

*Full Length Research Paper*

# Foreign direct investment - economic nexus: The role of the level of financial sector development in Africa

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**This study examines the relationship between foreign direct investment (FDI) and economic growth considering the influence of financial sector development (FSD). We empirically determine the threshold level of three FSD indicators that would ensure the positive association between FDI and growth once these threshold levels are exceeded. The policy implication of this study is that policies directed towards attracting FDI should go along with and not precede policies that aim at promoting FSD.**

**Key words:** Growth, foreign direct investment, financial sector development and threshold.

## INTRODUCTION

In recent times, developing countries, especially in Africa, see the role of foreign direct investment (FDI) as crucial to their economic growth and development. FDI is viewed as an engine of growth as it provides the much needed capital for investment, increases competition in the host country industries, and aids local firms to become more productive by adopting more efficient technology or by investing in human and/or physical capital.

In absolute terms, the global flow of FDI in 2007 was estimated to be about \$1.9 trillion which was the highest the world ever recorded. The reason for this is not farfetched as it was due to the financial crisis which led to global disinvestment. This assertion can be backed by the fact that as at 2010, the flow was estimated to be about \$1.2 trillion after a drastic decline in the global flow in 2009. After a 16 per cent decline in 2008, global flow fell further by 37 per cent to \$1.114 trillion. FDI flows to the Sub-Saharan Africa (SSA) region have increased since the beginning of the 1990s. The value of FDI to the region rose from US\$36.7 billion in 1990 to US\$108.5 billion in 2000, and stood at US\$336.8 billion as at 2008. In terms of the contribution to the region's gross domestic product, available data also show some noticeable improvement. The FDI/GDP ratio progressively increased

from 12.4 percent in 1990 to 36.2 percent in 2008. It is also interesting to note that the distribution of FDI flows in the region is getting even, with 29 out of the 47 countries in the region recording increase in FDI inflows in 2008 (UNCTAD, 2009).

Despite the increased flow of investment to developing countries, SSA countries are still characterized by low per capita income, high unemployment rates as well as low and falling growth rates of GDP. These are developmental problems that FDI is supposed to ameliorate to a great extent. An overall evaluation of the economic performances of African continent and of SSA in particular has not been impressive over the period under study. The SSA countries are putting so much effort into attracting foreign investors and yet the economy is still dwindling in terms of economic growth. The reason attributed to this fact goes beyond the major determinants of FDI. This concern is exacerbated by the conclusion of Asiedu (2002) that what constitutes the drivers of FDI in other developing regions do not necessarily match well with the case of SSA countries. Zeng et al. (2002) also find that policies that have been successful in other regions may not be so in Africa. Several studies have argued that the non performance

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of FDI in enhancing growth in Africa can be linked to the inability of government to develop their financial markets (Alfaro et al., 2009; Levine et al., 2000; Hermes and Lensink, 2003; Demetriades and Hussein, 1996; Cattaneo and Eheoha, 2011) as the financial position of a country plays a crucial role in the growth of an economy<sup>1</sup>.

Studies like that of Kabalyk (2009), Zadeh and Madini (2012), Azman-Sain et al. (2010) all argued that there must be a certain "level" of financial sector development (FSD) compared to previous argument which advocated for FSD without recourse to value specification. The condition at which break-even effect(s) of FDI can be felt on economic growth is a situation where an economy at least reaches a certain threshold of FSD and once this level is exceeded, the positive effects of FDI starts to kick-in until then the benefits cease to exist. Despite this flow, questions that need to be asked are: why does FDI have positive impact on the growth process of the Asian Tigers<sup>2</sup> while the case is different in the African context? What are the reasons attributed to the fact that non Asian Tiger countries (Brazil, Malaysia, and India) record positive effect of FDI on growth and countries in most SSA do not? Could the answer to these questions be linked to a well-developed financial market? These questions become crucial following the findings of previous studies like that of Levine (2000) and Alfaro et al. (2003).

