Foreign Direct Investment Inflows and Oil Price Fluctuations in Developing Oil Exporting Countries: the Case of Nigeria

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Abstract: The study investigates the impact of oil price fluctuations on foreign direct investment inflows in developing oil exporting countries using Nigeria as a case study by ARDL method and VECM granger causality test to analyse the data spanning from 1970 to 2015. It was observed that oil price fluctuations do not favour foreign direct investment in Nigeria both in the long-run and short-run. This implies that as oil price changes foreign direct investment inflows falls. VECM granger causality test revealed that there is no direction of causality between oil price fluctuations and foreign direct investment inflows in Nigeria. We therefore concluded that oil price is not an important determinant of foreign direct investment inflows. The study recommends that government should take the advantage of times of positive change in the oil price to fix the needs to attract foreign direct investment inflows in the economy.

Keywords: Oil price; FDI; ARDL; VECM

JEL Classification: E20

1. Introduction

Noted recently, fluctuations in the price of oil have become a major concern in most of the oil exporting countries as it largely determines their revenue. Oil price fluctuations have also gained the attention of researchers on how it affects investment decisions in economies. Albeit, attempt made by different researchers has resulted to divergences in their conclusions. For example, Danja (2012); Pacheco-López (2014); Haque, Patnaik and Hashmi (2016) all argued that foreign

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direct investment leads to econonmic growth of oil exporting countries. Thus, in contribution to their findings, (Ekperiware, 2011) submited that Oil foreign direct invesment and non oil foreign direct investment contributes positively to the economic growth of Nigeria but non oil foreign direct investment has a greater contribution to the conomic growth than oil foreign direct investment. Ahmed (2016) contended that foreign direct invesment only leads to economic growth in non-rentier and non-Islamic oil countries through capital accumulation, technology transfer, and employment skills. Whereas; law, economic, social and political stipulation in rentier oil exporting countries and Islamic oil exporting countries do not agree with the means of economic growth through foreign direct investment.

In other vein, Gummi, Buhari and Muhammad (2017); Ademakinwa and Omokanmi (2017); Khuram and Liu (2014); Rezazadehkarsalari, Haghiri and Behrooznia (2013); Abdulkareem and Abdulhakeem (2016) all asserted that oil price has a positive impact on economic growth of oil exporting countries but oil price fluctuation has a negative impact on the growth of oil exporting countries. Yazdanian (2014) further revealed that countries that is endowed with natural resources and oil producing contries suffer from Dutch disease syndrome and resource curse. Hence, the country that welcome trade openness, and encourage technology innovation makes the most effective utilization of the resources.

However, the link between these two determinants of economic growth (foreign direct investment, and oil price fluctuation) is underdetermined as a result of divergence discovery in the literature review. Studies like: Mehta (2014); Kari and Saddam (2014) Olure, Gbadebo and Ajiteru (2015); Elheddad (2016); Quero-Virlaa (2016); Asiedu (2015); Wadud and Huson (2014); Wong, Goh and Lean (2015); Sharifi-Renania and Mirfatah (2012); Muhammad and Syed (2012); Al-Mihya (2017); and Razmi and Behname (2012) confirmed that there is a relationship between foreign direct investment and oil price fluctuation. This relationship is either positive or negative. A positive relationship is said to exist between foreign direct investment and oil price fluctuation when the price of oil increases. An increases in oil price bring about increases in growth, reducing unemployment, and lessen inflation level (Quero-Virlaa, 2016) as the positive change in oil price attracts foreign investors. On the other side, declining oil price reduces foreign direct investment inflows in an oil exporting country. Al-Mihya (2017) submitted that reduction in oil price significantly influence the volume of foreign direct investment inflows, deteriorate the currency of oil exporting country, and reduce investment inflows. On the same direction, Mehta (2014) opined negative oil price changes hampers investments decision in an economy through its influence on the general price of inputs. In total disagreement to the relationship that exist between foreign direct investment and oil price fluctuation, Dal Bianco, and Nguyen (2017) argued that oil price fluctuations have no connection to foreign

direct investment, whereas, the identifiable economic variables that determine foreign direct investment are human capital and trade openness.

The econometric approach of most of the existing studies often is based on General Autoregressive Condional Heteroscedasticity (GARCH) model (Dal Bianco & Nguyen, 2017; Olure, Gbadebo & Ajiteru, 2015; Wadud & Huson, 2014), Least Square Method (Mehta, 2014; Razmi & Behname, 2012; Udoh, 2014), Vector Error Correction Model (Kari & Saddam, 2014; Olure, Gbadebo & Ajiteru, 2016), Generalized Method of Moment Model (Elheddad, 2016; Asiedu, 2013), Structural Vector Auto Regression (Quero-Virla, 2016; Wadud & Huson, 2014; Ademakinwa & Omokanmi, 2017), Augmented Dickey Fuller (Shafi & Liu, 2014; Udoh, 2014), Cointegration Method (Sharifi-Renania & Mirfatah, 2012; Shafi & Liu, 2014; Udoh, 2014), Lagrange Multiplier. (Worg, Goh & Lean, 2015)

To the best of our knowledge, only few studies have been carried out within the context of Nigeria. The few include; Ademakinwa and Omokanmi (2017) who used Structural Vector Auto Regression (SVAR), while, Udoh (2014) used OLS to capture the relationship between foreign direct investment and oil price fluctuation in Nigeria.

This study therefore differs to examine oil price fluctuations and foreign direct investment nexus in Nigeria using Auto-regressive Distributed Lag (ARDL) to analyse the short-run and long-run nexus and also check the causal relationship using VECM granger causality test. This study is spurred in the context of Nigeria being country that largely depends on crude oil as it mainstay and reacts to oil price fluctuations. Also, since oil price largely determined the growth of the economy, indirectly the flow of foreign investment would also be affected by fluctautions in oil price as investors are most interested in the sustainability of their investment and the profit they make.

The rest of the study is divided into five sections. Section two holds the literature review, section three presents the data source and methodology, section four contains the analytical framework, and section five concludes and recommend from the findings.

2. Literature Review

The theoretical linkage of most of the empirical studies on the relationship between foreign direct investment and oil price fluctuations is shown in various theories that considered foreign direct investment as an important factor of economic growth through research and development on technology. Among the theories are: Solow (1956), Romer (1986), Lucas (1988) and Mankiw et al (1992) which consistently gained the attention of many researchers in the literature. On the empirical front, in

the developed and developing countries, studies such as; Dal Bianco and Nguyen (2017) used GARCH techniques to incorporate the impacts that oil price shocks, and exchange rate volatility had on foreign direct investment in Latin America countries between 1990-2012. They however confirmed the establishments of real option theory in Latin America countries which indicates negative impact of exchange rate volatility on foreign direct investment; and absence of connection between foreign direct investment and oil price fluctuation. The presume instruments that attract foreign direct investment in Latin America countries are human capital, and trade openness. In contention, Dias, Dias and Hirata (2014) posited that in Brazil, exchange rate does not play any role in explaining foreign Direct Investment (FDI) inflow; on the other hand, the productivity shocks of the United State economy had a negative impact on FDI inflows, due to the impact of productivity on the relative prices of the economies. In Colombia, Quero-Virlaa, (2016) argued that oil price fluctuation has significant impact on macroeconomic variable. In which, 1% increases in oil price generates 0.04% increases in growth, 0.12% reduction of unemployment, 0.09% decrease in inflation which lead them to a conclusion that oil price fluctuation has significant impact on foreign direct investment.

Using panel data model for six (6) oil exporting GCC countries to integrate natural resources and foreign direct investment in GCC countries, Elheddad (2016) realised a negative relationship between natural resources abundance and foreign direct investment in oil exporting GCC countries with a negative correlation between foreign direct investment inflow and GDP of oil exporting GCC countries. In affirmation; Kari and Saddam (2014) used VECM model to analyze a long-run dynamic analysis of foreign direct investment, growth and oil export in GCC countries. Their finding attest that oil price shocks repulse foreign direct investment, and distort economic growth; whereas, a shock in foreign direct investment inflow adversely affect oil export and the economic growth, indicating that foreign direct investment has greater effect on the economic growth of GCC countries than crude oil export. In Sub Saharan African countries, Asiedu (2015) examined the relationship between foreign direct investment, natural resources, and institutions. The findings showed that natural resources negatively influence foreign direct investment where as good institutions lessen the negativity of natural resources on foreign direct investment.

Employing Ordinary Least Squares regression to incorporate the impact of oil price on South Asian Countries; Muhammad and Syed (2012) submitted that oil price fluctuation has impact on macroeconomic variables in South Asian countries. In that, an increase in oil prices leads to an increase in inflation rate, and foreign direct investment. In contrary, Mehta (2014) discovered a negative impact of oil price fluctuation on investment in the country of Pakistan, leading to deterioration of economic growth as a result of its influence in promoting inflation which

increases investment cost in the country. Using GARCH and SVAR in examining oil price volatility and investment responses in Thailand, Wadud, and Huson (2014) proved that oil price fluctuation has negative effect on the aggregate real investment of the economy.

In the study of foreign direct investment in Islamic oil exporting countries, Razmi and Behname (2012) noticed a negative effect of oil extraction on foreign direct investment as a result of over dependence on oil extraction which plagues a high risk on these economies. Whereas, fluctuation in world oil price causes an increase in economic volatility in these countries. In the economy of Russia, Shafi and Liu (2014) found a positive impact of oil price and exchange rate on economic growth, while foreign direct investment and other macroeconomic variables was found to have significant positive relationship with exchange rate except export that exhibit negative relationship with real effective exchange rate in the short run. Sharifi-Renania and Mirfatah (2012) in evaluating the determinant of FDI inflow in Iran using co-integration approach discovered that trade openness, GDP and exchange rate possess a significant positive impact on FDI while exchange rate and world crude oil prices exhibit a significant negative impact on the flow of FDI inflow in Iran.

Using Lagrange Multiplier (LM) unit root test to investigate the nexus that exist between foreign direct investment, oil prices and global financial crisis in Singapore; Wong, Goh, Lean (2015) discovered that external shock and foreign direct inflow are closely related in the short run, whereas the external shocks of foreign direct investment in Singapore is attributed to Mexican crisis, the Asian financial crisis, the global fund crisis, and high oil prices. In analyzing economic crisis in Kurdistan region and its impact on foreign direct investment, Al-Mihya (2017) deduced the following: foreign direct investment inflows is adversely affected by economic crisis; reduction in price of oil has a significant influence on the volume of foreign direct investment inflows in the country; volatility in the country currency also contributes to the reduction in investment flows; and foreign investment take a smaller percentage of the total investment in the country.

In Nigeria, Ademakinwa and Omokanmi (2017) noted that oil price has a significant positive influence on foreign direct investment (FDI) and economic growth, but expected to have a negative impact on foreign direct investment and economic growth, due to its effects of uncertainty and destabilization of effective fiscal management of crude oil revenue. From a different view, Olure, Gbadebo and Ajiteru (2014) argued that in the long run, world oil price exhibits a negative relationship with foreign direct investment in Nigeria. They further discovered that gross domestic product, degree of trade openness, exchange rate, inflation rate, and world oil price justify the variations in Nigeria's foreign direct investment by 88%. Using Ordinary Least Squares (OLS) estimation method, Udoh (2014) claimed that

foreign direct investments has no significant relationship with oil export, and the entire Nigerian economy, due to misappropriation of funds, and poor administration.

From the related literature reviewed, the discrepancies among the studies may be concluded to be as a result of the, methodology, scope and data used for each study. This study therefore contributes to the ongoing argument in literature by investigating the nexus between oil price fluctuations and foreign direct investment using ARDL econometric technique and VECM granger causality test to analyse the short-run and long-run effect of oil price fluctuations on foreign direct investment and also check the direction of causality between oil price and FDI in an emerging oil exporting country like Nigeria.

3. Nature of Data and Methodology

The study makes use of secondary data spanning from 1970 to 2015 calculated and some sourced from the World Development Indicators (2016). Foreign Direct Investment (FDI) is proxy as Foreign Direct Investment net inflows (% of GDP), sourced from WDI (2016). Oil price is captured using Brent price of Oil per barrel in US$ (money of the day) sourced from Bp statistics. The economic activities are captured using the GDP per capita (Current LCU). Trade openness is calculated by the sum of export and import of goods and services (sourced from WDI, 2016) in the economy as a ratio of GDP at local currency units (WDI, 2016). Exchange rate is proxy as the official exchange rate (LCU, per US$, period average) from WDI (2016). While the labour strength of the economy was captured using the population growth rate of the economy, sourced from WDI (2016). This study followed the model of Dal Bianco and Nguyen (2017) drawn from the works of Lemi and Asefa (2001), Ajuwon (2013), Yousaf et al. (2013) and Mahmood et al. (2011). The Their works lean on the augmented Solow (1956) growth model which incorporate technology, capital and labour strength, and human capital as an important factor of growth determinant in the economy. However, following these studies, the model for this study is specified as;

$$FDI_t = \beta_0 + \beta_1 InOP_t + \beta_2 InGDP_t\, \beta_3 TR_t + \beta_4 InEXR_t + \varepsilon_t ------(1)$$

$\beta_1 - \beta_4$ are the variables coefficients which makes the model a linear model. FDI is foreign direct investment measured as FDI net inflows (as a % of GDP), OP is oil price measured as brent oil price in US$ (money of the day), GDP is measured as gross domestic product per capita (LCU), TR is trade measured as the ratio of import and export to GDP. EXR is exchange rate measured as the official exchange rate naira to dollar.

In order to estimate equation (2) the associated conditional standard autoregressive distributed lag ARDL (p, j_1, j_2, j_3, j_4) long run model for FDI_t can be expressed as:

$$\mathrm{FDI}_t = c_0 + \sum_{q=1}^{p} \beta_1 \mathrm{FDI}_{t-i} + \sum_{q=0}^{j_1} \beta_2 InOP_{t-i} + \sum_{q=0}^{j_2} \beta_3 InGDP_{t-i} + \sum_{q=0}^{j_3} \beta_4 \mathrm{TR}_{t-i} + \sum_{q=0}^{j_4} \beta_5\_InEXR_{t-i} + \varepsilon_t \quad (2)$$

The short-run dynamic parameters of the effect of oil price fluctuations on foreign direct investment are estimated using the model specified below as;

$$\Delta FDI_t = \vartheta + \sum_{q=1}^{p} \rho_1 \Delta In\mathrm{FDI}_{t-i} + \sum_{q=1}^{j_1} \rho_2 \Delta OP_{t-j} + \sum_{q=1}^{j_2} \rho_3 \mathrm{GDP}_{t-j} + \sum_{q=1}^{j_3} \rho_4 \Delta TR_{t-j} + \sum_{q=1}^{j_4} \rho_5 \Delta InEXR_{t-j} + \delta ecm_{i-1} + \varepsilon_t \quad (3)$$

From equations 2 and 4, $\beta_1 - \beta_5$ represents long-run multipliers of the variables. While, $\rho_1 - \rho_5$ reprsent the short-run multipliers of the variables, while the long-run and short-run intercept of the models are c_0 *and* ϑ_0 and $j_1 - j_4$ are the optimal lags length of each of the variables as revealed in the results.

