African Journal of Applied Research
Vol. 6, No. 2 (2020), pp. 46-62
http://www.ajaronline.com
http://doi.org/10.26437/ajar.11.2020.04

BI-DIRECTIONAL RELATIONS BETWEEN FOREIGN INVESTMENT AND KEY MACROECONOMIC INDICATORS AMONG DEVELOPING ECONOMIES: A STUDY OF SELECTED AFRICAN COUNTRIES.

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ABSTRACT
Most developing countries face serious constraints in mobilizing resources required to fund their growth and development needs and a key sustainable option towards filling this gap is foreign investment. In this paper, the author investigated the significance of certain macroeconomic variables widely claimed as both determinants and effects of foreign investment amongst 20 selected African Countries. The investigation was done within the structural and strategic motive frameworks of foreign investment. Using the Vector Autoregression method, the author found some interesting results that tended to validate both classical and dependency theories of foreign investment. While foreign investment appears to be attracted to economies with relatively high economic output and other development indicators, empirical results show that foreign investment has not significantly stimulated growth in output but has been largely exploitative. The author also found that FDI and FPI gave contrasting results and recommends policy reforms to attract the amount and type of foreign investments needed to meet the development aspirations of Africa.

Keywords: *Foreign Direct Investment, Foreign Portfolio Investment, Gross Domestic Product, Unemployment Rate, Infrastructure, Manufacturing Value-Added, Exchange Rate, Africa*

INTRODUCTION

Given the open economy model, where desired growth and development cannot be attained using resources available in the domestic economy, a gap is created which can be filled by the external sector. Many developing countries have relied on different types of grants, aid and official transfers to fill this gap, but it would appear that the most reliable and sustainable manner of achieving this goal is through private foreign investment flows (Harsch, 2003). This is because foreign investment is said to help economies attract resources to sectors in which they have comparative advantage (Leamer, 1995). Accordingly, under the New Partnership for African Development (NEPAD) adopted in 2001 as framework for development, emphasis was meant to shift to private capital flows (Harsch, 2003). At inception, the NEPAD framework envisioned that Africa would need 6 - 8% sustained growth rate and investment rate of 30% of GDP to achieve the Millennium Development Goals (MDGs) set for 2015. However, between 2005 and 2015, the average annual growth rate achieved by Sub-Sahara Africa was 2.83% leading to a situation where the Region closed the MDGs period with the worst performance in most of the indicators (World Bank, 2019).

ISSN: 2408-7920

African Journal of Applied Research
Vol. 6, No. 2 (2020), pp. 46-62
http://www.ajaronline.com
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The World Bank also reported that by 2018, out of global foreign direct investment flows of $1.19trillion, the region was only able to attract $32.05billion or a paltry 2.68%, while increases in economic output averaged about 2.94% in the first three years (2016-2018) under the new framework. There is therefore concern as to whether the region would be able to achieve the more ambitious Sustainable Development Goals by 2030. For Africa, non-availability of resources in required quantity and quality, including capital, technology and skilled manpower have long been suggested as stumbling block to growth and development (Sampath, 2014).
Globalization has opened up greater opportunities for increase in foreign investments as individual investors and companies seek higher returns, tax advantages, cheaper labour and lucrative markets. Over the last decade, African economies have attracted foreign capital in the spirit of NEPAD, however the size of such investments appears not significant enough to fill the gap arising from low gross fixed capital formation relative to requirements for infrastructure and domestic production. There are also doubts as to whether such investments have been attracted to sectors with significant multiplier effects on income and employment (Saliou, Luan & Diallo, 2018). They also appear to exacerbate volatility in foreign exchange and financial markets in ways that have challenged the classical theories of global capital flows (Crowley & Lee, 2003; Ahmed, 2018).

In this paper, the author, on one hand, investigates whether foreign investment has played significant role in influencing economic output, unemployment rate, exchange rate, manufacturing value added and infrastructure among African economies. Specifically, this involves investigation into the impact of key components of foreign direct and foreign portfolio investments on specified macroeconomic indicators. The author argues that foreign investment has played some mixed roles in financing development of African economies with key components of foreign investment having differential effects on the nominated variables. The paper also seeks to answer the question of the key factors that determine inflow of foreign investments across countries and argues that these same variables influence the level and flow of investment among African economies. Hence some authors have classified them as pull and push factors (Fratzscher, 2012; Gossel & Biekpe, 2017). More than any other time, foreign investment has become a critical factor in bridging the gap in the circular flow of most developing economies with the case of Africa requiring more urgency on account of challenges of high level of poverty, poor infrastructure, low level of saving and capital formation, shortage of skilled labour and social tension. Continuing Afro-centric research is required to understand in lucid terms the exact nature of parameters of relations in order for appropriate policy response to be elicited to confront the challenges.

