MS	NRA	PI	OPEN
Mean	2.754952	33.09360	2.391819	11.96403	0.305556	0.465613
Median	0.875811	17.94328	3.721516	11.25322	0.000000	0.454065
Maximum	31.83586	165.6766	26.26858	21.67697	1.000000	0.703072
Minimum	-28.62426	-6.008735	-20.30125	7.315501	0.000000	0.229358
Std. Dev.	8.448694	37.65891	8.818995	3.733908	0.467177	0.120962
Skewness	-0.074830	1.788829	-0.129598	1.016253	0.844232	0.083155
Kurtosis	10.17262	6.147505	4.739218	3.238273	1.712727	2.231367

Source: *E-Views output*

In an attempt to detect the problem of multi collinearity in the model, a correlation matrix was done to determine the degree of correlation among the variables under investigation. Correlation explains the changes that occur in one variable due to change in other variable. If a high correlation is found between variables, it can lead to multi collinearity. The table below shows the result from the matrix.

Table5.2. *Pair-wise Correlation matrix*

	FDI	INF	MS	NRA	PI	OPEN
FDI	1	-0.244369	0.205662	-0.377466	-0.167885	0.481515
INF	-0.244369	1	-0.301110	0.320685	0.132832	0.078691
MS	0.205662	-0.301110	1	-0.236953	-0.390765	0.007594
NRA	-0.377466	0.320685	-0.236953	1	0.483611	0.000464
PI	-0.167885	0.132832	-0.390765	0.483611	1	0.013128
OPEN	0.481515	0.078691	0.007594	0.000464	0.013128	1

Source: *E-views output*

The rule of thumb is that if multi collinearity among two variables is 70% and above, then it is a cause of concern. However, the current study does not show any severe case of multi collinearity between the variables as the highest value of correlation is 48.3% between natural resource availability and political instability. This confirms the absence of multi collinearity among the variables in the model.

The time-series properties of the variables of interest for the foreign direct investment (FDI) equation (see Table 5.3 & 5.4) are also analyzed. The augmented Dickey-Fuller (ADF) test and the Phillips-Perron test are used to determine the order of integration of data compiled for each variable. This is followed by an analysis of the co-integration results and short run dynamics. The diagnostics and stability tests results are also analyzed.

A. Unit Root Test Results

Table5.3. *Results of the Test of Stationarity using Augmented Dickey Fuller Unit Root Test*

Variable	Augmented Dickey-Fuller Test Statistics				
	Level/Δlevel	Lag Length	With Intercept	With Intercept &Trend	Inference
Ln FDI	Level	1	-3.602034	-4.949312	I(1)
	Δlevel	1	-8.642743**	-8.516596**	
Ln INF	Level	1	-3.111826	-3.825775	I(1)
	Δlevel	1	-4.820218**	-4.840089**	
Ln MS	Level	1	-4.519947	-4.727480	I(1)
	Δlevel	1	-8.595482**	-8.496765**	
Ln NRA	Level	1	-3.573772	-3.733066	I(1)
	Δlevel	1	-7.914189**	-7.893589**	
Ln PI	Level	1	-1.530621	-1.580440	I(1)
	Δlevel	1	-5.656854*	-5.673643*	
Ln OPEN	Level	1	-3.788265	-3.883241	I(1)
	Δlevel	1	-8.675153**	-8.708860**	

Note *, and ** indicates that the variable is stationary at the 1 %, and 5% level of significance respectively.

Δ = first difference and I (1) = order of integration.

The result of the ADF unit root test shows that all the variables are non-stationary in their levels but became stationary at their first difference.

Thus the variables are integrated of order one, we denotes as I (1).

Table5.4. *Results of the Test of Stationarity: Using Phillips- Perron Test*

Variable	Phillip-Perron Unit Root Test Statistics			
	Level/Δlevel	Intercept	Intercept & Trend	Inference
Ln FDI	Level	-3.579922	-4.871700	I(1)
	Δlevel	-23.74596**	-26.4761**	
Ln INF	Level	-3.026874	-3.721895	I(1)
	Δlevel	-10.59847**	-12.98372**	
Ln MS	Level	-4.512892	-4.668666	I(1)
	Δlevel	-10.72711**	-10.39014**	
Ln NRA	Level	-3.573772	-3.674483	I(1)
	Δlevel	-13.20899**	-17.71634**	
Ln PI	Level	-1.609437	-1.607500	I(1)
	Δlevel	-5.656854*	-5.673483*	
Ln OPEN	Level	-3.720264	-3.805299	I(1)
	Δlevel	-8.711295**	-8.755891**	