In order to test for the long-run cointegration relationship among the variables, we employed the ARDL bounds test to test the hypothesis (null and alternative) to reject or accept. The null hypothesis of no long-run cointegration is stated as $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ against the alternative hypothesis of long-run coitegration existence stated as $H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$. The F-Statistics and the Upper and Lower Bound [I(1) and I(0)] class of the results are used to validate the result decision. If the F-statistics is greater than the Upper bound we accept the alternative hypothesis that a long-run cointegration relation exists, if otherwise, we do not have any reason to reject the null hypothesis of no long-run cointegration. If the F-Statistics lye in between, then our result is inconclusive.

To analyse the causal link between Oil price fluctuations and foreign direct investment, we used the VECM granger causality model which permits variables to be endogenised in a vector. The VECM granger causality model is specified as;

$$\Delta X_t = \mu_t + \sum_{i=1}^{\rho-1} \Gamma_i \, \Delta X_{t-1} + \Pi X_{t-\rho} + \varepsilon_t \quad (4)$$

X_{it} is a 5x1 vector matrix of the endogenous variables (FDI, OP, GDP, TR and EXR). FDI is foreign direct investment, OP is oil price, GDP is gross domestic product, TR is trade, and EXr is Exchange rate. $\Gamma_i \Delta X_{t-1} + \Pi X_{t-\rho}$ is a vector of

country specific effects for Nigeria with a lag operator and ϵ_t is a vector of idiosyncratic errors.

4. Results and Discussions

4.1. Descriptive Statistics

Table 4.1 presents the descriptive statistics for the study. The result revealed that the mean value of the variables lies in between their minimum and maximum values except trade which implies the expectation of the effect of trade openness may have a different turn out from the expectation. The mean value implied that average changes in the variables are small except trade. The skewness result revealed that FDI GDP and TR positively skewed to the right, while OP and EXR negatively skewed to the left. The Jarque-Bera statistics revealed that all the OP and GDP are normally distributed, while FDI, EXR and TR are not normally distributed as their probability values are less than 10% while OP and GDP are 10% and above.

Table 4.1. Descriptive Statistics Result

	FDI	**InOP**	**InGDP**	**InEXR**	**TR**
Mean	2.607264	3.16374	8.93281	2.34699	36643.91
Median	2.302586	3.181472	8.730344	2.968195	3589.81
Maximum	10.83256	4.715545	13.16614	5.259787	206517.1
Minimum	-1.15086	0.587787	5.07299	-0.60371	31.40865
Std. Dev.	2.170242	0.975763	2.658777	2.314807	57256.71
Skewness	1.781939	-0.67682	0.157175	-0.09832	1.594895
Kurtosis	7.088366	3.730236	1.592043	1.330319	4.38362
Jarque-Bera	56.38061	4.533998	3.988889	5.417452	23.17089
Probability	0.00000	0.103623	0.136089	0.066622	0.000009
Sum	119.9342	145.532	410.9093	107.9615	1685620
Sum Sq. Dev.	211.9478	42.84508	318.1093	241.125	1.48E+11
Observations	46	46	46	46	46

Source: Authors Computation, 2018

4.2. Correlation Matrix Test

The Correlation test is carried out to avoid the problem of multicollinearity. That is, if the variables are not related in order to better explain the phenomenon. From the result, it was revealed that none of the variables are correlated with value 1. OP and TR had a weak negative correlation with FDI, GDP an EXR had a weak positive correlation with FDI. We therefore concluded that there is no problem of multicollinearity among the variables. The result is presented below in table 4.2.

Table 4.2. Correlation Matrix Result

	FDI	InOP	InGDP	InEXR	TR
FDI	1.00000	-0.07727	0.209575	0.339996	-0.0655
InOP	-0.07727	1.00000	0.767996	0.640142	0.726553
InGDP	0.209575	0.767996	1.00000	0.965886	0.823392
InEXR	0.339996	0.640142	0.965886	1.00000	0.714771
TR	-0.0655	0.726553	0.823392	0.714771	1.00000

Source: Authors Computation, 2018

4.3. Unit Root Test Result

From the unit root test result presented in table 4.3, it was observed that FDI turned out stationary at levels for both none, intercept, trend and intercept, while at levels, OP was stationary considering only intercept and stationary for none, intercept and trend and intercept after first differencing. Other variables (GDP, EXR and TR) was found to be stationary at first difference for none, intercept and trend and intercept except POP which was only stationary considering none and was after first differencing. This implies that the data for POP does not really behave well and retaining it in the model may cause a contradictory result, we therefore drop the variable in the model.

Table 4.3. Unit Root Test Results

		Level	
	None	**intercept**	**trend and intercept**
FDI	-2.18141***	-3.61767***	-3.60384***
InOP	0.717641	-2.73795***	-2.48421
Ingdp	6.406439	0.273321	-1.96686
pop	-1.48122	-2.58685	-2.62428
Inexr	1.850062	-0.24287	-1.62069
TR	0.006635	-0.61326	-1.8259
		1st Difference	
	None	**intercept**	**trend and intercept**
FDI	-9.58858***	-9.48266***	-9.38569***
InOP	-5.65967***	-5.83687***	-6.02529***
Ingdp	-3.60541***	-6.10988***	-6.05893***
pop	-2.5456***	-2.44476	-2.57457
Inexr	-4.65921***	-5.38428***	-5.32037***
TR	-4.9258***	-4.94294***	-4.8374***

Source: Authors Computation, 2018

***, **, * implies stationary of the variables at 1%, 5%, and 10% significance level

4.4. Optimal Lag Length

The optimal lag length is important to be determined in order to know the appropriate lag length to use for the model specified. The Akaike Information Criterion (AIC) and the Scharwz Information Criterion (SC) is used for this study.

The result revealed an optimal lag length structure of (1) for the endogenised model: FDI, InOP, InGDP, TR, and EXR. This implies that the effect of the outcome of the previous year on the current year is explained. We however estimate the parameters using the optimal lag length of (1). The result is presented in table 4.4.

Table 4.4. Optimal Lag Length Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-740.012	NA	7.70E+08	34.65171	34.8565	34.72723
1	-533.81	354.8594*	169988.7*	26.22371*	27.45245*	26.67683*
2	-512.456	31.78189	211510.9	26.39332	28.64601	27.22404
3	-498.062	18.07671	394267.9	26.8866	30.16325	28.09493

Source: Authors Computation, 2018

4.5. ARDL Bounds Test

From the ARDL bounds test result, we found that a long-run cointegratin relationship exist among the variables specified in the model as it reveals a F-statistics value which is greater than the upper and lower boundary of the result at 5% and 10% level of significance. The result is presented in table 4.5 below.

Table 4.5. ARDL Bounds Test Results

Test Statistic	Value	K
F-statistic	4.886353	4
Critical Value Bounds		
Significance	**I0 Bound**	**I1 Bound**
10%	3.03	4.06
5%	3.47	4.57
2.50%	3.89	5.07
1%	4.4	5.72

Source: Authors Computation, 2018

4.6. Long-run ARDL

In the long-run, oil price, output and trade had a negative impact on foreign direct investment in Nigeria but insignificant. This implies that one percent change in oil price, gross domestic product and trade brings about 32 units, 1.70 units and 0.000007 units decrease in foreign direct investment inflows in Nigeria. Exchange rate revealed a positive and significant impact on foreign direct investment at 10% level of significance. This implies that one percent increase in exchange rate leads to 1.88units increase in foreign direct investment inflows.

Table 4.6. Long-run ARDL Result

Cointeq = FDI - (-0.3196*LOGOP -1.6971*LOGGDP + 1.8811*LOGEXR -0.0000*TR + 12.6246 + 0.0895*@TREND)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
InOP	-0.3196	1.025066	-0.31178	0.7569
InGDP	-1.69714	1.598811	-1.0615	0.2952
InEXR	1.881131	1.100285	1.709677	0.0955
TR	-7E-06	0.000016	-0.44084	0.6618
C	12.62463	8.484411	1.487979	0.145
@TREND	0.089459	0.271086	0.330002	0.7432

Source: Authors Computation, 2018

4.7. Short-run ARDL

As presented in table 4.7, the result reveals that the variables individually in the short-run have the same signs they have in the long-run, but different values. One percent increase in oil price, output and trade, brings about, 21units, 1.13 units and 0.000005 unit fall in foreign direct investment inflows in the short-run. The overall result reveals that 67% deviations in foreign direct investment in short-run are corrected by the independent variables in the long-run annually. This implies that the independent variables are capable of correcting 67% fluctuations in foreign direct investment inflows at the point of convergence.

Table 4.7. Short-run ARDL Result

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(InOP)	-0.21402	0.694007	-0.30838	0.7595
D(InGDP)	-1.13648	0.986741	-1.15175	0.2566
D(InEXR)	1.259685	0.692802	1.818247	0.0769
D(TR)	-5E-06	0.000011	-0.43116	0.6688
D(@TREND())	0.059906	0.179319	0.334072	0.7402
ECM(-1)	-0.66964	0.150163	-4.45944	0.0001

Source: Authors Computation, 2018

4.8. VECM Granger Causality Test

The VECM test revealed there is no direction of causality between oil price fluctuations and foreign direct investment in Nigeria. This implies that the fluctuations in oil price do not explain the attraction of foreign direct investment inflows in Nigeria. The result is present in table 4.8.

Table 4.8. VECM Granger Causality Test Result

Dependent variable: D(FDI)			
Excluded	**Chi-sq**	**Df**	**Prob.**
D(InOP)	0.559703	1	0.4544
D(InGDP)	1.998572	1	0.1574
D(InEXR)	0.317288	1	0.5732
D(TR)	0.00381	1	0.9508
All	2.565702	4	0.6329

Source: Authors Computation, 2018

From the findings, it was noted that while the result coincide with some previous studies, it also argued against the submission of some studies. On the relationship between oil price and foreign direct investment the study disagree with the findings of Quero-Virlaa, 2016; Muhammad and Seyed, (2012); Almihya (2017) Ademakinwa and Omokanmi, (2017) but agree with the findings of Razmi and Behname, 2012; Elhedad, 2016; Kari and Saddan, 2014; Mehta, 2014; Wadud and Hudson, 2014; and Udoh, 2014; that an insignificant negative link exist between oil price fluctuations and foreign direct investment. This is because the economy depends on oil extraction as its major production activities which affect the investment inflows whenever there are fluctuations in the global price of oil. For trade, gross domestic output and exchange rate, the study argued against the results submitted by Shafi and Liu, 2014; Dal Bianco and Nguyen, 2017, that there is a positive link between exchange rate and foreign direct investment inflows in conformity with Sharifi-Renania and Mirfatah (2012). Also in conformity with Dias et al., 2014; Elheddad, 2016; the study concludes that it appears the same for the economy of Nigeria that GDP and trade negatively relates to foreign direct investment inflows. The study also affirm the causal link result in agreement with the work of Dal Bianco and Nguyen, 2017; that no causal link between oil price and foreign direct investment as FDI is mainly determined by internal factors.

4.9. Diagnostic Test

To test the stability of the model specified for this study we ran a diagnostic test. The tests include RAMSEY RESET tests, Heteroscedaticity Test, and Serial Correlation LM test. The results are presented in table 4.9. Ramsey Reset test confirmed that the model specification is right, Serial correlation confirmed absence of auto correlation problem in the model (The decisions are validated by the F-statistics and Probability values which are greater than 10% level of significance) and the Heteroscedaticity test revealed there is a problem of heteroscedaticity in the model with a probability value of less than 10%. But the study retained the model since it was confirmed right and problem of auto-correlation absence.

Table 4.9. Diagnostic Results

Breusch-Godfrey Serial Correlation LM Test:				
F-statistic	0.449993	Prob. F(1,37)		0.5065
Ramsey RESET Test				
	Value	df	Probability	
F-statistic	0.001163	(1, 37)	0.973	
Heteroskedasticity Test: Breusch-Pagan-Godfrey				
F-statistic	3.141723	Prob. F(5,39)		0.0177

Source: Authors, 2018

The study also tests for the validity and stability of the model using the Cumulative Sum of Chart and Cumulative Sum Square (CUSUM & CUSUMQ). The empirical stability of the model is validated if the plots of CUSUM and CUSUMQ lie within the critical bounds value at 5% level of significance.

The plots of CUSUM and CUSUMQ for the relationship between oil price fluctuations and foreign direct investment inflows model are within their 5% critical bound which implies that the model is stable and valid enough to explain the phenomenon.

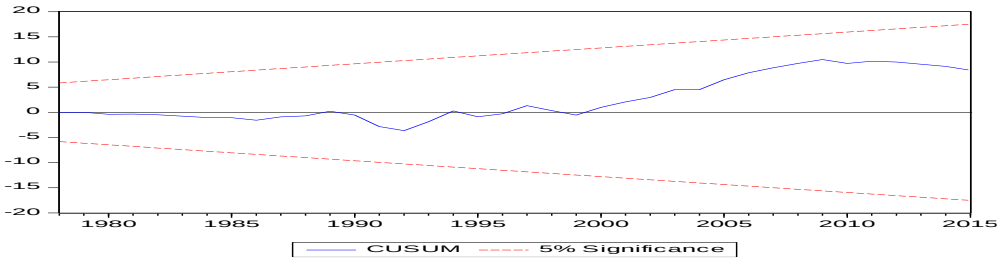

Figure 2. CUSUM Test

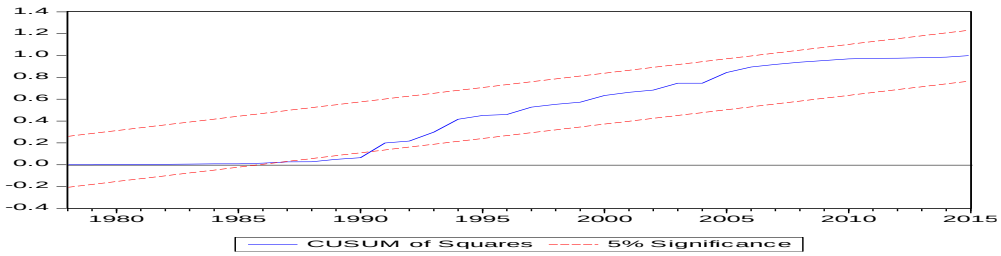

Figure 3. CUSUM of Squares Test

5. Conclusion and Recommendation(s)

This study investigates the impact of oil price fluctuations on foreign direct investment in Nigeria. Autoregressive Distributed Lag (ARDL) and VECM granger causality test are used to analyse the data spanning from 1970 to 2015. It was noted from the findings that both in the long-run and short-run oil price impacted negatively on foreign direct investment in Nigeria, but reveals that the impact is not significant in determining the existence of foreign investment in the country. From the VECM granger causality test, it was revealed that oil price does not granger cause foreign direct investment in Nigeria, which also implies that the existence or attraction of foreign investment into the country is not determined by oil price fluctuations. Other variables included in the model such as gross domestic product per capita and trade revealed a negative relationship on foreign direct investment both in the long-run and short-run. This implies that the output and trade activities in the economy over the years under study are not in the direction of attracting foreign direct investment inflows into the country. Exchange rate on the other hand revealed a positive nexus with foreign direct investment, which implies that the value of the country currency against the US$ considering the scope of the study attracts foreign direct investment. The study therefore concludes that fluctuations in oil price are not a significant factor that determines foreign direct investment inflows into the economy. From the findings, the study recommends that government should structure their plans in such a way that the boom period of oil price should be well managed towards activities (such as trade incentives and output promotion) that attract foreign direct investment inflows into the economy.