REVIEW OF THEORIES

Hymer-Kindleberger Hypotheses

A reasonable number of theories exist concerning foreign investment, its role in growing economic output and development, and the determining factors. The neo-classical theory of foreign investment which is based on the open economy model of macroeconomics focuses on the positive influence of foreign investment on national output and employment; and holds that foreign

ISSN: 2408-7920

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http://www.ajaronline.com
http://doi.org/10.26437/ajar.11.2020.04

investment flows from low to high profitable countries. This is based on the market disequilibrium hypotheses associated with Hymer (1960) and popularized by his PhD Supervisor, Kindleberger (1969). The channels of influence are multi-faceted including capital formation, foreign exchange earnings, infrastructure upgrade, and technology and skills development. Moreover, it is thought that foreign investment helps to integrate the domestic economy with the global economy and thereby enable the domestic economy to attract resources to develop sectors and produce goods in which it has comparative advantage (Leamer, 1995). Accordingly, capital will flow to areas which promise the highest possible return relative to risk. However, the model appears to focus only on the positive sides of foreign investments and cannot be used to explain widening gap between rich and poor nations.

Dependency Theory

On the other hand, the dependency theory provides an alternative framework for understanding the place of foreign investment in economic development by essentially focusing on the undesirable features. The theory has its roots in the works of Prebisch (1950) which explained imbalance between developed and underdeveloped nations using time-varying relative prices of primary and manufactured commodities It infact holds that, through the exploitative nature of foreign investment, a form of exploitative-dependency syndrome is created whereby the developed nations occupy the center in a world economic order while the developing economies perpetually operate from the periphery (Jackman, 1981; Lucas, 1990). This would seem to explain the tendency of early multinational corporations (MNCs) to invest in extractive sectors to serve as source of raw materials for manufacturing industries in the developed economies. Such MNCs hardly get involved in the preferred sectors with significant value added to the local economy (Moran, 1978; Shameema & Rahman, 2009); they employ very few indigenous workers and populate the highly skilled roles with foreign expatriates. Accordingly very little is accomplished in the form of technology and skills transfer, just as they systematically coarse consumers to adopt foreign tastes. Even profits made and capital are quickly repatriated to home countries. In the process, foreign investment is seen as an instrument to sustain the under-developed state of developing economies to the advantage of the developed economies. The solution to this anomaly would seem to close the economy to exploitative and disruptive influence of foreign investment. Some economies in Asia had indeed adopted similar strategies to significantly improve their development outcomes (Lardy, 2000). However this theory failed to solve the puzzle of inadequate internal resources in a closed economic space.

Eclectic Theory (Ownership, Location and Internalization (OLI) Paradigm)

Somewhere between the classical and dependency schools of thought belongs the integration or middle path theories (Si, Liefner &Wang, 2013). In this school of thought, it is recognized that leaving foreign investment to work through its channels of influence in a laissez faire manner may not produce the desired outcomes. In such situations where the market fails, some form of intervention may be required. In other words, this theory holds that foreign investment is good but government may need to formulate and implement policies that will ensure that such investments

ISSN: 2408-7920

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http://doi.org/10.26437/ajar.11.2020.04

actually work through its channels to achieve outcomes consistent with national economic priorities. Governments may use such tools as duties, tariffs, waivers and other incentives to stimulate or discourage foreign investment as the case may be. Within this framework, Dunning (1979) formulated the eclectic theory or the so called OLI paradigm, with which 3 broad factors are thought to explain the extent and pattern of FDI. These are Ownership, Location and Internalization (OLI) advantages enjoyed by an investor globally. Ownership-specific advantages include such intangible assets as knowledge, brands, organizational structure, management skills, manpower, values and capital. These factors confer enormous competitive advantages to the investor in the host country. Location advantages on the other hand comprises of country-specific advantages like market size, natural resources, raw materials, infrastructure, education system, governance and political system and other immobile, natural and created resources unique to a particular geographical location. The Internalization advantages refer to transactional factors that confer unique advantages to the firm to produce at lower costs and hence internalize production instead of using other foreign market entry routes as franchises, joint alliances and licensing. The above theories would appear to have explained the relationship between foreign investment and development on one hand, and some of the factors that enable firms to undertake foreign investment. In the process, they provide insight into factors that affect or stimulate investment across borders.

Review of Empirical Literature

In a developing country study that focused on Cambodia, Sokang (2018) studied time series data for the period 2006 – 2016 using a multiple regression analysis and found a positive relationship between foreign direct investment and output in both short and long run. On the other hand, in a study that tended to address the quality of foreign investments, Chuham-Pole, Dabalen & Christopher (2017) deconstructed the phenomenon of 'Resource Curse' and multinational investment by investigating local and regional impact of large scale gold mining in Africa. They found that "African resource boom has indeed lifted growth but has not been successful in improving people's welfare". El Menyari (2019), in a regional based study, found that foreign bank penetration has positive and significant impact on growth of North and South African countries but negative for West, Central and East African countries. In an investigation structured around income levels, Henri, Luc, & Larissa, (2019) used a pooled mean group technique to deconstruct foreign direct investment among 49 African countries. The authors found a largely positive and significant effect in the long run between dependent and independent variables, but a surprisingly negative and significant effect in the short run for low income countries. In another study that drew substantially from the OLI paradigm, Fadiran (2020) studied role of certain institutional factors in determining the flow of foreign direct investment and found that civil liberties, freehold and non-freehold property rights are significant in attracting foreign investment in Nigeria.