It is the objective of this study to determine the level of FSD that will ensure positive effect(s) of FDI on growth once this threshold level is reached. Hence, we adopted Threshold Auto Regressive (TAR) developed by Hansen (2000). The scope of this study which is dictated by availability of data is based on time series data for fifteen countries in SSA and the time frame of 1970-2010. To the best of our knowledge, this will be the first attempt to capture this relationship in SSA countries. Studies like that of Azman-Saini et al. (2010), Liao and Huang (2009) and Girma (2003) all extracted data from both set of countries thus violating what can be called "empirical principle". Besides, since a country-by-country time-series approach is adopted, policy prescriptions are more likely to be based on evidences peculiar to each country.

It is against this background that this study wants to address the following questions: what is the impact of FDI on growth? Is FSD relevant for the flow of FDI into an economy? What factors are responsible for attracting FDI inflow? Are these factors specific to certain countries? Why does FDI contribute to the growth process of some countries and not the economic growth of other countries? Does FDI generate positive externalities (spillover) for the host country? What is the future implication of FDI, FSD on growth in terms of

projections?

Answers to the above questions are rather conflicting. This might be based on the fact that the study employs a time series analysis. The empirical evidence suggests that there are conflicting effects of FDI on growth caused by different FSD indicators used. However, on the average, it was found that FDI impacts positively on the economic growth process. It is not in all cases that the interactive effects of FSD indicators lead to growth thus negating the hypothesis of Alfaro et al. (2003) about the importance of FSD in FDI host countries.

Following this introductory section, we arranged the study as follows: section two presents some stylized facts on FDI flows as well as FSD indicators in the region while methodology is provided in section three. Consequent upon this, empirical results are presented in section four. Section five concludes that threshold effect of FSD on FDI-growth nexus is not applicable to Africa. This is hinged on the fact that the threshold effects usually occur in developed countries with lower financial openness.

## Background analysis

This section is divided into two parts. The first part elucidates some stylized fact about FDI on both global and regional basis. The second part gives analysis of FDI and growth nexus in fifteen selected countries in Africa.

## Flows of FDI

This subsection is further divided into three parts. The first part discusses FDI's flow on the global perspective; a brief historical exposition of FDI into both developed and developing regions of the world would be analyzed. The second aspect of this sub-section focuses majorly on developing countries while the last part would be dedicated to selected countries in Africa.

## Global FDI flow

From Table 1, developed economies had continually had the largest share of the global flow. The reasons attributed to this cannot be far fetched from the well developed and organized infrastructure as well as stable government policies. It is not surprising why the developing countries were only able to attract about 28 per cent of the total flow despite the established policies to attract FDI inflow. Another reason could be linked to their inability to adequately provide pre-requisite determinants of FDI (that is, infrastructure, well functioning institutions, and stable policies to mention but few). Classifying the flow into regions, Europe recorded the lion's share. Since the beginning of 1975, its share had been on an increasing trend and this is after about 50 percent fall in the previous decade. It recorded an overall 39 per cent of

<sup>1</sup>For example, if the same amount of FDI is prevailing in two economies, holding all other factors constant, financially well-developed economy will generate three times additional growth as compared to financially weak economy (Cattaneo, 2011).

<sup>2</sup>Hong Kong, Singapore, South Korea, and Taiwan.

**Table 1.** Global FDI flow (inward) as a percentage of GDP (1970-2010).

	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-10	Average
World	100	100	100	100	100	100	100	100	<b>100</b>
Developing Economies	22.50	27.59	31.95	18.74	29.87	31.74	27.24	36.53	<b>28.27</b>
Developed Economies	77.49	72.41	68.03	81.24	69.45	66.91	69.01	64.51	<b>71.13</b>
Africa	6.55	3.94	2.61	2.48	2.15	1.61	2.47	3.99	<b>3.22</b>
America	24.64	26.47	36.68	42.25	20.74	24.78	18.83	17.71	<b>26.51</b>
Asia	4.51	10.59	18.34	9.95	19.62	18.61	16.87	22.47	<b>15.16</b>
Europe	44.99	40.75	26.88	33.68	44.31	39.11	46.15	37.93	<b>39.23</b>
LDCs*	0.92	1.501	0.86	0.48	0.69	0.64	1.31	1.75	<b>1.000</b>

Source: Author's Computation from UNCTADSTAT, 2011.\*= :Less Developed Countries.