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Government Policy, Foreign Direct Investment and Unemployment in Emerging Economies

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Abstract: The broad objective of this study is to determine how government policy influences FDI as well as how FDI affects the level of unemployment as a proportion of labour force in emerging economies. The techniques of analysis are a descriptive statistic and panel regression based on Ordinary Least Squares Method. Evidence from the descriptive analysis affirms that the variables of the study for each country exhibit contradictory behaviour in 1991-2016. In the same period, the foremost beneficiaries of the net inflow FDI are not experiencing the lowest unemployment rate. Panel regression results (2000-2015) suggest that net inflow of FDI has a negative influence on unemployment while government policy has no significant effect on the net inflow of FDI. The study concludes that a continuous inflow of net foreign investment is a good source of creating jobs in emerging economies. Due to the lack of influence of government policy on the net inflow of FDI, the study recommends that emerging economies should revise the regulation on the freedom to trade internationally so as to enhance the continuous flow of foreign direct investment.

Keywords: Emerging markets; Employment; Inflow of foreign investment; Regulation of foreign capital

JEL Classification: F41; E24; F21; G28

1. Introduction

In this study, an attempt is made to find answers to three broad issues relating to emerging economies that are located across the continents. First, the study explains the pattern of flow of Foreign Direct Investment (FDI) into each of the emerging economies of study as well as the growth in the level of unemployment and FDI in these countries, respectively. Second, the study determines how the inflows of FDI influence unemployment in the current and in the lead period. Finally, the paper affirms how government policies influence the flow of FDI in the current as well the lead period. The classification of the country that is qualified to be an emerging

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economy in the literature is imprecise. However, a nation that has been experiencing significant growth in improving infrastructure is enlisted as an emerging nation by prominent international bodies like the World Bank and International Monetary Fund (IMF). This paper uses the IMF (2015) list of emerging economies as the sample for analysis.

Emerging economies undoubtedly offer business opportunities that are attractive to investors willing to set-up subsidiary firms or entirely new business identity in their domain. Investors who locate firms in emerging economies do so after considering the economic benefit of such foreign investment as well as the transparency of governance structure in dealings relating to public and private institutions in the host country. In spite of the derivable benefits from such investment decision, foreign investors also face some challenges that are brought about due to government policy shift. For example, freedom to trade in the global space and the country where the investment is located is subject to some factors such as; international control of movement of capital and immigrants, foreign investment ownership, regulatory trade barriers (tariff and non-tariff), adherence to the cost of importing and exporting as well as the exchange rate policy. (Frazer Institute, 2017)

According to UNCTAD (1999), three major factors are prominent for attracting the inflow of FDI to a host nation. These are, economic policies of the host nation in terms of rules and regulations and conditions for doing business, the enthusiasm of the host nation to attract foreign direct investment by liberalizing her economic and immigration policies as incentives for FDI, and the health of the economy as measured by major economic indicators such as income level, the size of the market, stability of prices and opportunities for expansion in growth. Foreign investment inflow into any country can be through any of the following broad means; foreign bank credit facility to an enterprise operating in a host country, the flow of foreign exchange in the form of grant or loans through Official Development Assistance (ODA), foreign direct investment and foreign portfolio investment.

Theoretical literature as discussed in the second part of this paper provides that inflows of FDI can contribute in a number of ways to the economic well-being of the host country. Such contributions include, increase in the gross domestic income and enhancement of trade flows. Others include foreign exchange inflows that enhance the balance of payments position of the host country if the cost of imports for operations is negligible, the inflow of technology especially in the area of energy and telecommunications and expectedly employment generation.

Mody, Razin and Sadka (2002), claims that FDI flows between nations have been on the increase albeit at a rate relatively higher than the World gross domestic product growth rate. Bjorvatn, Kind and Nordas (2001) also affirm that FDI flows

have been higher in developing countries as a proportion of gross domestic product compared to developed nations. UNCTAD (1999) is of the view that FDI is capable of increasing productive capacity and employment of the host country and Lin (2008) also concluded that FDI enhances economic growth, technology transfer and employment generation in developing countries. In spite of these broad views about the gains of FDI to host nations, some other empirical studies on FDI and the benefits to the emerging markets economies have provided divergent results. For example, Balcerzak and Żurek (2011) found that FDI has a significant negative relationship with unemployment in Poland, although this trend is of short-term duration. Meanwhile, Ismail and Latif (2009) and Aktar and Ozturk (2011) found that the inflow of FDI does not reduce unemployment in Turkey. In a panel study on Central and Eastern European countries, Nucu (2011) revealed that there is an inverse relationship between the inflow of FDI and unemployment rate. Similarly, for the only African emerging economy, Bongumusa, Contogiannis and Kaseeram (2017) found that, in South Africa, the relationship between FDI and employment is significant but negative. Mucuk and Demirsel (2013) also found divergent results for Argentina and Thailand whereby the inflow of FDI increases unemployment in Argentina but reduces unemployment in Thailand. This is the deservingness of this panel study to consider all the countries of the IMF list of emerging economies to answer the following questions. Does government policy attract FDI and does FDI reduce/increase unemployment in emerging economies? What is the trend of inflow of FDI and the growth pattern of unemployment and FDI in emerging market economies considered in this study?

Relying on the theoretical exposition made by Holte (1988), this paper contributes to the literature by determining how the inflows of FDI affect the rate of unemployment and how government policy influences the inflow of FDI in emerging economies. The findings from this study suggest that the emerging economies considered in this study experienced unemployment as a proportion of the labour without the inflow of FDI. However, the net inflows of FDI have been able to create jobs thereby reducing the level of unemployment but government policy (freedom to trade internationally) has no significant effect on the inflow of FDI in emerging economies. The rest of the paper is structured as follows: section two discusses the theoretical framework for this study while section three discusses the methodology. Section four is based on the discussion of findings and section five contains the conclusion and policy recommendations.

2. Theoretical Review

In a perfectly competitive world, bilateral or unilateral foreign direct investment (FDI) would not have been a common phenomenon. (Kindleberger, 1969) Explaining the phenomenon of FDI, there is a consensus amongst scholars that for

FDI to take place one of the favourable factors is that there is an imperfect competition and foreign firms have a competitive advantage that makes their investment in a host country a more viable option. (Kindleberger, 1969)

FDI has been investigated from the macroeconomic point of view using the Gravity model on how bilateral FDI flows from home countries to host countries. (Falk, 2016) It has also been inquired from the microeconomic point of view by using the portfolio theory, production cycle, theory of exchange rates, internalization theory and the eclectic theory to explain the motivations of foreign investment in a host country by foreign investors. (Lipsey, 2002; Denisia, 2010)

At the micro level, the effect of FDI on unemployment rate depends on the features and forms of investment. FDI would have a reducing effect on unemployment rate if it is of the form of Greenfield investments (Hisarciklilar et al, 2009) while it would have no or an increasing influence on unemployment rate if FDI inflow takes the form of Brownfield investments. (Strat et al, 2015)[1] At the macro level, FDI that increases the export of goods and services and rely on highly qualified labour force in the host country positively vibrates on the labour market by resulting in decreasing level of unemployment, vice versa. (Djambaska & Lozanoska, 2015) These are because economic growth theories show that increasing net investments lead to enhanced economic activities with positive impact on employment and negative impact on unemployment rate while the replacement of worn out assets only maintain existing jobs and do not generate employment. (Iacvoiu, 2012)

According to Pigou's theory of unemployment, unemployment exists because wage-earners demand for wage rates that are higher than the equilibrium wage rate (Harrod, 1934) However, there are recent theories that argue that countries with higher unemployment rates have the advantages that foreign investors may think that such countries have an available labour force at lower wages. (Blanchard, 2011)[2] Meanwhile, earlier theories support Pigou's theory by suggesting that a high unemployment rate in a country can be perceived by foreign investors as a signal of macroeconomic disequilibrium and such countries are not seen as an appropriate host country for foreign investments. (Brozen, 1958)

In response to the suggestion of the earlier theories and support for the recent theories, Holte (1988) explains that if there is unemployment in a closed economy,

[1] A Greenfield investment is when FDI inflow is used to build new production facilities and/or expansion of an existing plant. (Gorg, 2000) Meanwhile a Brownfield investment is when FDI inflow is used to buy or rent an existing production facility which was inefficiently utilised, that is a management buyout. (Balcerzak & Żurek, 2011)

[2] That is, although the wage-earners demand for a wage rate that is higher than the equilibrium wage rate, the wage rate demanded for is still lower than the wage rate the foreign investors are willing to pay.

a large investment made in such economy will reduce the unemployment. As such, if the closed economy is opened, it is likely that a large (foreign) investment made into such an economy will reduce the domestic unemployment. The foreign investments that have been committed to the host country would expectedly affect unemployment in both the period it was made and in the subsequent periods. In order to encourage the continuous inflow of FDI into the host country, Holte (1998) proposes that the government can use the foreign direct investment to reduce high unemployment rate through its choice of economic policies. Holte (1988) explains this by assuming an economy where these are true:

(i) Foreign investment reduces unemployment when it is made;

(ii) Unemployment tends to increase after a foreign investment is made;

(iii) The government's choice of economic policy can influence the size of foreign investment inflow.

Based on the aforesaid assumptions, Holte (1988) proposes that if two consecutive time periods are assumed: when the foreign investment is made can be termed period 1 and the subsequent period can be termed period 2. To avoid high unemployment in period 1, the government puts in place a policy that should lead to a high foreign investment in this period. The high foreign investment made in period 1 should reduce the unemployment of period 1 but if there is a policy shift, which leads to withdrawal or reduction of inflow of investment, this may also make the unemployment of period 2 to increase.

Holte (1988) used the conflict between ecological goals and the goal of reducing unemployment to illustrate how a foreign investment made in a specific period (period 1) may increase the rate of unemployment in a subsequent period (period 2). That is, in an effort to reduce pollution and preserve natural resources, the government can prohibit the use of a particular production method(s) which could discourage existing foreign investors (from period 1) to leave or reduce their investment in period 2, thereby, increasing unemployment in period 2. Therefore, to keep the unemployment rate in period 2 from rising, the government needs to conduct a policy that attracts more or new foreign investors that cause foreign investment in period 2 to be higher than period 1.

3. Methodology

3.1. Study Sample and Data Description

The sample of emerging economies considered for this study is twenty-three (23) and they are obtained from the IMF (2015) list. The countries are comprised of Argentina, Bangladesh, Brazil, Bulgaria, Chile, China, Columbia, Hungary, India, Indonesia, Malaysia, Mexico, Pakistan, Peru, Poland and Philippines. Others are

Romania, Russia, South Africa, Thailand, Turkey, Ukraine and Venezuela. The data used for analyses are from two sources - The World Bank database for the period (1991-2016) and the Annual Report of the Frazer Institute covering the period (2000-2015).

The variables of the study for each country are unemployment as a percentage of the total labour force, net inflows of foreign direct investment in a balance of payments (BoP) current US$ dollars (World Bank, 2016) and the proxy for government policy is the freedom to trade internationally. (Frazer Institute, 2017) The estimated index for government policy is comprised of a weighted estimate of freedom to trade internationally, which is one of the major parts for determining the economic freedom of the world index. It covers rules and regulations dealing with contract formations, tariff compliance, and regulatory trade barriers control of the movement of capital and immigrants as well as black market exchange rate. (Frazer Institute, 2017)

3.2. Hypotheses of the Study

Applying the framework explained by Holte (1988), this study tests the following hypotheses:

H_1: FDI inflow in the current period has no significant influence on the unemployment rate in the current period in the emerging markets.

H_2: Government policy in the current period has no significant influence on the size of FDI inflow in the current period in the emerging markets.

H_3: FDI inflow in the subsequent period has no significant influence on the unemployment rate in the subsequent period in the emerging markets.

H_4: Government policy in the subsequent period has no significant influence on the size of FDI inflow in the subsequent period in the emerging markets.

3.3. Empirical Model

To test these hypotheses, the study relies on Holte (1988) proposition in formulating the empirical model in equations 3.1 – 3.4 as indicated in this section. The panel regression analysis for equations 3.1 -3.4 covers a period of 2000-2015 due to government policy data constraint.

$$UEMP_{1it} = \beta_0 + \beta_1 FDI_{1it} + \mu_{1it} \quad . \quad . \quad 3.1$$

$$FDI_{1it} = a_1 GVP_{1it} + \varepsilon_{1it} \quad . \quad . \quad . \quad 3.2$$

Where FDI is the net inflow of foreign direct investment, GVP is government policy, UEMP is unemployment rate, ε and μ are error terms and a and β are coefficients. Equation 3.2 is specified without a constant based on the assumption that when an economy is closed there is no FDI. There would be FDI only when

the economy is open. While equation 3.1 is specified with a constant because the study assumes there would be unemployment in an economy whether it is closed or opened.

The models in equation 3.1 and 3.2 are specified for period 1. Equations 3.3 and 3.4 are specified for period two.

$$UEMP_{2i(t+1)} = \beta_0 + \beta_1 FDI_{1it} + \beta_2 FDI_{2i(t+1)} + \mu_{2it} \quad . \quad 3.3$$

$$FDI_{2i(t+1)} = a_2 GVP_{2i(t+1)} + \varepsilon_{2it} \quad . \quad . \quad . \quad 3.4$$

The coefficients a_1 and a_2 are a priori expected to be positive. β_1 is expected to be negative under equation 3.1 but positive under equation 3.3. β_2 is expected to be negative under equation 3.3.

4. Discussion of Results

4.1. Results of Descriptive Analysis

The sample for the study shows that all the countries experienced unemployment at different levels as a proportion of the workforce. The computed average unemployment level by countries is indicated in Figure 4.1. In the period 1991-2016, the highest level of unemployment rate amongst the countries considered is South Africa (24.05 percent) while the least unemployment rate was experienced by Thailand at 1.45 percent. Six countries experienced an unemployment rate that is below 5 percent (Thailand, Bangladesh, India, Malaysia, China and Mexico). Ten countries fall between 5 and 10 percent (Chile, Hungary, Indonesia, Pakistan, Peru, Philippines, Romania, Russia, Turkey and Ukraine). The unemployment rate of above 10 but below 13 percent was experienced in six countries (Argentina, Brazil, Bulgaria, Columbia, Poland and Venezuela). Out of the 23 emerging economies considered in this study, 16 of them experienced single-digit unemployment rate while others have double-digits.

Figure 4.2 shows the average growth rate of unemployment in the emerging economies for the period 1991-2016. The result of the estimated average growth rate shows that 11 of the 23 economies had a negative growth rate while 12 experienced positive growth rate. This implies that 11 countries were able to reduce the level of unemployment while unemployment increased in 12 countries. The countries that have been able to reduce their level of unemployment in the period considered also maintained a low rate of unemployment. For example, Thailand had the least average rate of unemployment it also had the highest rate of reduction in the level of unemployment during the study period. Bulgaria was able to reduce the level of unemployment next to Thailand while Russia was third in the list of those countries that were able to reduce their countries level of

unemployment. In 12 emerging economies out of the 23, the growth rate of unemployment was positive which implies that unemployment was increasing in these economies. And the highest increase was experienced by Indonesia (see Figure 4.2). The range of increase in the unemployment rate was 3.01 percent growth rate for Indonesia and 0.01 percent growth rate for Pakistan.