Note *, and ** indicates that the variable is stationary at the 1 %, and 5% level of significance respectively. Δ = first difference and I(1) = order of integration. The Phillip-Perron test in table 5.4 above also confirms the existence of unit root at first differencing. Thus the unit root test result for both the Augmented Dickey-Fuller and the Phillips-Perron test revealed that all the variables included in the model were found to be non stationary at level but became stationary after first differencing. Therefore the concept of co- integration is relevant since the co-integration test requires variables must be integrated of the same order.

Co-Integration Results

The results of the Johansen's co-integration test are presented in table 5.5 and 5.6 below

Table5.5. *Unrestricted Co-integration Rank Test (Trace)*

Hypothesized No.of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.825258	136.0830	95.75366	0.0000
Atmost1*	0.596099	76.77199	69.81889	0.0125
Atmost2	0.521305	45.94810	47.85613	0.0747
Atmost3	0.308135	20.90057	29.79707	0.3639
Atmost4	0.135846	8.376165	15.49471	0.4261
Atmost5	0.095483	3.412023	3.841466	0.0647

Trace test indicates 2 co integrating eqn (s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: E-views output

Table5.6. *Unrestricted Co-integration Rank Test Result (Maximum Eigen value)*

Hypothesized No. of CE (s)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None*	0.825258	59.31105	40.07757	0.0001
Atmost1*	0.596099	30.82389	33.87687	0.1109
Atmost2	0.521305	25.04753	27.58434	0.1021
Atmost3	0.308135	12.52441	21.13162	0.4968
Atmost4	0.135846	4.964141	14.26460	0.7464
Atmost5	0.095483	3.412023	3.841466	0.0647

Max-Eigen value test indicates 1 co integrating eqn (s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: *E-views output*

The values of both the trace statistics (136.0830) and the Max-Eigen statistic (59.31105) are greater than their critical values at 5% significant level of (95.75366) and (40.07757) respectively and their corresponding probability values are less than 5%, which implies that we fail to reject the null hypothesis of no co-integrating relationship at the 5% significant

level. The co-integration test result for the trace test shows two co-integrating equations at the 5% significance level while the maximum Eigen test shows one co-integrating equation. Consequently, there exists long-run equilibrium relationship between foreign direct investment and the explanatory variables. We therefore fail to reject the null hypothesis of no long run equilibrium relationship between FDI and its influential variables. The result of the normalized long run co integration equation is presented in table 5.7 below.

Table5.7. *Result of the long run FDI model*

Variable	Coefficient	t-statistics	Inference
Ln INF	-0.454214	-2.42726	Significant
Ln MS	-1.353683	-4.22933	Significant
Ln NRA	6.794277	9.12252	Significant
Ln PI	-32.94492	-6.709828	Significant
Ln OPEN	49.20223	3.183827	Significant

Source: *Computed by author from e-views output*

Results from the long run FDI model reveal that inflation has an inverse relationship with FDI in the case of Sierra Leone.

The coefficient was found to be negative and statistically significant at the 1 percent level of significance suggesting that a 1 percent increase in the rate of inflation leads to approximately 0.45 percent decrease in FDI on average in the long run.

The degree of responsiveness of FDI with respect to inflation is 0.4542. This finding is in line with theories that inflation has an adverse effect on less developed countries (LDCs) economies. Similar results were found by Doucouliagos and Paldam (2008) and in Pakistan by Goher Fatima et al. Similarly, market size (MZ) has a negative relationship with foreign direct investment. The coefficient was also found to be negative and significant from the value of the t -statistics greater than two.

This suggests a 1 percent increase in the market size will deter FDI by approximately 1.35 percent on average in the long run. The degree of responsiveness of FDI with respect to market size is 1.3536. This finding is however in contrary with theories. According to Dunning and Lundan (2008) market size supposed to boost Foreign Direct Investment but this is not so for Sierra Leone as shown in the empirical results. With regards to natural resource endowment, it has a direct effect on foreign direct investment. The sign of the coefficient is positive and statistically significant suggesting that a 1 percent increase in the availability of natural resource will increase FDI inflows by approximately 6.79 percent on average in the long run. The degree of responsiveness of FDI with respect to natural resource endowment is 6.7942. It is increasingly argued that countries with enough natural resources stand a better chance in attracting foreign investors.