Contributing to debate from perspective of determinants of foreign investment, Blonigen (2005) identified other external factors as exchange rate and taxes; while endogenous factors are trade

ISSN: 2408-7920

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http://www.ajaronline.com
http://doi.org/10.26437/ajar.11.2020.04

protection and trade flows. He equally found that FDI is more likely to originate in countries abundant in capital and skilled labour which are necessary for generating firm-specific (ownership) assets. In an earlier study, Blonigen (1997) had provided evidence that Japanese banks' acquisition of FDI in the USA were motivated by exchange rates, not necessarily internalization of their own firm specific assets. Apart from exchange rate, another factor that has appeared in the radar of foreign investment literature is taxation, but evidence has been largely mixed. Hartman (1984) separated taxes in the host country (USA) and home country (foreign) tax rates, and FDI into 'retained earning FDI' and 'transfer FDI'. Hartman found that retained earning FDI responds significantly to host country tax rate as hypothesized while new transfer FDI was found not to be significantly responsive to changes in host country tax rate.

Most of the studies on foreign investment have concentrated on foreign direct investment alone with very few incorporating portfolio investment in an integrated framework, especially in African literature. Equally most tended to look at the relationship as a unidirectional one. In this paper, the author attempts to conduct an investigation within an integrated framework that also reviews the bi-directional nature of interaction between foreign investment and the key macroeconomic indicators.

Conceptual Framework

Foreign investment may be classified from two perspectives, namely strategic business motives or extent of management and control. Dunning (2014), using the former, classified foreign investment into four, namely; market –seeking, resource-seeking, efficiency-seeking and strategic-asset-seeking investments. There is also the more universal classification in terms of extent of management and control, namely Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI). In this study, the author adopted the Eclectic Paradigm of Dunning (1979) to analyze the nature of relationship that exists among foreign investment and certain country-specific (location) factors including taxation, foreign exchange, infrastructure, market value added, economic output, and unemployment rate. These factors are uniquely conceptualized as determinants and also effects of foreign investments in the sense that they represent pull and push factors that on the one hand stimulate foreign investment, just as foreign investment is expected to positively influence them. In addition to firm-specific variables, foreign investors predicate decision to make cross border investments and internalize production across global network on these factors. The study therefore is conducted within an integrated framework that incorporates key structure and strategic motives of foreign investments among African Countries.

RESEARCH METHODOLOGY

The approach adopted in this study is empirical and quantitative. The design is cross-sectional survey with panel that includes time and cross-sectional secondary data series covering a ten year period from 2007 to 2016 across 20 African countries. The sample was selected using stratified random sampling technique wherein 5, 5, 4, 3 and 3 economies were selected randomly from West, Central, North, East and Southern Africa regional sample frames. Data was collected from

ISSN: 2408-7920

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http://doi.org/10.26437/ajar.11.2020.04

database of World Bank, World Development Indicator and International Financial Statistics Reports for the various years in our coverage. In order to determine appropriate method of model estimation, the author ran diagnostic tests to ascertain possible presence of unit roots in data series and persistence in residuals. We carried out group unit root test given assumption of asymptotic normality of data series. The result was mixed (see appendix 1). While null hypothesis of unit root is not rejected given common root process by Levin, Lin and Chu test, the Augmented Dickey Fuller (ADF) and Phillip Peron (PP) tests found data series to be stationary under individual unit root process. But then, De Silva, Hadri & Tremayne (2009) suggested that panel group unit root test tend to have higher power than univariate tests. We also conducted the White's test to ascertain the nature of variability of variance of residual terms and the result was a rejection of null hypotheses of homoscedasticity. This is hardly surprising given heterogeneity of population of interest across country samples. Accordingly, we conclude it will be inefficient to use Ordinary Least Squares technique for estimation of parameters of the model. We adopted the unrestricted Vector Auto regression model which is considered plausible for this investigation. It is definitely a workhorse of econometric analysis where data is not stationary at level, persistence is found in residuals and exact theoretical relation of model is not known. It also has flexibility in choice of lag order of variables. Our VAR model can be thought of in terms of the following reduced form equations:

$$FDI_t = a_{11}\,FDI_{t-1} + a_{12}MVA_{t-1} + a_{13}FPI_{t-1}\; a_{14}GDP_{t-1} + a_{15}U_{t-1} + a_{16}EXR_{t-1} + a_{17}Infr_{t-1} + a_{18}t_{t-1} + e_1 \quad (1)$$

$$FPI_t = a_{21}\,FPI_{t-1} + a_{22}FDI_{t-1} + a_{23}MVA_{t-1}\; a_{24}GDP_{t-1} + a_{25}U_{t-1} + a_{26}EXR_{t-1} + a_{27}Infr_{t-1} + a_{28}t_{t-1} + e_2 \quad (2)$$

$$GDP_t = a_{31}\,GDP_{t-1} + a_{32}FDI_{t-1} + a_{33}FPI_{t-1}\; a_{34}MVA_{t-1} + a_{35}U_{t-1} + a_{36}EXR_{t-1} + a_{37}Infr_{t-1} + a_{38}t_{t-1} + e_3 \quad (3)$$

$$U_t = a_{41}\,U_{t-1} + a_{42}FDI_{t-1} + a_{43}FPI_{t-1}\; a_{44}GDP_{t-1} + a_{45}MVA_{t-1} + a_{46}EXR_{t-1} + a_{47}Infr_{t-1} + a_{48}t_{t-1} + e_4 \quad (4)$$