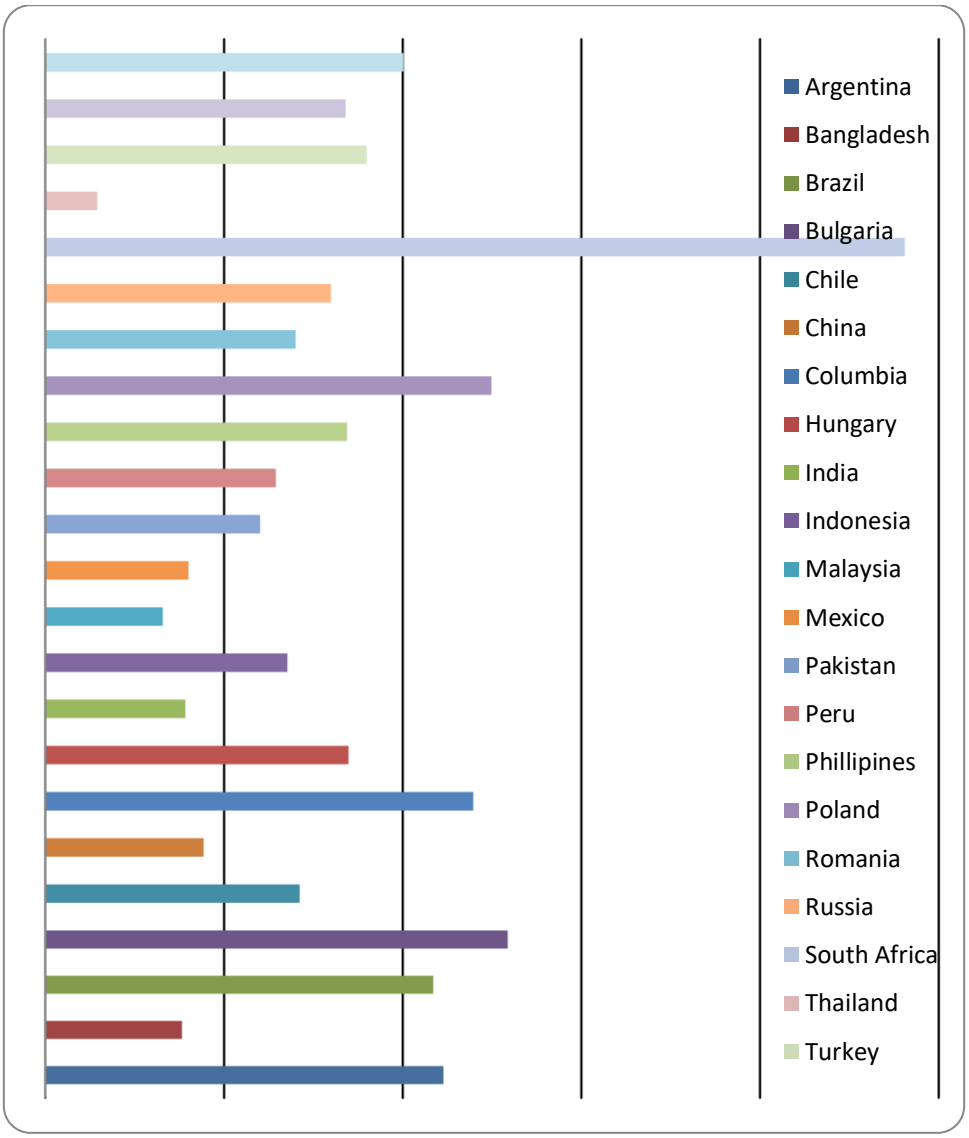

Figure 4.1. Average unemployment as percentage of labour force (1991-2016)

Source: Computed by authors, 2017

Bangladesh unemployment growth rate also increased next to Indonesia while Mexico came third. Other countries whose unemployment growth rate increased were negligible as they range below 1 percent in the period of the study. This implies that the rate of positive growth in unemployment is generally low while about 11 countries

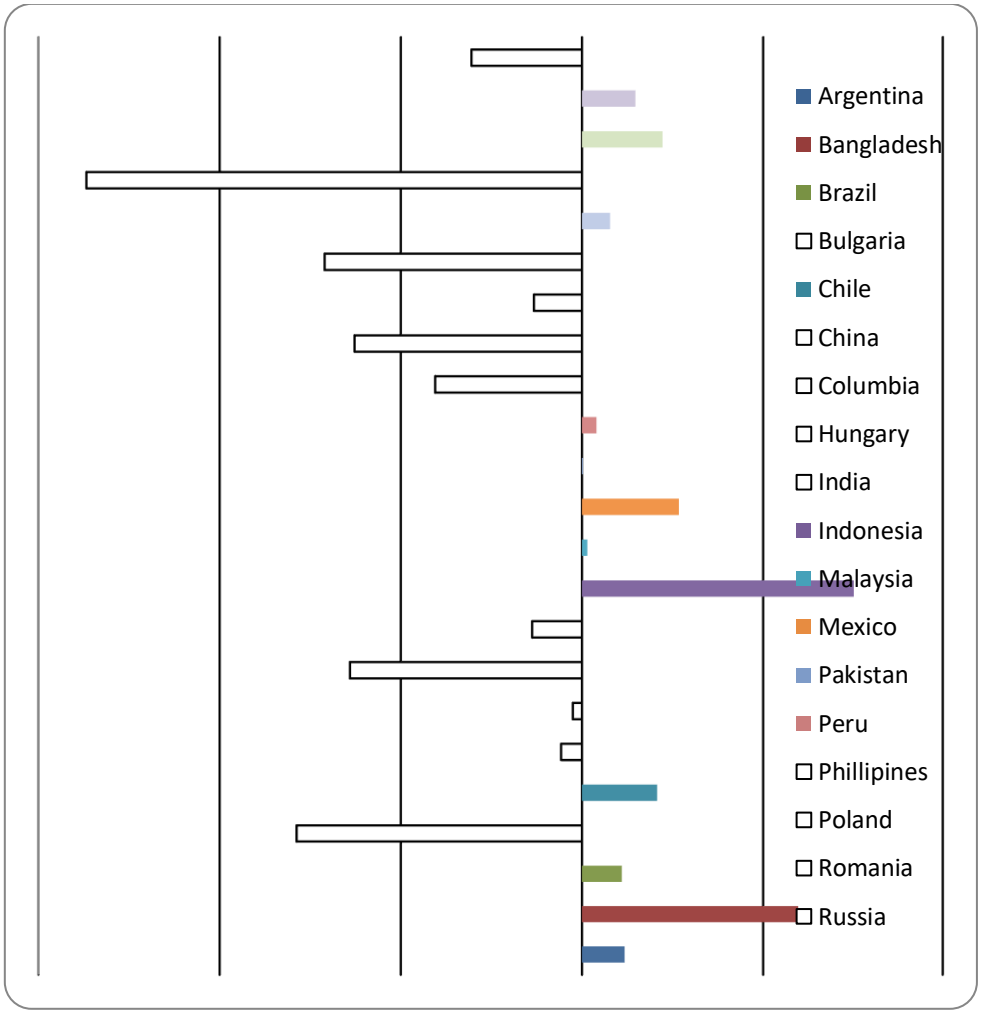

Figure 4.2. Unemployment growth rate 1991-2016

Source: Computed by authors, 2017

have been able to reduce their level of unemployment. The range of reduction in unemployment is between -0.23 percent in the case of China and -5.47 percent for Thailand during the period of the study.

In the period 1991-2016, about US$7809.59 Billion represents the total net inflow of foreign direct investment into the 23 emerging economies considered in the study. Figure 4.3 shows the distribution of net inflow of FDI into each of the emerging economies for the period of the study. The largest recipient of FDI during the period was China (US$2971.926 billion) followed by Brazil (US$962.367 billion) while Russia (US$962.367 billion) and Mexico (US$551.231 billion) came third and fourth, respectively.

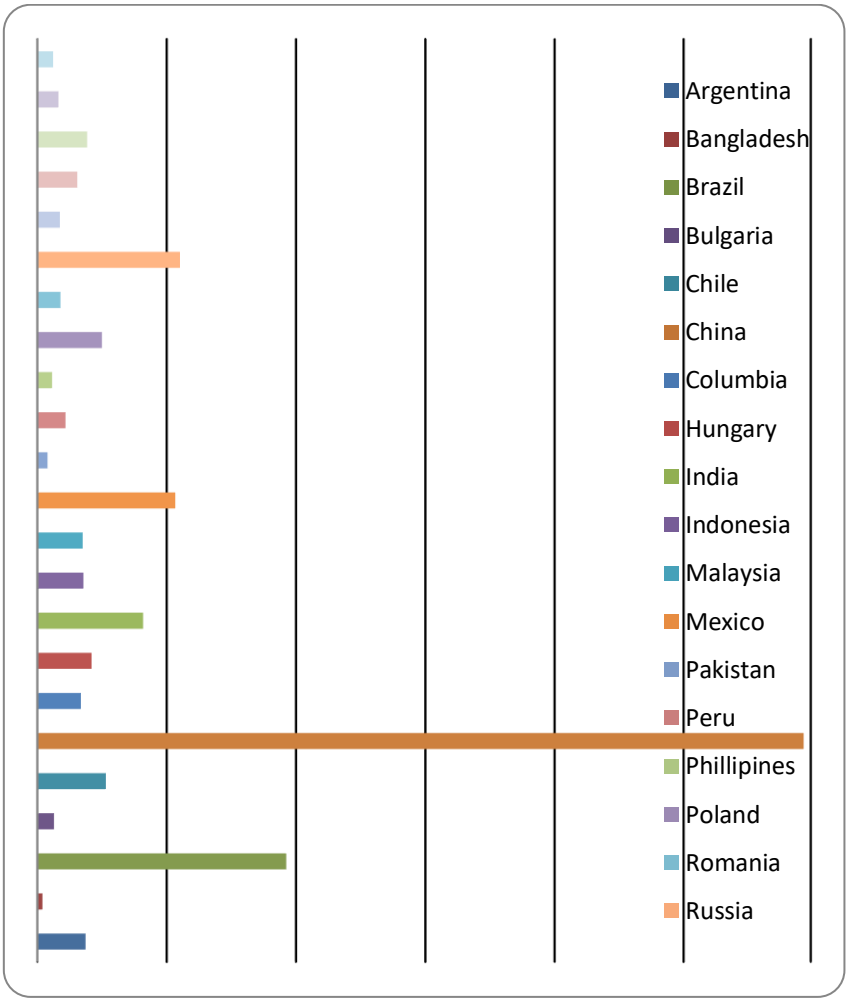

Figure 4.3. Total Net Inflow of FDI (BoP) in current US$ (1991-2016)

Source: World Bank Development Indicator, 2017

From the rear, the recipient of the least FDI was Bangladesh (US$19.741 billion) followed by Pakistan (US$39.119 billion) and thereafter Philippines (US$56.488

billion). In the same period, four countries benefited between US$200 and US$500 billion net inflow of FDI, six countries got between US$110 and US$200 billion while six countries attracted a range of US$60 and US$110 billion (see Figure 4.3).

The analysis of the percentage share of the total net inflow of FDI in US$ dollars to each of the emerging economy considered in this study is shown in Figure 4.4. Findings from the study affirm that about 38 % of the total inflow of FDI to the emerging economies was invested in China, 12% in Brazil while Russia and Mexico both had 7% each proximately.

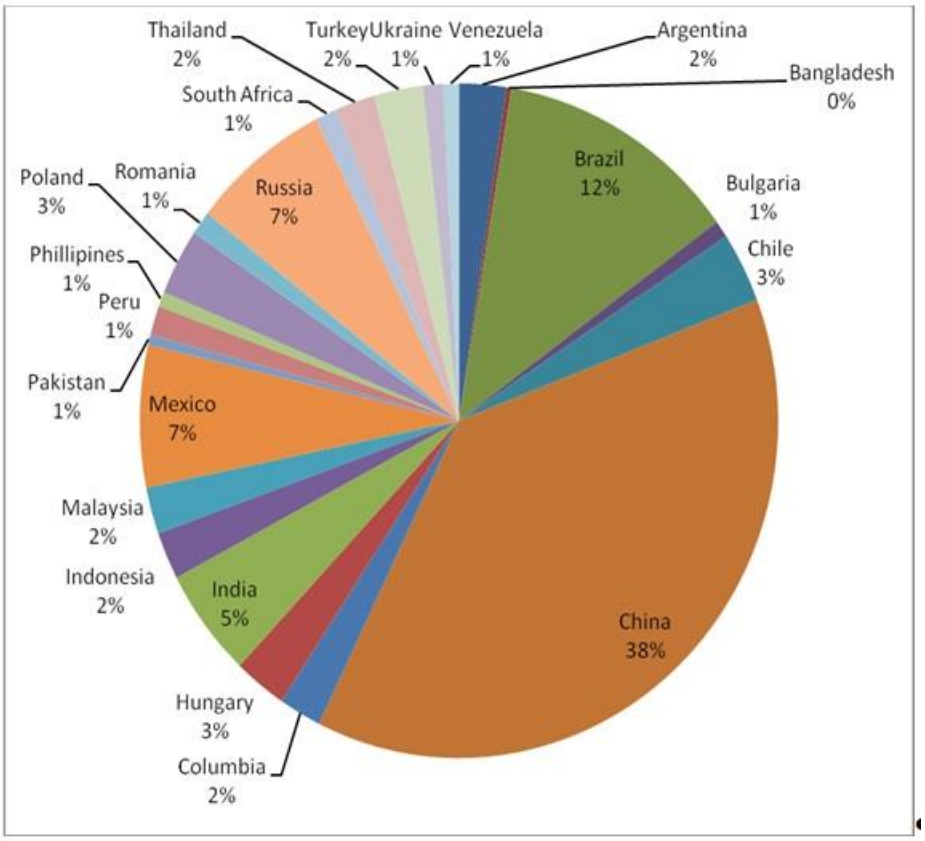

Figure 4.4. Percentage share of the total net inflow of FDI in current US$ per country (1991-2016)

Source: Computed by authors, 2017

India is next with 5% while Chile, Hungary and Poland attracted an estimate of 3% each. Other countries were able to attract between 1-2% of the total inflow of FDI into the emerging economies.

In terms of continental boundaries (Figure 4.5), 58% of the total inflows of FDI were invested in Asia, 29% in Latin America, 12% in Europe and 1% in South Africa being the only African country in the sample for the study.

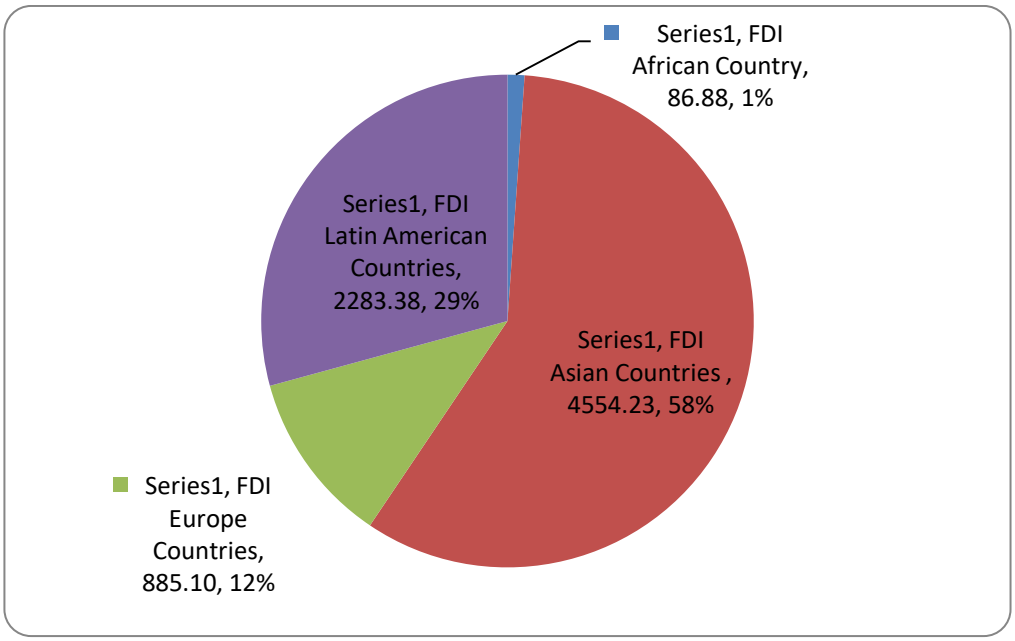

Figure 4.5. Net inflow of FDI by continents in current US$ (1991-2016)

Source: Computed by Authors, 2017

The average growth rate of net inflow of FDI into the emerging economies during the period 1991-2016 is indicated in Figure 4.6. The analysis of the growth rates indicate that Bangladesh experienced the highest growth rate of 33.72%, Peru was 30.33% while India came third with 27.90% growth rate. Two countries (Thailand and Venezuela) experienced negative growth rate during the period of the study although FDI inflow into these two countries was relatively low during the period of the study.