As for political instability (the period of war), it has an adverse relationship with FDI. The sign of the coefficient is negative statistically significant for the study as the value of the t - statistics is greater than two, the sign of the coefficient suggest that it has a negative relationship with Foreign Direct Investment. The outcome for political instability is however not surprising because; Sierra Leone had a war for eleven years between 1991 and 2001. In the 1990s, there was a significant increase in TNCs' investment in developing countries. 'While many countries were beginning a process of international economic integration and implementing policies to attract FDI, Sierra Leone was consumed by war.

Foreign investors, with the exception of few mining companies, largely by passed Sierra Leone when considering investment opportunities in Africa. The result also reveals that openness to trade of the economy which is a measure of (import + export)/GDP is positively related to FDI inflows into Sierra Leone in the long run, and the variable is statistically significant. If the economy is opened by 1 percent, FDI inflows will increase by 49.2 percent. This result is also in conformity with findings by Elizabeth Asiedu who confirmed that trade openness has positive impact on FDI in both Sub-Saharan and non-sub Saharan Africa. In the same vein, S.O. Oladipo has also found a positive impact of trade openness to FDI inflows to Nigeria. Moses et al, Oluwatosin et al, Ho sen Sheriff and Maryam all of them have confirmed the same results in their research that trade openness has a significant and positive effect on Foreign Direct Investment inflows.

CONCLUSION

The initial fluctuation of foreign direct investment flows to Sierra Leone, the significance of foreign direct investment in a developing economy, and the recent drop in FDI inflows to Sierra Leone motivated this study.

The broader objective of this research was to assess the factors influencing foreign direct investment in Sierra Leone between the periods 1980 and 2016. In doing so, time series data were collected from the World Development Indicators (WDI) World Bank database and the international financial statistics. The ordinary least squares (OLS) regression technique was employed to estimate the relationship between foreign direct investment and its influential variables.

Prior to estimating the model, the time series properties of the variables were first examined. Using both the Augmented Dickey-Fuller (ADF) test and the Phillip-Perron (PP) test statistics, all the variables were found to be non-stationary in levels. The non-stationary variables were stationary at first difference.

Employing the Johansen's approach, the I(1) variables were tested for the existence of long run relationship. The trace test result suggests the presence of two co-integrating relationship between foreign direct investment and the I(1) explanatory variables and the maximum Eigen test result suggests one co-integrating relationship. The long run result however shows that natural resources endowment and the economy openness to trade exert positive and statistically significant relationship with foreign direct investment whereas inflation, market size and political instability(war dummy), exert negative relationship with foreign direct investment.

The existence of a co-integrating relationship necessitated the estimation of the short run dynamic model. The results of the error correction model indicate that the error correction term has the expected negative sign and is statistically significant, which further confirmed the existence of a long run relationship. The long-run foreign direct investment model shows a statistically significant relationship between foreign direct investment and its influential factors.

The data findings analyzed from the short run also show that foreign direct investment is greatly influenced by natural resources endowment followed by economy openness, inflation and political instability respectively. Taking all other independent variables at zero, a unit increase in natural resources endowment, increases foreign direct investment by 0.92 units while a unit increase in economy openness will result in a 0.34 units increase in foreign direct investment. Lastly, a unit increase in macroeconomic instability (inflation) will result in 0.28 units drop in foreign direct investment inflows, and a unit increase in political instability will lead to a 0.12 unit fall in FDI inflows to Sierra Leone.

To ascertain the goodness of fit of the model, diagnostic test statistics were conducted involving normality, serial correlation, heteroscedasticity, ARCH effect and functional form misspecification tests. The results suggest a good fit of the model. Similarly, to determine the stability of the model over the study period, the CUSUM and CUSUMQ test were employed.