$$EXR_t = a_{51}\,EXR_{t-1} + a_{52}FDI_{t-1} + a_{53}FPI_{t-1}\; a_{54}GDP_{t-1} + a_{55}U_{t-1} + a_{56}MVA_{t-1} + a_{57}Infr_{t-1} + a_{58}t_{t-1} + e_5 \quad (5)$$

$$Infr_t = a_{61}\,Infr_{t-1} + a_{62}FDI_{t-1} + a_{63}FPI_{t-1}\; a_{64}GDP_{t-1} + a_{65}U_{t-1} + a_{66}EXR_{t-1} + a_{67}MVA_{t-1} + a_{68}t_{t-1} + e_6 \quad (6)$$

$$MVA_t = a_{71}\,MVA_{t-1} + a_{72}FDI_{t-1} + a_{73}FPI_{t-1}\; a_{74}GDP_{t-1} + a_{75}U_{t-1} + a_{76}EXR_{t-1} + a_{77}Infr_{t-1} + a_{78}t_{t-1} + e_7 \quad (7)$$

$$t_t = a_{81}\,t_{t-1} + a_{82}FDI_{t-1} + a_{83}FPI_{t-1}\; a_{84}GDP_{t-1} + a_{85}U_{t-1} + a_{86}EXR_{t-1} + a_{87}Infr_{t-1} + a_{88}MVA_{t-1} + e_8 \quad (8)$$

The dependent variables of the relationships include Economic Growth (GDP), Foreign Direct Investment (FDI), Foreign Portfolio Investment (FPI), Unemployment Rate (U), Exchange Rate (EXR), Manufacturing Value Added (MVA), Infrastructure Rating (Infr) and tax rate (t) while their pre-determined values are explanatory variables in lag order of one. To standardize the values, their log transformations were used for the regression. The coefficients were evaluated at 5% level of significance based on t-statistics and standard errors.

RESULTS

Descriptive Statistics

Data for the period shows disparate time series and cross sectional experiences in foreign investment variables among the different countries covered in our survey. As shown in Appendix 3, in the case of foreign direct investment (FDI), Gambia, with a record average annual figure of approximately $39 million, attracted the least investment over the period. Nigeria was the most attractive destination for FDI with average annual figure of $6.25 billion followed by Egypt and South Africa with $6.03 billion and $5.43 billion respectively. This is against the sample average

ISSN: 2408-7920

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http://www.ajaronline.com
http://doi.org/10.26437/ajar.11.2020.04

of $1.93billion (table 1) On a per capita basis however, Gabon recorded the highest average of $390 million while Kenya had the least of $16 million. The leading economies namely South Africa, Egypt, and Nigeria lagged behind with $103 million, $69 million and $38 million respectively. Due to volatile nature of foreign portfolio investments (FPI), the figures should be interpreted with caution as they are reported on a net basis. In some cases, countries with negative figures attracted reasonably high inflows of portfolio investment and saw substantial outflows arising from a number of factors (internal and external) relevant to the investment environment. During the period, Congo Democratic Republic recorded average annual figure of $1.36 billion which contrasts sharply with ($8.98 billion) for South Africa and ($3.29 billion) for Nigeria.

Table 1 : Descriptive Statistics of model variables

	EXR	FDI	FPI	GDP	INFR	T	U	MVA
Mean	397.41	1,932m	(564m)	75,210m	55.94	21.42	10.87	9,428m
Median	30.05	1,241m	(3.46m)	31,408m	56.37	20.90	8.91	2,994m
Maximum	3,610.50	11,578m	14,303m	568,499m	100.00	58.90	28.24	56,069m
Minimum	0.94	(483m)	(16,373m)	3,294m	10.00	1.60	1.90	500m
Std. Dev.	705.15	2,125m	(3,620m)	113,482m	32.08	11.08	8.03	14,411m
Skewness	2.34	1.97	(1.20)	2.37	0.05	1.05	0.79	2.01
Kurtosis	8.38	7.21	10.13	7.82	1.51	5.73	2.35	5.65
Jarque-Bera	349.90	228.85	389.07	314.23	15.43	81.74	20.05	159.69
Probability	000	000	000	000	000	000	000	000

Source: Author's E-Views Computation

It is reported that for most of the countries studied, size of foreign direct investment appears to correspond to size of the economy represented by gross domestic product (GDP). In absolute measure, Nigeria accounted for the leading figure with average of $375 billion, followed by South Africa with average of $340 billion and Egypt with $248 billion while the least figure of $0.90 billion was recorded for Gambia during the period. Of interest however (see Appendix 2) is that while gross domestic product of all selected countries grew from $963b in 2007 to $1.64tr in 2016 (after peaking at $1.84tr in 2014), foreign direct investment declined from $38.49b to $32.37b over the same period (after attaining a peak of $45.06b in 2013). Average unemployment figures remained fairly unchanged between 10 and 11%, just as tax rate was virtually flat at 19%. Equally of interest is that while FDI declined, infrastructure rating improved from 50% to 61% largely on the back of significant improvements in power infrastructure of North African countries. Egypt, Morocco and Tunisia reported above 90% electricity supply coverage during the period.