China had the highest proportion of net inflow in the period covered by the study but the growth rate was 15.14% while Brazil's growth rate at 17.85% was relatively better than that of China even though China experienced a higher net inflow of FDI. Amongst the countries that experienced a positive net inflow of FDI in the period of

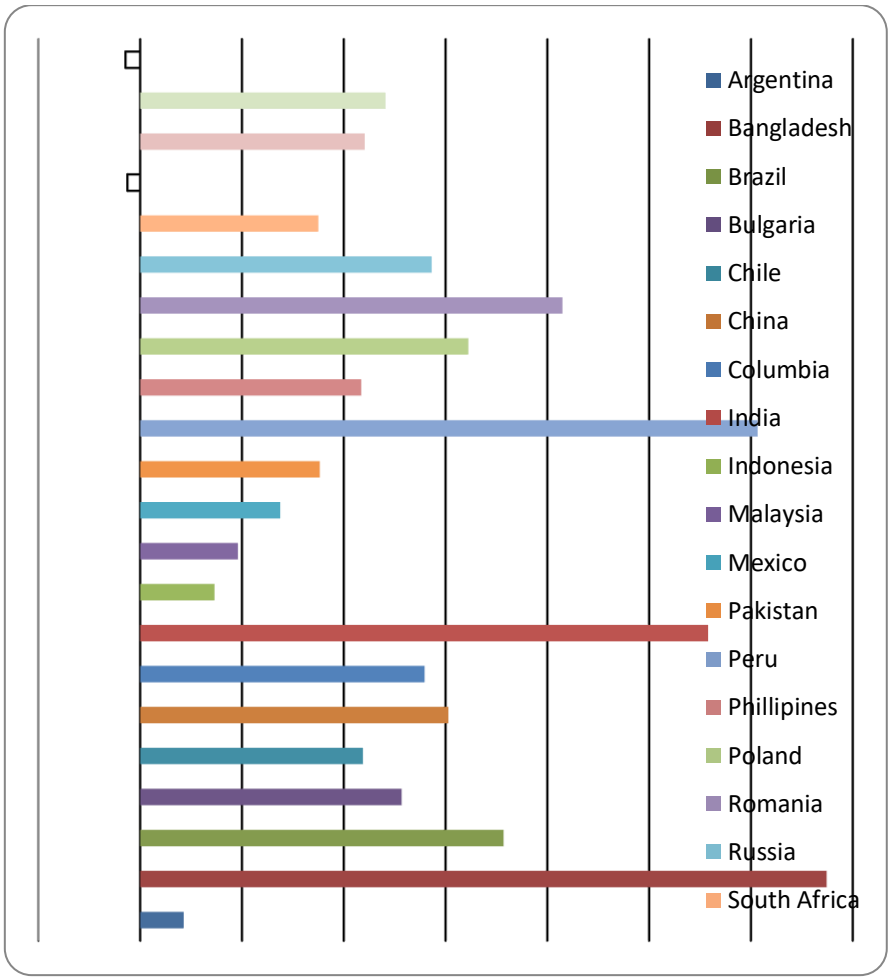

Figure 4.6. Growth rate of net inflow of FDI (1991-2016)

Source: World Bank Development Indicator, 2017

the study, Argentina (2.14%) experienced the least positive growth rate, followed by Indonesia (3.65%) while Malaysia (4.8%) came third. Romania, with a growth rate of 20.74% experienced the highest growth rate in Europe while South Africa, the only African country in the sample, experienced 8.75% growth rate.

The graphical illustration of the index of government policy is the freedom to trade internationally. This is represented in Figure 4.7 for all the countries covering 2000-2015. All the countries except Venezuela had an index of above the average score but the pattern of net inflows of FDI as earlier discussed differs at a wider range from one country to the other. The highest index was experienced by Chile

(8.41), next was Peru (8.24) while Hungary (8.01) came third. Incidentally, Peru experienced the highest FDI growth rate in line with a high index of government policy while the index of government policy in China is not the highest in line with its highest net inflow of FDI during the study period.

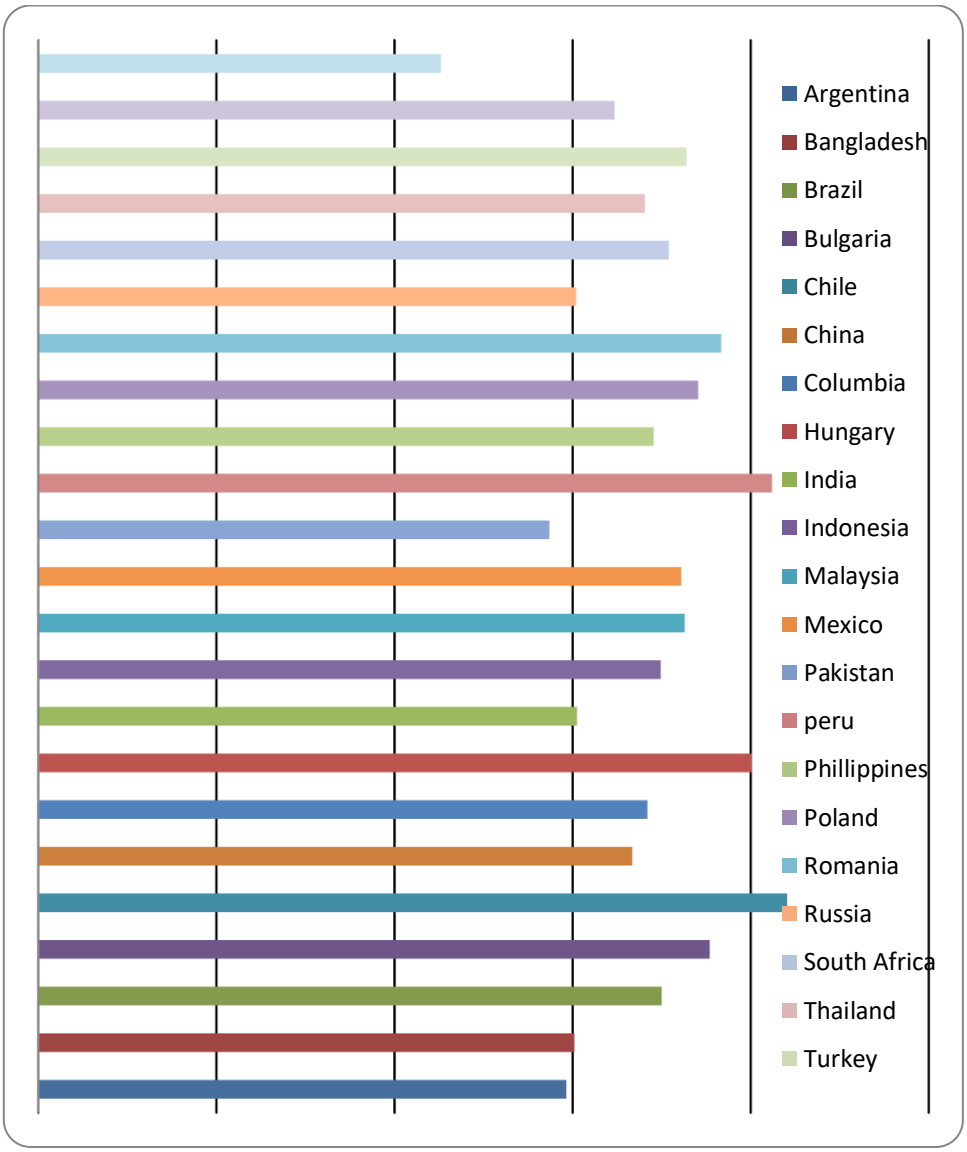

Figure 4.7. Government policy indicator (2000-2015)

Source: Frazer Institute, 2017

4.3. Panel Regression Results

4.3.1. Results of Panel Unit Roots Test

The results of the panel unit root test for the period 2000-2015 is contained in Table 4.1. Using the Levin, Lin and Chu approach, the study rejects the null hypothesis of no unit root in the cross-sectional data at 1% level of significance.

Table 4.1. Panel Unit Root Test

Variable	Method	Type of model	Lag	Order	t-statistic	p-value
FDI	LLC	Intercept and trend	01	I(0)	-3.35560	0.0004*
GVP	LLC	Intercept	01	I(0)	-6.48039	0.0000*
UEMP	LLC	Intercept and trend	01	I(0)	-2.60248	0.0046*
FDI_{2t}	LLC	Intercept and trend	01	I(0)	-3.88965	0.0001*
GVP_{2t}	LLC	Intercept	01	I(0)	-8.73303	0.0000*
$UEMP_{2t}$	LLC	Intercept and trend	02	I(0)	-5.73997	0.0000*

Source: Author, 2017

(*) denotes 1% level of significance

LLC denotes Levin, Lin and Chu

The order of integration from the unit root test results in Table 4.1 affirms that all the variables are stationary. This implies that the panel regression technique can rely on the Ordinary Least Square (OLS) method. (Eberhardt, 2011)

4.3.2. Panel Regression Results

The panel regression results in Tables 4.2 - 4.5 are derived after the inclusion of the autoregressive order one (AR (1)). This was considered so as to correct for the problem of autocorrelation in the parameter estimates. In Table 4.2, the panel OLS results of model 3.1 suggest that without FDI there is unemployment in emerging economies. In an open emerging economy, the relationship between net inflow of FDI and unemployment in the current period is indirect. That is, in the case of a unit increase in the net inflow of FDI into the emerging economies, current unemployment level will reduce by -1.37E-11 percentage points as a proportion of the labour force at 1% level of significance.

Table 4.2. Results of Model 3.1

Variable	Coefficient	Standard Error	t-statistic
Constant	4.9312	1.5271	3.2292
FDI_t	-1.37E-11	4.55E-12	-3.0107*

Source: Authors, 2017

Durbin-Watson statistic: 1.3788

R. Squared: 0.9553

(*) denotes 1% level of significance

The implication of the result in Table 4.2 is that the current inflow of FDI significantly reduces the current level of unemployment in emerging economies. Based on this panel regression result, the study rejects the null hypothesis of no significant relationship between the net inflow of FDI and unemployment. This affirms Holte's (1988) proposition that foreign investment reduces unemployment when it is made. The Durbin-Watson (D-W) statistic result also infers that the study fails to reject the null hypothesis of no positive or negative autocorrelation of the estimation.[1]

The result in Table 4.3 shows that government policy (freedom to trade internationally) does not significantly attract the net inflow of FDI into emerging economies. The study, based on the result in Table 4.3, fails to reject the null hypothesis of no significant relationship between government policy and the net inflow of FDI in emerging economies. The D-W statistic affirms the absence of positive or negative autocorrelation[2] in the coefficient estimates.

Table 4.3. Results of Model 3.2

Variable	Coefficient	Standard Error	t-statistic
GVP_t	-3.37E+08	1.80E+09	-0.1871

Source: Authors, 2017

Durbin-Watson statistic: 2.3270

R. Squared: 0.8997

The inference from the results is that evidence from emerging economies considered in this study does not support Holte's (1988) argument that government policy attracts the inflow of FDI into emerging economies in terms of freedom to trade internationally.

Table 4.4 contains the results of the lead net inflow of FDI on the level of unemployment in the lead period. The result also shows that unemployment exists in the emerging economies without inflow of FDI. Second, the net inflow of FDI in the current period in this model does not explain changes in the unemployment rate in the lead period. This does not support Holte's (1988) proposition that the foreign investment made in a current period may increase the unemployment rate in a subsequent period.

[1] The decision rule for the D-W null hypothesis of no positive or negative autocorrelation is $d_u < d < 4 - d_u$. For model 3.1, it can be interpreted as $1.086 < 1.379 < (4 - 1.086 = 2.914)$ therefore the study fails to reject the null hypothesis at 1% level of significance.

[2] Based on D-W decision rule in note 3, $1.086 < 2.37 < (4 - 1.086 = 2.914)$.

Table 4.4. Results of Model 3.3

Variable	Coefficient	Standard Error	t-statistic
Constant	4.6461	1.5326	3.0314*
FDI_t	-3.29E-12	4.34E-12	-0.7599
FDI_{t+1}	-1.33E-11	4.29E-12	-31004*

Source: Authors 2017

Durbin-Watson statistic: 1.3743

R. Squared: 0.9590

(*) denotes 1% level of significance

Third, the net inflow of FDI in the lead period affects the changes in unemployment in the lead period negatively. A unit increase in FDI in the lead period will reduce the lead period unemployment rate by -1.33E-11. The result affirms Holte's (1988) proposition that foreign investment made in a subsequent period would reduce the unemployment rate of the subsequent period. The test of hypothesis based on D-W statistic yardstick allows the study to fail to reject the null hypothesis of no positive or negative autocorrelation.[1]

In Table 4.5 the result shows that changes in the government policy (freedom to trade internationally) in the lead period has no significant effect on the inflow of FDI in the lead period in the emerging economies. Consequently, the study fails to reject the null hypothesis that states that there is no significant relationship between government policy in the lead period and the net inflow of FDI into emerging economies in the lead period. Thus, the study fails to support Holte (1988).

Table 4.5. Results of Model 3.4

Variable	Coefficient	Standard Error	t-statistic
GVP_{t+1}	-4.11E+08	1.91E+09	-0.2152

Source: Authors, 2017

Durbin-Watson statistic: 2.3442

R. Squared: 0.8993

The result of the D-W statistic is similar to the other models, by affirming that the estimation has no positive or negative autocorrelation.[2] This result, as well as the one obtained for model 3.2, does not support Holte's argument that government policy especially the freedom to trade internationally could attract the inflow of FDI into emerging nations in either the current period or the lead period.

[1] See note 3. 1.252 < 1.374 < (4 -1.252 =2.748).
[2] See note 3. 1.086 < 2.344 < (4 – 1.086 = 2.914).

In respect of the relationship between inflow of FDI and unemployment, the findings from this study not only affirms that inflow of FDI has a negative relationship with unemployment rate the result is also similar to the results of Nucu (2011) based on a panel study that investigated the same phenomenon for Central and Eastern European countries.