These tests suggest that the estimated conditional model of foreign direct investment inflows in Sierra Leone is remarkably stable and otherwise well specified over the period 1980 -2015 as it lies within the critical bounds. The results therefore failed to reject the hypothesis of the study and conclude that the selected explanatory variables are significant in influencing foreign direct investment in Sierra Leone. Economic growth will increase to 6.2 percent in 2019 and 7.0 percent in 2020. Excluding iron ore, the economy will grow by 3.5 percent in 2018. Non-iron ore growth will increase to 5.9 percent in 2019 and 6.6 percent in 2020. Inflationary pressures are projected to moderate over the medium term. Inflation is expected to decline to 11.0 percent by end 2018 and return to single digit by the end of 2019, as the exchange rate stabilizes and food production increases.

The current account deficit is projected to moderate to 18.1 percent of GDP in 2018 from 21 percent of GDP in 2017, underpinned by the projected 20 percent increase in exports. In spite of the projected decrease in the trade deficit, the current account deficit will increase to 18.6 percent of GDP in 2019 and 19.0 percent of GDP in 2020 due to the decline in official external grants. Gross foreign reserves are projected to increase from US$448 million (2.3 months of imports) in 2018 to US$695 million (3.0 months) of imports in 2020. The exchange rate will continue to be market determined while interventions by the Bank of Sierra Leone in the foreign exchange market will be limited to containing temporary excessive volatility of the

Leone. In addition, the Bank of Sierra Leone (BSL) will also aim at building foreign exchange reserves to serve as a buffer in support of a credible management of the exchange rate. Government will enforce the provisions of the Exchange Control Act that requires exporters of commercial merchandise to repatriate export proceeds within 90 days from the date of export.

POLICY RECOMMENDATION

The above findings have important policy implications for both policy and financial analysts. It can be seen from both the short and long run results that inflation is a significant factor in influencing FDI inflows to Sierra Leone. The relationship between inflation and foreign direct investment inflows to Sierra Leone shows a sign of weak macroeconomic performance. This result is actually not surprising as the country's inflation rate has continues to remain in a double digit and investors both foreign and domestic may not be willing to invest in an environment with high inflation rate. This calls for policy framework that focuses on inflation.

The monetary authorities should ascertain that inflation is kept to a single digit so as to avoid scaring away foreign investors. Market size of the economy has proven otherwise for Sierra Leone. According to theories and findings from previous studies, market size supposedly to have a positive relationship with foreign direct investment. It is believed that the larger the size of the market, the more attracted it becomes to investors. This is however not surprising as the size of the Sierra Leone market is very small as opposed to other countries in the continent. An important policy implication emerging form this is that there is need for continuous increase and growth of the country's Gross Domestic Product (GDP). Foreign investors will be motivated and attracted when they have no doubt that the host country creates the needed market for their products. This can be achieved if government creates an enabling environment (or incentives) for production activities.

The screening of investment applications and granting differential enticement to different foreign firms is of paramount importance to Sierra Leone in order to attract sustainable foreign investors. China for instance permits repatriation of profits only out of net foreign exchange earnings (Adams, 2009). Sierra Leone should contract an independent consultant to assess foreign investor business applications based on the country's specific nation objectives

before issuing them license of operation. Policy makers in Sierra Leone should adopt china's strategy towards foreign direct investors especially towards natural resource-seeking foreign investors. The consultant should be independent of government influence while carrying their mandate so that to minimize the effect of corruption in duties. The consultant should also be insured by a reputable insurance company in the country and will be obliged to pay a heavy consequence if found violating the contract. The research also recommends that policy makers in Sierra Leone should focus on promotional resources to attract some types of foreign direct investment which are willing to convert the primary resource to finished product and regulate others. Policies should be aimed at putting in place an ideal model based on the national goal of the country to screen foreign direct investment applications so as to ascertain their productive level. The research strongly recommends that policies aimed at ensuring proper and coordinated manpower planning and training should be put in place to ensure good quality of labor force in Sierra Leone. There should also be a policy that insures that any project that is pro viding infrastructural facilities should be independent inspected before and after completion by all stakeholders especially the user. Central bank or the banking authorities should apply a stricter regulation to banking sector especially commercial banks regarding their daily transaction. This will ensure an efficient and reliable financial system that is less prone to ambiguity and increase the likelihood of absorptive capacity to Sierra Leone to take advantage of the technological spillovers of foreign direct investment. Finally, this paper recommends policies such as high tariff on exportation of raw materials and high tariff on importation of goods that are produced with the raw materials found within Sierra Leone. This will discourage exportation of primary goods and in the long run boast the manufacturing industry.

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