Regression Results

Economic Output, Employment and Foreign Investment

The author conducted investigation to find out whether the two key foreign investment variables (FDI and FPI) provide sufficient explanation to variation in gross domestic product and unemployment rate in selected African economies. Using the VAR model, we found a negative relation between FDI and the two key macroeconomic variables. The result in table 2 suggests that foreign direct investment was not associated with increase in economic output and vice versa. This

ISSN: 2408-7920

African Journal of Applied Research
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http://www.ajaronline.com
http://doi.org/10.26437/ajar.11.2020.04

would appear to be an anomalous finding given theoretically expectation of positive relationship with FDI. In the case of FPI, it was positive on GDP but negative on unemployment rate as expected. The result indicates that foreign investments have potential to impact employment positively (in scales that are marginal though).

Table 2: VAR Results of Gross Domestic Product and Unemployment Rate

	LogGDP				LogU		
	Coefficient	t-stat	Std Error		Coefficient	t-stat	Std Error
LogFDI(-1)	-0.002	[-0.092]	(0.018)		-0.008	[-0.775]	(0.010)
LogFPI(-1)	0.002	[0.185]	(0.010)		-0.01	[-1.654]	(0.006)
LogGDP(-1)	1.013	[14.406]	(0.070)		0.094	[2.286]	(0.041)
LogU(-1)	-0.026	[-0.394]	(0.065)		0.899	[23.658]	(0.038)
LogEXR(-1)	-0.004	[-0.154]	(0.029)		-0.045	[-2.702]	(0.017)
LogInfr(-1)	0.006	[0.177]	(0.033)		-0.028	[-1.45]	(0.020)
LogMVA(-1)	0.017	[0.195]	(0.086)		-0.119	[-2.353]	(0.051)
Logt(-1)	0.058	[0.899]	(0.064)		0.012	[0.326]	(0.037)
C	-0.776	[-0.892]	(0.870)		1.2	[2.360]	(0.508)
R-Sq	0.987				0.993		
Adj R-Sq	0.984				0.991		
AIC	-1.288				-2.361		
SC	-0.919				-1.993		
MDV	23.939				2.213		
SDDV	0.91				0.726		

Source: Extract from Author's Computation using E-views

Interestingly a country like South Africa reputed to attract the largest foreign portfolio investment in Africa had one of the highest unemployment rates among the selected countries. Is it that foreign investors rely on expatriate personnel from home country in running their operations? UNCTAD (2011), in looking at lessons from Malaysia and Singapore, revealed that manufacturing FDI flows to developing countries between 2009 and 2011 was about $57billion out of which about $45billion went to the highly skilled sectors requiring expatriates from the same capital exporting countries, while less than $4billion went to the lowest skill sectors and $8billion to resource-intensive sectors. This could perhaps explain the virtually insignificant scale effect on coefficient of the variables. Moreover, although the model showed high explanatory power at 98.7% coefficient of determination, the parameters lacked statistical significance at 5% level of significance. This result is mixed when compared with findings by Njangang, Nembot & Larissa (2019). In a study involving panel data of 49 African countries, and using a pooled mean group approach, the authors found a long run positive effect between foreign direct investment and

ISSN: 2408-7920

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http://www.ajaronline.com
http://doi.org/10.26437/ajar.11.2020.04

economic growth, but a negative and significant relationship in the short run in the case of low income countries. We carried out a Granger Causality test on the variables, and the result in appendix 4 showed rejection of the null hypotheses that there is no two way granger causality between Gross Domestic Product and the two foreign investment variables.

Exchange Rate stability, Infrastructure provision and Foreign Investment

Apart from Nigeria, most of the economies with weak and deteriorating currency did not appear to witness high foreign investment inflows over the period. Such East and Central Africa economies as Cameroon, Gabon, Congo DR, Tanzania and Uganda are typical (see appendix 3).

Table 3: VAR Results of Exchange Rate and Infrastructure Rating

	LogEXR				LogInfr		
	Coefficient	t-stat	Std Error		Coefficient	t-stat	Std Error
LogFDI(-1)	-0.006	[-0.381]	(0.015)		-0.020	[-1.093]	(0.018)
LogFPI(-1)	0.011	[1.181]	(0.009)		0.007	[0.652]	(0.011)
LogGDP(-1)	-0.091	[-1.518]	(0.060)		-0.007	[-0.098]	(0.074)
LogU(-1)	0.105	[1.891]	(0.056)		0.09	[1.311]	(0.068)
LogEXR(-1)	1.027	[41.603]	(0.025)		0.043	[1.432]	(0.030)
LogInfr(-1)	-0.062	[-2.179]	(0.029)		0.967	[27.579]	(0.035)
LogMVA(-1)	0.105	[1.422]	(0.074)		0.083	[0.916]	(0.091)
Logt(-1)	-0.118	[-2.146]	(0.055)		-0.101	[-1.499]	(0.067)
C	0.135	[0.181]	(0.745)		-1.272	[-1.391]	(0.914)
R-Sq	0.998				0.979		
Adj R-Sq	0.998				0.974		
AIC	-1.596				-1.188		
SC	-1.227				-0.819		
MDV	4.139				3.822		
SDDV	2.204				0.757		

Source: Author's E-views Computed Output

However, majority of economies with stable currency have seen substantial inflow of FDI but this showed no regularity with FPI. Northern African economies are typical including Ghana and Zambia. An investigation into the nature of relationship between exchange rate (EXR) and foreign investment variables (FDI and FPI) revealed some interesting results (see table 3)

Table 3 shows a negative relationship between foreign direct investment and exchange rate. This is interpreted to mean that increased inflow of FDI is consistent with a strengthening of local currencies of selected African countries which is good for the local economies. It must be noted however that the resulting coefficient is small in size and also statistically insignificant at 5% level

ISSN: 2408-7920

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http://www.ajaronline.com
http://doi.org/10.26437/ajar.11.2020.04

of significance. On the other hand, FPI net flows showed positive relationship which could be interpreted ordinarily to imply a deterioration of exchange rates of the countries. Foreign portfolio investment is fluid and known to exacerbate volatility in the foreign exchange market.