5. Conclusion and Recommendations

The study determined how government policy affects the net inflow of FDI as well as how FDI inflow influences the level of unemployment rate in emerging economies. The analysis of descriptive statistics covered 1991-2016 while the panel regression estimation for the study was for 2000-2015. The result of the descriptive analysis affirms that a total of about US$7.8 trillion were attracted into the emerging economies during 1991-2016. All the emerging economies relatively benefited from the net inflow of FDI but China was the highest beneficiary. All the countries also experienced some degree of unemployment but the lowest level was experienced by Thailand. The growth rate of net inflow of FDI affirms that Bangladesh experienced the highest growth rate while Thailand and Venezuela had a negative growth rate. In respect of unemployment growth rate, 11 countries were able to reduce the level of unemployment while unemployment increased in 12 countries. The average rate of unemployment was highest in South Africa and lowest in Thailand. The government policy proxy is the freedom to trade internationally. The index was highest in Chile and least in Venezuela.

The panel regression results affirm that the net inflow of FDI into emerging economies has a significant negative relationship with the level of unemployment in both the current and subsequent periods. However, we found no evidence to support the argument that government policies (freedom to trade internationally) affect the net inflow of FDI into emerging economies. The study made the following conclusions. Based on descriptive statistic analysis the biggest beneficiaries of the net inflow FDI in emerging economies do not experience the lowest rate of unemployment. From the panel regression results, the net inflow of FDI contributes to the reduction of unemployment in both the current and lead period but government policy (freedom to trade internationally) is not the reason for attracting the inflow of FDI into emerging economies. The study recommends that there is need to revise the policies on the freedom to trade internationally, especially policies affecting foreign investments, in emerging economies. This is important so as to further enhance the inflow of FDI that may further reduce the level of unemployment in emerging economies.

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Foreign Direct Investment in Nigeria: Its Role and Importance in Industrial Sector Growth

Philip Ifeakachukwu Nwosa[1]

Abstract: This study examined the role of foreign direct investment in industrial sector growth in Nigeria for the period spanning 1970 to 2016. The study utilized the error correction modelling technique and the result of the study showed that foreign direct investment had negative and significant impact on industrialization in Nigeria. The study concluded that the role of foreign direct investment in the growth of the Nigerian industrial sector had been harmful rather than enhancing it. Thus, the study recommended the need for the Federal government to shift her focus and policy directives from the oil sector to the industrial sector as this will attract the attention of foreign investors into the industrial sector. Also, there is the need for improve strategies to enhance the competitiveness of Nigerian industrial sector in attracting foreign direct investment.

Keywords: foreign direct investment; industrialization; error correction model; Nigeria

JEL Classification: F21; L60

1. Introduction

The need to transform the Nigerian economy from an agro-mono-product economy into an industrialized country has been the focus of successive government since the attainment of independence in 1960 till date. In spite of the various industrial plans initiated by the successive government, the economy is still dominated by the oil sector while the contribution of the industrial sector (less crude petroleum and natural gas sub-sector) to real gross domestic product for most of the years has not only been minimal as evident in figure 1 below but has also been nose-diving from 1982 when it peaked at 12.14% to 6.65% in 2010 before rising to 10.1% in 2014 and declining to 9.4% in 2016. The unimpressive share of the industrial sector to the real gross domestic product undoubtedly accounted for less than 4 percent of contribution of the industrial sector to export revenue. (NIRP, 2014) Beside the dismal performance of the industrial sector, the sector is also beset with numerous bottlenecks such as accounting for more than 50 percent of the country's import

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burden; lack of modernized technological equipments; unavailable skilled human resources needed to guarantee competitiveness in the sector; poor infrastructural equipments and lack of finance. (especially long term finance) (NIRP, 2014; Ubi et al., 2012)

The lack or perhaps shortage in investment (finance) has been observed as a long standing impediment to the growth of industrial sector. The insufficient level of government investment in the sector have further put a limit to the extent to which government can provide the required output-enhancing facilities to promote the industrial sector. Recognizing the impediment posed by the lack of investment and the pressing need to fill this gap and stimulate long term industrial growth, have largely resulted in embracing foreign capital inflows as an injection into the investment stream of the country to propel industrial growth by complementing domestic savings. Besides, foreign direct investment provides access to modern technology and managerial skills, which are pertinent to the growth of the industrial sector. (Over, 1975)

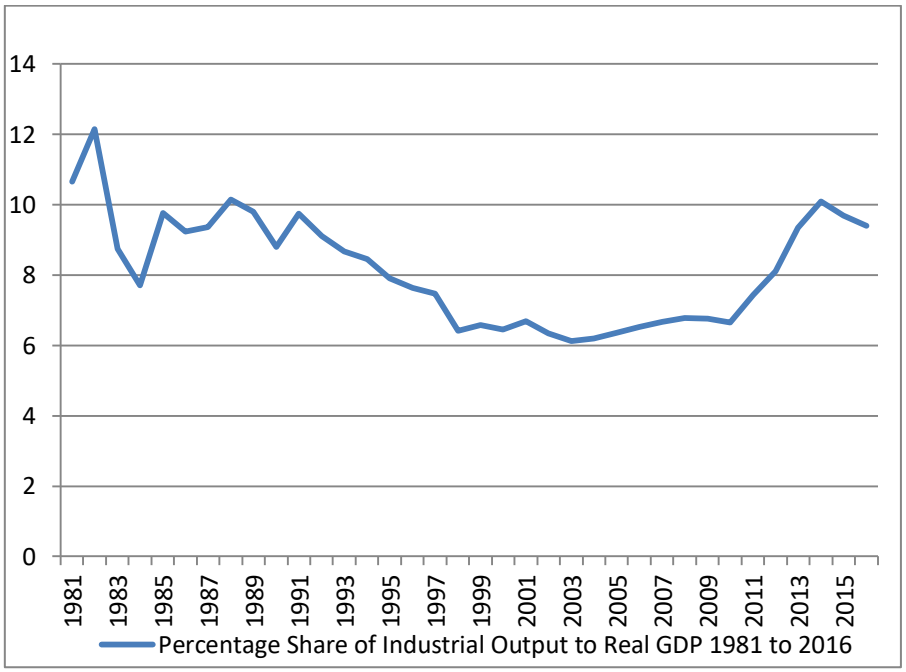


Figure 1. Percentage share of indrustrial output to real GDP

Source: Author's 2018 using data from CBN bulletin 2016 edition

Although the Nigerian economy has been a beneficiary of the foreign direct investment inflows since the 1970's, it is not clear if such inflows have had any influence on the industrial development of the country. This issue is even more

worrisome owing to the lack of empirical literature on the relationship between foreign direct investment and industrial development in Nigeria. Most of the previous studies have focused on the extent to which foreign direct investment influenced economic growth but the findings of such studies can best be described as inconclusive[1]. Still, studies such as Okoli and Agu (2015) and Adejumo (2013) only examined the impact of foreign direct investment on manufacturing output - a sub-sector of the industrial sector.

The current drive for a strong industrial development is premised on the need to diversify the Nigerian economy and reduce her overly dependence on the oil sector. A robust industrial sector is pivotal to mass employment, improved skills and better wages leading to reduction in poverty and income inequalities, and providing the foundation for long run sustainable economic growth that is less susceptible to external shocks. (NIRP, 2014) Also, industrial development has strong effects (linkages) with other sectors of the economy (such as the agricultural sector and the service sectors) and positively influences macroeconomic fundamentals such as inflation, exchange rate, foreign exchange earnings and balance of payment position among others. Thus, the role of foreign direct investment in the achievement of industrial growth makes this issue worth examining.

Drawing from the above this study seeks to address the research questions "what is the role of foreign direct investment in the growth of the industrial sector in Nigeria for the period 1970 to 2016. In addition to the introduction, section two discussed the literature review while the research method is discussed in section three. Results and findings are discussed in section four while section five discussed the conclusion and policy recommendations arising from the findings of the study.

2. Literature Review

With respect to related literatures Akpan and Eweke (2017) examined impact of Foreign Direct Investment (FDI) and industrial sector performance on economic growth in Nigeria over the period 1981 to 2015. The study employed the Impulse Response Functions (IRFs) and Variance Decomposition (VDC) techniques within a Vector Autoregressive (VAR) framework. The result of the study showed bidirectional causality between FDI and industrial sector output, GDP and industrial sector output while a unidirectional causality was observed from FDI to GDP. The result of the VAR estimate showed that FDI had significant and positive impact on GDP while industrial sector output had significant and positive impact on GDP. The impulse response functions result showed that GDP exhibited negative response to shocks in FDI up to the 3rd period, while the effect was

[1] See (Chigbu et al., 2015; Umoh et al., 2012; Chatterjee & Turnosky, 2005; Griffin & Enos, 1970).

positive from the 4th period henceforth. GDP also exhibited a negative response to shocks in industrial sector output throughout the period observed. The variance decomposition analysis further revealed that GDP was mainly driven by shocks in FDI, with industrial sector output contributing very little. Based on the finding of the study it was recommended that social and economic infrastructure be improved to lessen the burden of industrialist and eventually lower the cost of doing business which in turn would attract FDI inflow into Nigeria.

Adegboye, Ojo and Ogunrinola (2016) examined the relationship between foreign direct investment and industrial performance in selected African countries over the period 1996 to 2015. The study employed pooled ordinary least square technique and fixed effect least-square dummy variable model. The result of the study showed that foreign direct investment had significant impact on industrial performance in Africa. The study recommended the need for government to put in place policies capable of enhancing the performance of domestic industries. Samal and Raju (2016) examined the relationship between foreign direct investment and manufacturing output growth in India over the period 1995 to 2014. The result of the study showed that Trade, GDP, reserves GDP, exchange rate, are the main determinants of FDI in India.

Okoli and Agu (2015) examined the impact of foreign direct investment on the performance of the manufacturing firms in Nigeria over the period 1970 to 2013. The study employed both the Ordinary Least Square and the Vector Error Correction Modelling techniques. The findings of the study indicated that foreign direct investment had negative and significant effect on the performance of manufacturing firms in Nigeria. Thus, the study recommended the need for government actions to be geared towards strategically maintaining and sustaining policies that help encourage FDI inflows especially in the long run as well as promoting an efficient and enabling macroeconomic environment on which manufacturing firms can thrive.

Obasi (2015) appraised foreign direct investment policies in Nigeria the findings of the study showed that during the period of indigenisation policy, inward foreign direct investment in the Nigerian was low due to the stringent measure on foreign investors. It also observed that the inability of import substitution industrialisation to develop domestic technology has a serious implication on industrialisation in Nigeria. Umer and Alam (2013) examined impact of trade openness and foreign direct investment (FDI) on industrial sector growth in Pakistan over the period 1965 to 2011. The study employed Johansen and Juselius co-integration technique and Vector Error Correction Mechanism approach to estimate both short run and long run relationship among the variables. The results of the study revealed that foreign direct investment and real gross domestic product had positive and significant impact on industrial sector growth while trade openness and inflation

had negative impact on industrial sector growth in Pakistan. Further, the study found that real effective exchange rate had insignificant impact on industrial sector growth in long-run while the lagged value of own industrial sector, foreign direct investment, real effective exchange rate and real gross domestic product had positive and significant impact on industrial sector growth in short run. Also, inflation and trade openness had insignificant impact on industrial output growth in Pakistan in the short run. The error correction term confirmed the long-run relationship among all independent variables.

Adejumo (2013) examined the relationship between foreign direct investment and the value added to the manufacturing industry in Nigeria for the period 1970 to 2009. Using the autoregressive lag distribution technique, the study observed that foreign direct investments had a negative effect on the manufacturing sub-sector in Nigeria in the long run. Chandran and Krishan (2008) examined the relationship between Foreign Direct Investment (FDI) and manufacturing growth over the period 1970 to 2003. The study employed autoregressive distributed lag (ARDL) technique and the result of the study found that FDI had significant impact on manufacturing growth both in the short run and in the long run. Hence, the study recommended the need for strategies to enhance the competitiveness of Malaysian manufacturing sectors in the world of intense competition for FDI especially among the Asian economies like China and other ASEAN members. From the above reviewed literature, it was observed that related indigenous literatures (Okoli & Agu, 2015; Adejumo, 2013) only focused on the manufacturing sector which is a sub-sector of the industrial sector.

3. Research Methodology

3.1. Theoretical Framework/Model Specification

This study employed the endogenous growth theory for its theoretical framework. The endogenous growth model emphasized influence of foreign capital through externalities on output growth, which is explored through the production function. Thus, considering a simple intensive form of AK production function where output is a linear function of the aggregate capital stock:

$$Y = AK^{\alpha} \qquad (1)$$

Y_t is output (industrial output), A is technological level (production efficiency) which is a positive constant and K is volume of capital stock. According to Lucas (1988), K (capital stock) is decomposed into human capital $\left(K_H{}^{\beta}\right)$ and physical capital $\left(K_P{}^{\phi}\right)$. Equation (1) becomes:

$$Y = AK_H^{\beta} K_P^{\phi} \quad (2)$$

where β and ϕ are the elasticities of the human capital and physical capital respectively. As noted above, endogenous growth theory emphasized the positive influence of capital inflows on output growth. Thus, incorporating capital inflows (foreign direct investment *(FDI))* into equation (2) becomes:

$$Y = AK_H^{\beta} K_P^{\phi} FDI^{\varphi} \quad (3)$$

where ϕ is the elasticity of foreign direct investment *(FDI)*.

Taking logarithms of equation (3) and introducing *Z* into equation (3), the following production function is observed:

$$\ln Y = \ln A + \beta \ln K_H + \phi K_P + \varphi \ln FDI + \ln Z + \varepsilon \quad (4)$$

Z in equation (4) above denotes other macroeconomic variable (financial development (FD) and inflation rate *(*INF*)*). Several studies have noted that these macroeconomic variables have significant influence on output growth[1]. Thus, equation (4) is written as:

$$\ln Y_t = \delta_0 + \delta_1 \ln K_{tH} + \delta_2 \ln K_{tP} + \delta_3 \ln FDI_t + \delta_4 FD_t + \delta_5 IFR_t + \varepsilon_t \quad (5)$$

From equation (5) *(Y)* is industrial output (idp), (K_H) is human capital (lab), $(k_P)$is capital stock *(cps)*, *FDI* is foreign direct investment, *FD* is financial development and *IFR* is inflation rate. Thus, equation (5) is re-written as:

$$\ln idp_t = \delta_0 + \delta_1 \ln lab_t + \delta_2 \ln cps_t + \delta_3 \ln fdi_t + \delta_4 fd_t + \delta_5 ifr_t + \varepsilon_t \quad (6)$$

Thus, equation (6) is the estimating model for examining the impact of foreign direct investment on industrialization in Nigeria.

3.2. Data Measurement and Sources

Industrialization (*idp*) is measured by the industrial output (that is the share of industrial output in real gross domestic product less crude petroleum and natural gas sub-sector); human capital (*lab*) is proxy by labour force; capital stock (*cps*) is measured by gross fixed capital formation; foreign direct investment (*fdi*) measured by the annual aggregate net inflow on direct investment in Nigeria; financial development (*fd*) is measured by the ratio of credit to the private sector to real gross domestic product and inflation rate (*ifr*) is measured by the annual inflation rate. Data on industrial output, foreign direct investment, capital stock, financial development and inflation rate were obtained from the various volumes of Central

[1] See (Lee & Wong, 2005; Javid & Qayyum, 2011).

Bank of Nigeria (CBN) Statistical bulletin while data on labour force is obtained from World Development Indicator (WDI).