How has foreign investment impacted infrastructure in Africa? Generally North Africa economies performed well in our proxy for infrastructure rating while the East and Central African economies were abysmal (see appendix 3). While Egypt, Tunisia, Mauritius, Morocco, Gabon and SA led with almost perfect access to electricity, Zambia, Mozambique, Tanzania, Uganda and Congo DR were laggards. Nigeria was ranked 12th with average of 53% while Ghana ranked 7th with 68%. In order to find out whether foreign investment has made positive impact on state of infrastructure, the result of regression in table 3 is of significant interest. Table 3 shows positive coefficients of foreign portfolio investments while FDI is surprisingly negative. Though both are insignificant in scale and statistically at 5% level of significance, the sign of FDI is a bit troubling and suggests that infrastructure sector in Africa which is known to be weak may not have attracted significant interest of foreign investors.

Manufacturing Value Added and Foreign Investment

As shown in appendix 3, Countries with highest FDI flows reported highest figures of manufacturing value added, with SA, Egypt, Nigeria, Morocco and Tunisia coming out tops. The regression result in table 4 shows that influence of foreign direct investment on manufacturing value-added contradicts expectation with a negative coefficient of 0.011. Although this outcome is statistically insignificant, this would appear to point to nature of sectors that attract foreign direct investment in most African countries. For instance, in Nigeria and Congo D R, significant portion of such investments flow to enclave extractive industries with very little going to manufacturing and industrial sectors. This result suggests the same story for the continent. Foreign Portfolio Investment on the other hand showed a positive but statistically insignificant coefficient.

Table 4: VAR Results of Manufacturing Valued Added

	LogMVA		
	Coefficient	t-stat	Std Error
LogFDI(-1)	-0.011	[-0.728]	(0.016)
LogFPI(-1)	0.01	[1.033]	(0.009)
LogGDP(-1)	0.07	[1.107]	(0.063)
LogU(-1)	-0.026	[-0.450]	(0.058)
LogEXR(-1)	-0.00048	[-0.019]	(0.026)
LogInfr(-1)	0.029	[0.985]	(0.030)
LogMVA(-1)	0.966	[12.516]	(0.077)
Logt(-1)	0.073	[1.270]	(0.057)
C	-1.126	[-1.450]	(0.776)

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R-Sq	0.99		
Adj R-Sq	0.988		
AIC	-1.514		
SC	-1.146		
MDV	21.913		
SDDV	0.955		

Source: Author's E-views Computation

Determinants of Foreign Investment (FDI & FPI)

Our investigation also extends to regression to find out extent to which these macroeconomic factors can be used to explain the level of foreign investments attracted by the African economies. From results in table 5, GDP was found to be positive on foreign direct investment, albeit with substantially sized coefficient of 1.027. This suggests that foreign investors are more likely to be motivated to invest in countries with high economic growth than those with low output. This is evident from cross section data contained in appendix 3. On the average, Nigeria which had the highest average FDI over the 10 year review period also recorded the highest average GDP. Correspondingly, the 4 lowest ranked FDI recipients, namely Gambia, Mauritius, Zimbabwe and Swaziland also achieved lowest figures of economic output. The result however lacked statistical significance at 5% level of significance. In a recent study which suggests that other institutional factors may be complementary to the growth effect, David (2020) found civil and political liberties, freehold and non-freehold property rights to play significant role in attracting foreign direct investment in Nigeria.

Table 5: VAR Results of Foreign Direct Investment and Foreign Portfolio Investment

	LogFDI				LogFPI		
	Coefficient	t-stat	Std Error		Coefficient	t-stat	Std Error
LogFDI(-1)	0.573	[4.065]	(0.141)		0.134	[0.426]	(0.315)
LogFPI(-1)	0.048	[0.569]	(0.084)		0.438	[2.344]	(0.187)
LogGDP(-1)	1.027	[1.821]	(0.564)		-0.551	[-0.437]	(1.261)
LogU(-1)	-0.04	[-0.076]	(0.521)		-1.113	[-0.955]	(1.165)
LogEXR(-1)	-0.073	[-0.316]	(0.231)		-0.22	[-0.426]	(0.516)
LogInfr(-1)	-0.186	[-0.693]	(0.268)		0.137	[0.229]	(0.598)
LogMVA(-1)	-0.679	[-0.979]	(0.694)		-0.227	[-0.146]	(1.551)
Logt(-1)	0.089	[0.173]	(0.514)		-0.504	[-0.439]	(1.148)
C	-1.081	[-0.155]	(6.977)		29.897	[1.917]	(15.595)
R-Sq	0.686				0.312		
Adj R-Sq	0.612				0.151		

ISSN: 2408-7920

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http://doi.org/10.26437/ajar.11.2020.04

AIC	2.877				4.486		
SC	3.246				4.854		
MDV	20.271				18.015		
SDDV	1.493				2.256		

Source: Author's E-views Computation

The result is totally different in the case of foreign portfolio investment. As shown in table 5, gross domestic product is negative and statistically insignificant on FPI. On face value this suggests that foreign portfolio investors were ever willing to defy the growth story of the economies as they seek to trade-off between risk and return. However, as stated earlier, this result should be interpreted carefully as a number of countries with net negative figures actually attracted high levels of foreign investment in the first place. Apart from Egypt, the countries that reported positive net portfolio inflow, on the average, achieved relatively low economic output. The GDP heavy weights like Nigeria and South Africa reported negative average net flows. South Africa reported the highest negative of $89.8b while Egypt had a positive of $12.2b over the study period.

The result also showed negative coefficients of unemployment rate relative to FDI and FPI suggesting that either the countries with high levels of unemployment rate were not getting required inflow of foreign capital or that labour intensive sectors may not be benefitting from such inflows. Similarly, countries with high manufacturing value added did not appear to attract commensurate foreign investment inflows during the period. However this is not surprising as foreign investors did not appear to have shown much enthusiasm in the 'preferred' industrial sectors of Africa

Has exchange and tax rates served as deterrent to foreign investment in Africa? Table 5 shows results that suggest that foreign investors respond to movement in exchange rates in making choice of investment destination. A reduction in dollar value of domestic currency was found to be associated with decline in both FDI and FPI as should be expected. But it was found that coefficient of tax rate was positive on FDI but negative on FPI. This is a contrarian outcome and suggests that tax regime is not a factor foreign direct investors consider in discriminating among investment destinations in Africa. Interestingly appendix 3 shows that countries with highest 5 and lowest 5 tax rates did not show remarkable performance in attracting foreign investment suggesting that other factors may be more critical. It could also be a scale effect as effective tax rates are generally low in Africa relative to most Western Countries. However, all the results are statistically insignificant at 5% level of significance.

CONCLUSION AND RECOMMENDATIONS

a) There is no clear evidence that foreign investment has significantly improved economic output and other key macroeconomic indicators of the selected African Countries, instead it would appear that foreign investors prefer to invest in economies which already experience reasonable growth indicators and infrastructure. Hence, foreign investment appears to strive to take advantage of growing economies rather than act as catalyst for growth and development.

ISSN: 2408-7920

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b) Foreign investment has not significantly improved employment, and this could be attributed to tendency of such investments flowing to sectors that require less engagement of domestic human resources and having less linkage effects amongst several economic sectors. This could also be seen in the regression outcome that showed foreign direct investment that have not contributed significantly to manufacturing value-added and up-scaling infrastructure.
c) The nature of foreign investment flows goes a long way in determining their effect on a country's exchange rate. Being more stable, inflows by way of foreign direct investment would appear to have a salutary effect on the foreign exchange market leading to exchange rate appreciation. The same cannot be said of foreign portfolio investment flow which would appear to stoke exchange rate volatility and local currency depreciation
d) It would appear that tax rate was not a factor to dissuade foreign direct investment, as generally assumed, although this could be attributed to base effect of comparatively low effective tax rates in most African economies

It is generally believed that foreign investments are required to fill important resource gap by most economies, especially those of developing countries that face enormous growth and development challenges. The challenge that faces African countries therefore is to attract foreign investment of the amount, type and in a manner that is not exploitative but complementary to their growth and development aspirations. Arising from empirical results and conclusions above, the following recommendations have become imperative:

a) Deliberate measures should be intensified, on the part of African Countries by way of reforms, to encourage foreign investment; but equal measures should be in place to ensure that nature of the inflows increase output and employment, with greater efforts towards FDI. Such reforms should focus on ease and cost of doing business with incentives given where necessary and also aim to increase transparency, openness and eliminate corruption. Less bureaucracy at various national investment promotion agencies will go a long way
b) Such incentives relating to duty waivers, tax holidays and pioneer status should be tied to job creation, tech-transfer and good corporate citizenship. African nations should also reform their education systems and invest in capacity building efforts aimed at up-scaling skills and labour productivity so as to produce manpower fit for operations of multinational firms.
c) Conscious effort should be made to re-direct attention of foreign investors from primary / extractive sectors to agro-processing, manufacturing and other high value-adding sectors using the aforementioned incentives.
d) Foreign investors are very sensitive to political and security risk associated with business environment in which they operate, accordingly efforts to contain insecurity, stem conflicts and reduce political instability across Africa should be intensified.
e) Greater efforts should be directed to infrastructure provision across Africa including, collaboration, resource and knowledge sharing. Infrastructure procurement mechanics of Public Private Partnership should be adopted to pave way for enhanced inflow of foreign capital and solve the huge infrastructure challenges facing the continent.

ISSN: 2408-7920

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f) Monetary authorities should implement foreign exchange policies aimed at minimizing exchange rate volatility.