4. Results and Findings

4.1. Descriptive Statistics, Unit Root and Co-integration Estimate

The descriptive statistics of variables presented in 1 below, showed that the averages of the variables are 7.57, 18.46 and 10.64 for industrial production (*lidp*), labour force (*llab*) and capital stock (*lcps*) respectively while the average values of foreign direct investment (*lfdi*), financial development (*fd*) and inflation rate (*ifr*) were 9.53, 22.06 and 18.55 respectively. The standard deviation showed that inflation rate (16.79) was the most volatile variable in the time series while labour force (0.35) was the least volatile variable. The skewness statistic showed that industrial production (*lidp*), labour force (*llab*) and foreign direct investment (*lfdi*) were negatively skewed while capital stock (*lcps*), financial development (*fd*) and inflation rate (*ifr*) were positively skewed. The kurtosis statistics showed that labour force (*llab*), foreign direct investment (*lfdi*) and financial development (*fd*) were platykurtic, suggesting that their distributions were flat relative to normal distribution while industrial production (*lidp*), capital stock (*lcps*) and inflation rate were leptokurtic, suggesting that their distributions are peaked relative to normal distribution. Finally, the Jarque-Bera statistic rejected the null hypothesis of normal distribution for capital stock (*lcps*) and inflation rate (*ifr*) while the Jarque-Bera statistic accepted the null hypothesis of normal distribution for the remaining variables at five percent critical value.

Table 1. Descriptive Statistics

Variables	***lidp***	***llab***	***lcps***	***lfdi***	***fd***	***ifr***
Mean	7.572	18.456	10.636	9.529	22.061	18.551
Std. Dev.	0.669	0.353	2.064	3.436	6.507	16.792
Skewness	-0.471	-0.091	1.277	-0.084	0.589	1.658
Kurtosis	3.869	1.810	5.073	1.368	2.771	4.842
Jarque-Bera	3.219	2.839	21.184	5.273	2.818	28.173
Probability	0.200	0.242	0.000	0.072	0.244	0.000
Observations	47	47	47	47	47	47

Source: Author, 2018 using e-views 9

The unit root estimate was based on the Augmented Dickey Fuller (ADF) test and the result of the test is presented in table 2 below. From the table, it was observed that all the variables were integrated of order one, suggesting that the variables were I(1) series.

Table 2. Unit Root Test

Augmented Dickey Fuller (ADF) Test			
Variables	**Level**	**1st Difference**	**Status**
lidp	1.3328	-4.8019*	I(1)
llab	-2.0747	-7.1644*	I(1)
lcps	-0.5958	-6.8895*	I(1)
lfdi	-0.7434	-9.4300*	I(1)
fd	-2.6406	-6.6406*	I(1)
ifr	-0.2358	-3.5869*	I(1)
Critical Values	**Level**	**1st Difference**	
1%	-3.5812	-3.5847	
5%	-2.9266	-2.9281	
10%	-2.6014	-2.6022	

Source: Author, 2018, using e-views 9

* indicates 1% significance level

The study employed the Johansen co-integration test to examine the co-integration among variables. From the co-integration estimate presented on table 3, it was observed that the null hypothesis of no co-integration for r=0, r≤1 and r≤2 were rejected by the trace test because the statistic values were greater than the critical values while the null hypothesis of no co-integration for r≤3 was not rejected by the trace test because the statistic value was less than the critical value, suggesting the existence of three co-integrating equations. The Maximum-Eigen test on the other hand indicated that the null hypothesis of no co-integration for r=0 was rejected because the statistic value was greater than the critical value while the null hypothesis of no co-integration for r≤1 was accepted because the statistic value was less than the critical value, suggesting the existence of one co-integrating equation. Thus, the co-integrating estimates from the trace and maximum Eigen statistic confirmed the existence of a long run relationship among the variables.

Table 3. Summary of the Co-integration Estimate

Trace Test				Maximum Eigen value Test			
Null	Alternative	Statistics	0.05 Critical values	Null	Alternative	Statistics	0.05 Critical values
r=0	r≥1	137.498	95.754	r=0	r=1	57.226	40.078
r≤1	r≥2	80.272	69.819	r≤1	r=2	28.961	33.877
r≤ 2	r≥3	51.311	47.856	r≤2	r=3	23.665	27.584
r≤ 3	r≥4	27.646	29.797	r≤3	r=4	15.574	21.132

Source: Author, 2018

4.2. Regression Estimate

Sequel to the existence of co-integration among the variables, this study examined the relationship between foreign direct investment and industrialization in Nigeria

using the error correction modelling technique. The result from the estimate presented in table 4 showed that labour force (*llab*) had positive and significant influence on industrial output in Nigeria while foreign direct investment (*lfdi*) had negative and significant impact on industrial output in Nigeria. In addition to the above, the regression estimate showed that capital stock (*lcps*), financial development (*fd)* and inflation rate (*ifr*) all had insignificant impact on industrial output growth in Nigeria.

The positive impact of labour force on industrial output is in line with theoretical expectation and showed that the increase in labour force contributed positively to industrial output in Nigeria. The negative relationship between foreign direct investment and industrial output showed that the foreign direct investment had retarded the growth of the industrial sector rather than enhancing it. This may be attributed to the presence of the oil sector which has attracted most of the inflow of foreign investment into the country. Also, literatures have noted that foreign direct investment may retard industrial output growth in the host country[1].

The error correction term (ecm-term) from the estimate showed that its coefficient was correctly signed (negative) (-0.4489) and statistically significant. The coefficient estimate of the error correction term of -0.4489 implied that the model corrects its short-run disequilibrium by 44.89 percent speed of adjustment in order to return to the long-run equilibrium. In addition, the negative sign of the error correction term indicates a backward movement towards equilibrium.

Table 4. Estimate on Impact of Budget Deficit on Exchange Rate in Nigeria

Variable	Coefficient	Std. Error	t-Statistic
llab	3.9995	1.3794	2.8995*
lcps	0.0545	0.0621	0.8765
lfdi	-0.3023	0.1220	-2.4784**
fd	-0.0190	0.0121	-1.5610
ifr	0.0017	0.0037	0.4712
c	-63.5538	23.6531	-2.6869**
ecm-term	-0.4489	0.1263	-3.5540*

Source: Author, 2018

* and ** indicate 1% and 5% per cent significance level respectively

R-squared = 0.66 F-stat. = 16.00 (0.0000)

The robustness of the regression estimate is shown by conducting stability tests (cumulative sum (CUSUM) and cumulative sum of squares (CUSUMsq) on the residuals. The stability tests clearly presented in Figures 2a and 2b indicated that the parameters of the models did not suffer from any structural instability over the

[1] See (Ndikumana, 2003; Alfaro, Chanda, Kalimli-ozcan & Sayek, 2001; Adelegan, 2000).

period of study. Also, the stability tests also indicated that the model is correctly specified. This is because the plots of both the CUSUM and CUSUMsq were to a large extent within the bounded line of five percent significant level.

Figura 2a. Cumulative Sum of Recursive Residuals

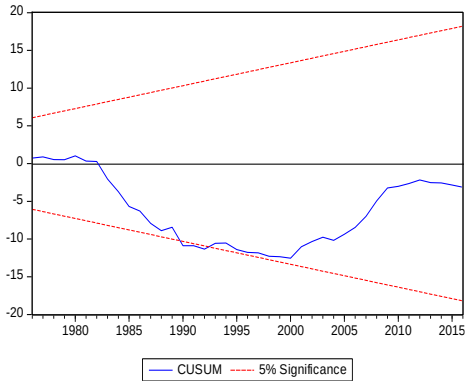
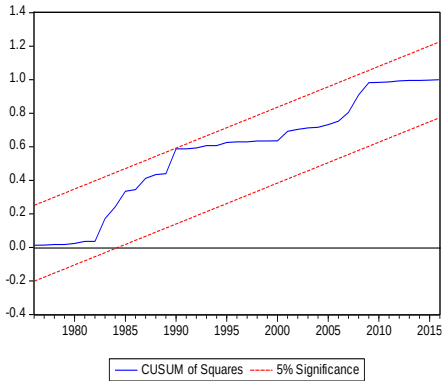


Figura 2b. Cum. Sum of Sq. of Recursive Residuals



5. Conclusion and Policy Recommendations

This study explored the role of foreign direct investment in the growth of the industrial sector in Nigeria for the period spanning 1970 to 2016. Employing the error correction modelling technique the result of the study showed that foreign direct investment negatively and significantly affected industrialization in Nigeria. Thus, the study concluded that the inflow of foreign direct investment over the years into the Nigerian economy had retarded industrial sector growth rather than enhancing it. Based on the findings of this study, the study recommended the need for government to shift her focus and policy directives from the oil sector to the industrial sector as this will attract the attention of foreign investors into the industrial sector. Also, there is the need for government to provide production enhancing facilities (stable power supply, good roads, improve financial system, improve legal and social operating environment among others) to ease and enhance industrial production in Nigeria. Finally, there is the need for improve strategies to enhance the competitiveness of Nigerian industrial sector in attracting foreign direct investment.

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The Role of Capital Requirements on the Stability of Kosovo Banking Sector

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Abstract: After the failure of the Bretton Woods system, it was more than necessary to create a stable, acceptable and strong banking system. The way to achieve this was to form the Basel Committee on Banking Supervision. The committee has set a number of requirements that banks should fulfil in order to be a part of the banking sector. These rules have been adopted by many countries on an individual basis; one of the countries which has adopted the Basel regulations on banking supervision is Kosovo. Based on the committee's regulation on capital adequacy, the Central Bank has created the Local Capital Regulation. The aim of this adoption is to completely integrate the Basel regulation in the near future. The major harmonisation was performed in 2012, when the new law on banking supervision was enforced. This paper provides us information on the impact of the new law requirements on capital adequacy ratios.

Keywords: CAR – Capital Adequacy Ratio; Tier 1; Tier 2; Operational Risk

JEL Classification: E580; E50; G20

1. Introduction

The regulation on Capital Adequacy in banking sector is considered to be a crucial part of a healthy banking sector as well as for economy. The Basel Regulation is the only way generally accepted for Capital Adequacy Ratio after the failure of the Breton Woods system.

The history of the Basel start with the Basel I. Basel I was the motivated by two interacting concerns – the risk posed to the stability of the global financial system by low capital levels of internationally active banks and the competitive advantages accruing to banks subject to lower capital requirements. (Tarullo, 2008)

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After a long negotiation Basel I never departed from the promise that the capital ratios of the banks need to rise, in order to have a secure banking sector. After a long tentative on 1983 the Congres mandated the regulation on Capital Adequacy by adopting the Basel Regulation.

The Basel Committee on Banking Supervision is an institution created by the central bank Governors of the Group of 10 nations (G10) (Belgium, Canada, France, Italy, Japan, the Netherlands, the United Kingdom, the United States, Germany and Sweden). The Basel Committee formulates broad supervisory standards and guidelines and recommends statements of best practice in banking supervision (Basel II Accord, for example) in the expectation that member authorities and other nations' authorities will take steps to implement them through their own national systems. The purpose of the committee is to encourage convergence toward common approaches and standards. (Alina, 2012)

Based on Basel Committee regulation on Capital Adequacy the Central Bank has created the Local Capital Regulation on Bank Capital Adequacy. The aim of this adoption is to integrate completely the Basel Regulation in the near future. The major harmonization has been done on 2012 when the new law on banking supervision was enforced. This paper gives us the information on the impact of the new Law Requirements on Capital Adequacy Ratios.

2. Literature Review

There are a number of works that analyze the effects of the capital adequacy requirements in the banking credit cycle and the performance of the bank. In the thesis carried out by a team led by Patricia Jackson (April 2009), the Basel Committee assessed the impact on the credit activity of banks in the implementation of the new Basel regulation. Basel rules also pushed commercial banks to make their investments in markets with the highest ranking and lowest risk. Also searches made inform the impact on the domestic economy was very positive in the long term compared to the short term. In the short term this agreement led to the reduction of economic activity also in the termination of some funds and high-risk companies and all this created a discipline in the securities market, ie banking financial market.

Estrella (2004), Hellman et al. (2000), Repullo (2004) and Repullo and Suarez (2004), offer their analysis on the application of bank capital in different countries, and generally agree that these rules directly affect banks' risk reduction. On the other hand Blum (1999) and Calem and Rob (1999) show how the capital requirements may increase the risk in some situations and at certain times while Diamond and Rajan (2000), develop a theory about banking capital requirement

which stated that long-term adequacy requirements Basel impact on growth and development banks.

Blum and Hellwing (1995) through their model reveals the macroeconomic implications of requirements relating to capital adequacy depends on whether the pro-cyclical effects, which they promote and are stronger or weaker than the pro-cyclical effects of the existing rules. Kunt, Detragiache and Merrouche (2010) in their paper tested in equity returns in the case of banks raising capital, and have come to the conclusion that capital levels did not affect the returns on capital during the crisis, the highest level Capital has brought a higher level of return in particular to large banks, higher quality capital to capital especially first class had the highest impact. Having more capital a bank is expected to have flexibility in the event of shocks that can cause unexpected losses. Disruptive effects of the recent global crisis has created the need for banks to be capitalized on to be more protected during crises.

However, the capital increase is costly for a bank. This high level of capital level will affect the bank's changing risk behavior. It depends on the bank's approach to risk and reward, and contributes to their situation and the role of mediation in the economy. Many previous empirical research have tried to show the involvement of the bank's capital level in the bank's intermediary role in the economy. (Peek & Rosengren, 1995; Blum & Hellwig, 1995; Furfine, 2001; Diamond & Rajan, 2000; Chiuri, Hell & Majnoni, 2001; Yudistira, 2003) Most researchers conclude that demand for capital will worsen the bank's intermediary role in the economy, reducing the level of lending and economic production. These findings are also supported by the result of the macroeconomic impact assessment that bring sustainable capital requirements. (Macroeconomic Assessment Group-BIS, 2010) The banking industry is centered in Kosovo constantly to harmonize rules on the banking sector, the Basel rules. Giant step towards this harmonization was made in 2012 when Kosovo came into force the Law 04/L-093 on Banks, Mirkofinanciare institutions and non-banking financial institutions.

The Banking Sector in the Republic of Kosovo

The banking sector in Kosovo is rated among the sectors with the best performance in the economy. Bank deposits and loans are increasing, while the level of financial services is expanding. The Central Bank of Kosovo has the authority to license, supervise and regulate financial institutions in the territory of Kosovo. The commercial banks sector consists of 8 banks. Commercial banks provide a full range of banking services, including: loans, guarantees, current accounts, savings accounts, term deposits, transfers at home and abroad, as well as services for the preservation of valuable assets since 2009, these banks raise share capital by 9.3%, rising to € 159.4 million.

The banking sector, which represents the largest part of Kosovo's financial sector, was characterized by an increase in the level of financial intermediation. In 2009, loans issued by the banking sector reached 1.4 billion euros, which is 7.7% higher than in the previous year. The structure of loans continues to be similar and dominated by loans in the trade sector. Regarding the duration, longer-term loans continue to increase their share in total portfolio. Significant growth was also noted in deposits, which amounted to 1.74 billion euros, which is 21% higher than in the previous year. The main source of deposits continues to be households, while in terms of maturity, short-term deposits dominate. The increase in the level of financial intermediation to a certain extent is the result of increased competition in the banking sector, which among other things has been manifested with interest rates more favorable to customers and higher quality of services. Kosovo's banking sector continues to be profitable, liquid and solvent. The good state of liquidity and solvency of the banking sector is also shown through the results obtained through the "stress test" model which tests the banking sector's sensitivity in different scenarios. Positive performance was also observed in other financial sectors. The insurance industry has shown that it is an attractive sector for new investors since in 2008 another company entered the market. Moreover, in addition to increasing activity with existing products, the insurance industry in Kosovo began offering a new service - life insurance. Insurance companies in Kosovo are stable with a satisfactory level of capitalism. In 2009 we have a growth plus two microfinance institutions that continued to support the local economy through lending this year. Loans issued by micro financial institutions amounted to 57.500 million euros representing an annual growth of 14.6%. "Financial Stability Report - Ministry of Economy and Finance Kosovo"

The financial sector in Kosovo consists of commercial banks, microfinance institutions, non-bank financial institutions, insurance companies, pension funds and the securities market. In the first half of 2016, this sector was characterized by a steady annual growth rate of 7.3% "Financial Stability Report – Central Bank of Kosovo 2016", whereby the total amount of assets amounted to 501 billion euros. This increase was mainly due to the expansion of banks' activity and the positive performance of pension funds, but the microfinance and insurance sector also contributed, albeit at a lower rate.