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ISSN: 2408-7920

Arca Academic Publisher

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http://www.ajaronline.com
http://doi.org/10.26437/ajar.11.2020.04

Appendix 1: Group unit root test: Summary
Series: CPI, FDI, EXR, FPI, GDP, INFR, MVA, T, U

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	3.10318	0.9990	6	1135
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	51.3097	0.0000	6	1135
PP - Fisher Chi-square	98.9728	0.0000	3	582

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Appendix 2 : Times series data of foreign investment and Macroeconomic variables of selected African countries (2007-2016)

Year	FDI($)	FPI($)	GDP($)	U(%)	t(%)	Infr(%)	Population
2007	**38.49b**	**(6.14b)**	**963b**	**10**	**19**	**50**	**632m**
2008	**44.39b**	**27.38b**	**1,090b**	**10**	**19**	**51**	**648m**
2009	**35.96b**	**(9.81b)**	**1,084b**	**10**	**20**	**51**	**664m**
2010	**33.65b**	**(11.33b)**	**1,433b**	**11**	**20**	**52**	**680m**
2011	**33.03b**	**(7.92b)**	**1,579b**	**11**	**20**	**54**	**698m**
2012	**42,26b**	**(27.43b)**	**1,677b**	**11**	**20**	**55**	**716m**
2013	**45.06b**	**(25.97b)**	**1,758b**	**11**	**19**	**56**	**734m**
2014	**39.24b**	**(22.76b)**	**1,843b**	**11**	**19**	**57**	**753m**
2015	**33.26b**	**(15.77b)**	**1,732b**	**11**	**19**	**58**	**772m**
2016	**32.37b**	**(12.08b)**	**1,643b**	**11**	**19**	**61**	**792m**

Source: World Development Indicator (2007 – 2016)

Appendix 3 : Cross Section data of foreign investment and macroeconomic variables of selected African countries (2007-2016)

Country	FDI($)	FPI($)	Average GDP ($)	Average U(%)	Average t(%)	Average Infr(%)	Average MVA($)
Cameroon	5.29b	(0.36b)	28.98b	4	30	54	4.09b
Congo D R	17.85b	13.63b	28.23b	4	47	14	3.85b
Cote d'Ivoire	4.21b	(3.50b)	27.34b	3	9	59	4.48b
Egypt	60.32b	12.21b	247.63b	11	14	100	40.36b
Gabon	6.75b	0.02b	15.39b	20	19	87	0.63b
Gambia	0.39b	-	0.90b	9	6	42	0.05b
Ghana	28.81b	(5.64b)	35.99b	4	18	68	2.09b
Kenya	6.90b	(3.56b)	48.86b	12	31	32	5.23b

ISSN: 2408-7920

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http://doi.org/10.26437/ajar.11.2020.04

Mauritius	3.70b	7.61b	10.94b	8	10	99	1.52b
Morocco	26.30b	(4.42b)	97.82b	9	26	93	15,29b
Mozambique	31.24b	(0.52b)	12.84b	23	31	19	1.33b
Nigeria	62.52b	(32.87b)	375.49b	4	9	53	33.35b
South Africa	54.32b	(89.83b)	340.31b	24	23	84	42.89b
Sudan	16.72b	(0.16b)	70.16b	13	13	36	3.27b
Swaziland	0.64b	0.18b	4.11b	27	28	53	1.32b
Tanzania	14.49b	(0.07b)	36.75	3	20	17	2.33b
Tunisia	12.71b	(0.07b)	44.12b	15	15	100	7.21b
Uganda	8.52b	(0.005b)	21.13b	3	22	16	1.87b
Zambia	13.38b	(3.94b)	21.38b	9	2	25	1.60b
Zimbabwe	2.63b	(0.53b)	11.91b	5	17	36	1.22b

Source: World Development Indicator (2007 – 2016)

Appendix 4: Pairwise Granger Causality Tests

Null Hypotheses	F-Statistics	Prob.
GDP does not Granger Cause FDI	7.24418	0.0010
FDI does not Granger Cause GDP	15.3033	9.E-07
GDP does not granger cause FPI	16.1896	5.E-07
FPI does not Granger Cause GDP	4.9635	0.0083
FDI does not Granger Cause EXR	0.3897	0.6780
EXR does not Granger Cause FDI	0.4164	0.6602
FPI does not Granger Cause EXR	0.0438	0.9572
EXR does not Granger Cause FPI	0.5783	0.5622
INFR does not Granger Cause FDI	0.3117	0.7327
FDI does not Granger Cause INFR	0.3664	0.6938
INFR does not Granger Cause FPI	1.0687	0.3462
FPI does not Granger Cause INFR	0.0091	0.9909
MVA does not Granger Cause FDI	4.4979	0.0127
FDI does not Granger Cause MVA	9.5427	0.0001
MVA does not Granger Cause FPI	15.3142	1.E-06
FPI does not Granger Cause MVA	4.8234	0.0095
U does not Granger Cause FDI	1.1400	0.3225
FDI does not Granger Cause U	3.9259	0.0217
U does not Granger Cause FPI	2.8697	0.0600
FPI does not Granger Cause U	0.0190	0.9812
T does not Granger Cause FDI	0.7378	0.4799
FDI does not Granger Cause T	0.4907	0.6132
T does not Granger Cause FPI	0.0050	0.9950
FPI does not Granger Cause T	0.3571	0.7004

Source: Author's E views Computation

ISSN: 2408-7920