Kosovo's banking sector consists in commercial banks activity. (Hoti & Livoreka, 2014)

The banking sector with high foreign ownership, 8 out of 10 banks in total, dominates the structure of the financial sector in Kosovo.

Banks operating in the territory of Kosovo are:

1. NLB;

2. BPB;
3. ProCredit Bank;
4. TEB Bank;
5. Raiffeisen Bank;
6. BKT;
7. Turkiye Cumhuriyeti Ziraat Bankasi;
8. Banka Ekonomike;
9. Turkiye IS Bankasi;
10. Komercialna Banka Ad Beograd – Mitrovica Branch.

CBK's Financial Stability Report for the period until June 2016 shows that the assets of the above-mentioned banks realized an annual growth of 5% reaching the value of 3.43 billion euros, which was mostly affected by the rapid growth of credit portfolio. Loans, as the main components of banks' assets, have the largest concentration in the enterprise (64.8%), while households account for 35% of all loans. Loans to households were dominated by consumer loans, which contributed most to the total increase in loan demand. On the other hand, the average interest rates recorded a downward trend.

Referring to the abovementioned report, it is noted that the pension sector was also characterized by an increase in the value of assets reaching the value of 1.33 billion euros, which marks an annual growth of 12.4%. Much of this value is represented by the Kosovo Pension Savings Trust (99.5%) while the rest from the Slovenian-Kosovo Pension Fund. As a result of the positive return on investments and the increase in the value of both funds, this sector marked a positive performance in the first half of 2016.

For the above mentioned period, the insurance sector reached the value of assets of € 163.6 million, dominated by cash and deposits. The insurance sector has a 90.4% share of non-life insurance, while the remainder is represented by life insurance. Such a division corresponds to a total of 12 companies offering non-life insurance and 3 companies offering other types of insurance. The main concern of such companies is the decline of 1%, which suffered their profits compared to the previous year, while the costs increased by 24%. As a result, the loss of this market realized by June 2016 amounted to 11.5 million Euros.

3. Research Methods and Assumptions

In order to conduct the analysis we have used the secondary data from the annual report of Kosovo Banks. The period used for this paper is the period from 2011-2013.

There are two years before enforcement of the new law on banks, and two years after enforcement of the new law on banks and new regulation on bank capital adequacy.

In order to have an appropriate result we will adjust our data with the specific change on policy in order to compare with after regulation data.

The test that will be performed is T-test, which will compare the two means. Mean of adjusted data's and mean of unadjusted data's.

Impact of New Law on Bank on Capital Adequacy Ratio

Central bank is the regulator which implies rules and regulation on the respective countries. In which elements is central bank involved? The answer is all, some directly and some indirectly. (AP Feaure, 2013)

The new Basel regulatory requirements, raising the quality, the consistency and the transparency of the capital, require banks more than ever to use their capital as efficiently as possible, understanding how much should properly be allocated to offset credit risk. (Oricchio & Vitale, 2011)

Changes in the level of regulatory capital are largely explained by changes in the law.

The new law on banks which introduced a new regulation on capital adequacy of the banks became effective as of December 2012. According to this regulation, the method of Tier 1 capital calculation has changed, subtracting not only the intangible assets and goodwill, but three other positions. The first additional position to be subtracted in Tier 1 capital calculation is the "investments on other banks' equity or lending institutions"; the second position is the "Deferred tax asset" while the third position is "Lending to bank-related persons". The subtraction of these three positions from the Tier 1 capital is performed in order to accurately assess the level of the core capital, which represents the main pillar for absorbing the potential losses of the sector. As a result of these subtractions, the overall regulatory capital is decreased to euro 31.1 million "Central Bank of Kosovo, (2014) Financial Stability Report.

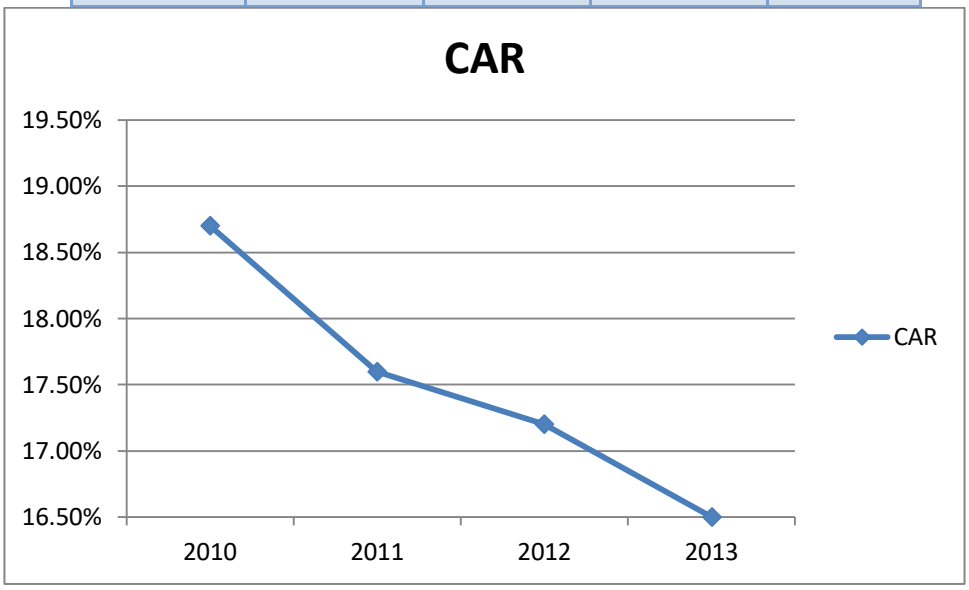
For conduct of the analysis we have used two capital ratios (Tier 1 Capital Ratio and Total CAR)

In order to verify the impact of related parties' transaction after the new law implementation we have adjusted our Tier 1 Ratio as ADJTIER1 by adding the

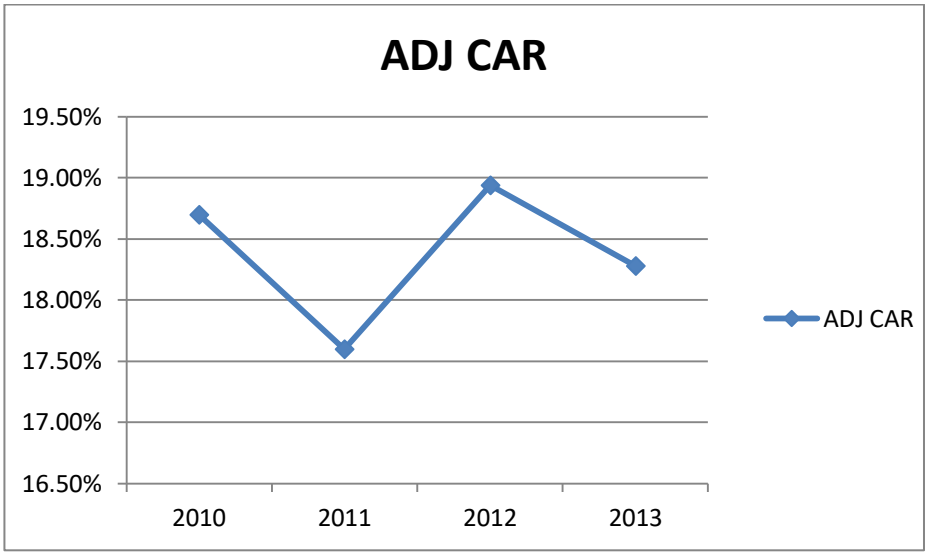
deducted value of related parties and Adjusted Total Capital Ratio as ADJCAR. We will perform the one sample T-test.

Table 1. Capital Ratios and Adjusted Capital Ratios

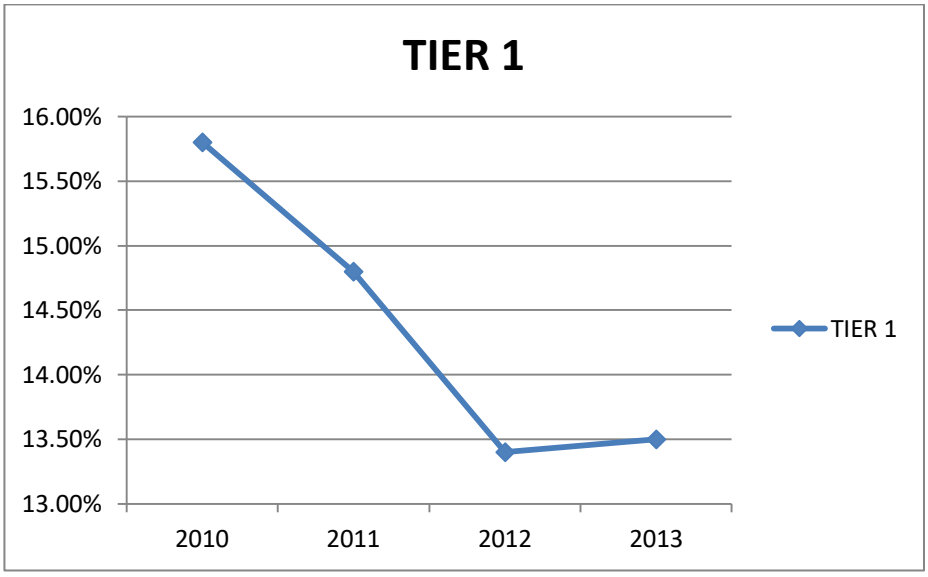
YEARS	ADJ CAR	ADJTIER1	CAR	TIER 1
2010	18.70%	15.80%	18.70%	15.80%
2011	17.60%	14.80%	17.60%	14.80%
2012	18.94%	15.45%	17.20%	13.40%
2013	18.28%	15.28%	16.50%	13.50%



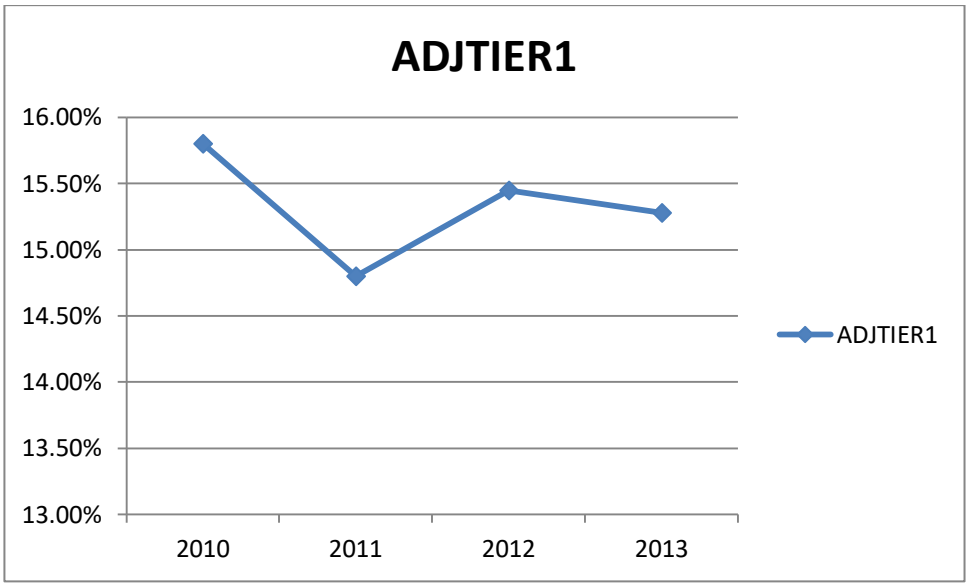
Graph 1. CAR – Total CAR during the period 2010-2013



Graph 2. Adjusted CAR – Total Adjusted CAR during the period 2010-2013



Graph 3. TIER 1 – Tier 1 capital ratio trend during the period 2010-2013



Graph 4. Adjusted TIER 1 – Adjusted Tier 1 capital ratio trend during the period 2010-2013

On the table and the graphs above we have presented the four year Capital Ratios of the Kosovo Banking Sector. The Tier 1 Capital Ratio presents the report of Tier 1 Capital and Risk Weighted Assets, while CAR presents Total Capital Ratio which is the report between Total Capital and Risk Weighted Assets. Having the information that new regulation which is in force from end of 2012. On Capital Adequacy request the deduction of the related parties' transactions from the Bank Capital we have adjusted the value by adding back the sum of related parties in order to perform the test.

Statisctical Results

Table 2. SPSS Output, One sample test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
CAR	4	.1775	.00957	.00479
ADJCAR	4	.1850	.00577	.00289
TIER1	4	.1450	.01291	.00645
ADJTIER1	4	.1525	.00500	.00250

Table 3. SPSS Output, One sample test continued

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
CAR	37.079	3	.000	.17750	.1623	.1927
ADJCAR	64.086	3	.000	.18500	.1758	.1942
TIER1	22.463	3	.000	.14500	.1245	.1655
ADJTIER1	61.000	3	.000	.15250	.1445	.1605

From the results of the T test we can see that the Standard Deviation from the Total Capital (CAR) ratio is higher than in adjusted CAR ratio. The STDV on CA is .00975 while on Adjusted CAR the STDV is .00577

Also from the above result we can see that the STDV on TIER1 Capital Ratio is .1291 while on Adjusted TIER 1 is .005.

4. Conclusion

Governments have faced difficulties through the years in applying a proper regulation on banking, particularly on bank's capital adequacy. Introducing the Basel regulations has brought a new era in banking supervision. Capital adequacy requirements were clearly defined by: rules, standards, and other requests.

In Kosovo's banking sector, the first steps towards the adoption of the Basel regulations were seen in the early years, after the consolidation of its Central Bank. In 2012, the new law on banks, as well as the new regulation enforced supplanted the existing regulation. Thus, this replacement affected the capital adequacy ratio by lowering the capital ratios by the amount of exposure towards related parties.

In order to measure and verify the impact of the new regulation, we have compared both the data via t-test, by comparing the standard deviation of both (in other words, adjusted the ratio by adding back the balance with related parties and the non-adjusted ratio).

Based on the results received from this paper, we can conclude that the change on the new law and the new regulation on banking sector gave a negative impact on Capital Ratio Trend on short term periods, but have contributed on a sounded and more secure banking system, which now a days is showing a profitability of around 90 million euro, liquidity level of 36,3%, Capital Adequacy Ratio 18.2% well above the minimum of 12% and a level of 3.4% of Non Performing Loans. (Banking Sector Report, CBK, 2018)

All these ratios presented above contribute to a final conclusion, that the impact of the changes on the law on banking sector, as well as on Capital Adequacy Calculation, gave a strong long term positive impact on the stability of the Kosovo Banking Sector.

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