**Table 2.** Share of FDI Flows to developing countries by Region, 1975-2010 (in percent).

	1975- 84	1985-94	1995 - 99	2000 - 04	2005 - 10
Developing Economies	100	100	100	100	100
Africa	9.35	8.22	4.81	7.25	9.56
Caribbean and American	38.01	28.23	41.13	36.18	32.51
Asia	48.93	60.76	51.77	52.68	53.49
Oceania	0.71	0.57	0.19	0.11	0.23
LDCs	2.99	2.19	2.07	3.77	4.21

Source: Author's Computation from UNCTADSTAT, 2011.

the total flow. Closely followed was America; all through the period under study, its share had been relatively stable with an overall average of about 27 per cent. The existence of the "Asian Tigers" helped the region to record about 15 per cent. Its share was not stable prior to 1990 after which it had been recording an increasing trend. The reason attributed to this can be linked to diversification of American MNEs to the region due to its low labour cost, thus leading to industrialization in the region.

The distribution of the flow has been biased towards Africa. This pattern remains palpable in spite of policy initiatives in a number of African countries and the significant improvements in the factors governing FDI flows. These factors include, but are not restricted to, economic reform, democratization, privatization and enduring peace and stability. The possible reason for this can be related to the fact that FDI flow to countries in the region which can boast of natural endowments (Oil and Agricultural product). The end result of this is that only few countries (about 25 per cent) can be classified as countries that receive a relatively reasonable amount of FDI. Therefore, this means that major FDI inflows into Africa are resource seeking FDI.

### Regional distribution of FDI

Table 2 clearly depicts that the larger share of the flow to

developing countries was recorded in the Asian countries. The region was able to attract over half of the total global flow to developing countries. The highest flow ever recorded was in the period between 1985 and 1994 with a share value of about 60 per cent and after a decline, it has been stable. Asia was able to attract a weighted average of about 53 per cent. America sits on the second step of the ladder with a share value of about 32 per cent. Its share had been stable except for the mid to end of 19<sup>th</sup> century. Africa continent as a whole was only able to attract a meagre share. Throughout the period under study, it was unable to attract 10 per cent of the total flow. The reasons that can be attributed to this might be related to political instability, inconsistent policies, and poor infrastructure among others. The same reasons explained above can also be attributed to the case of LDCs. These set of countries experienced a relatively stable share of the flow and was able to record an average of 4 per cent. In the same line of reasoning, Oceania countries did extremely poor as it was unable to attract a per cent share of the total flow. Distance, they say, enhances trade. As a result of this, investors would be skeptical in investing in regions that are far from the rest of the world.

### FDI and growth nexus

With particular reference to growth, the record in Africa,

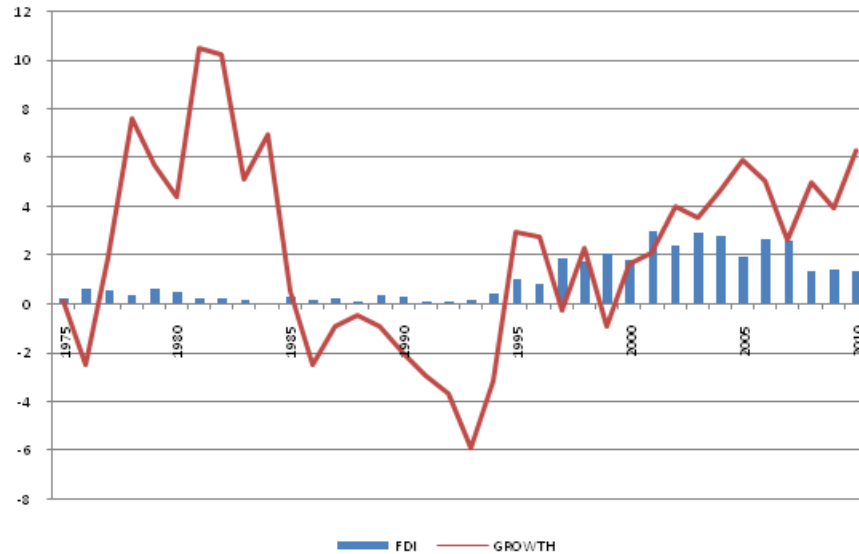


Figure 1. Trends in FDI and growth in East Africa.

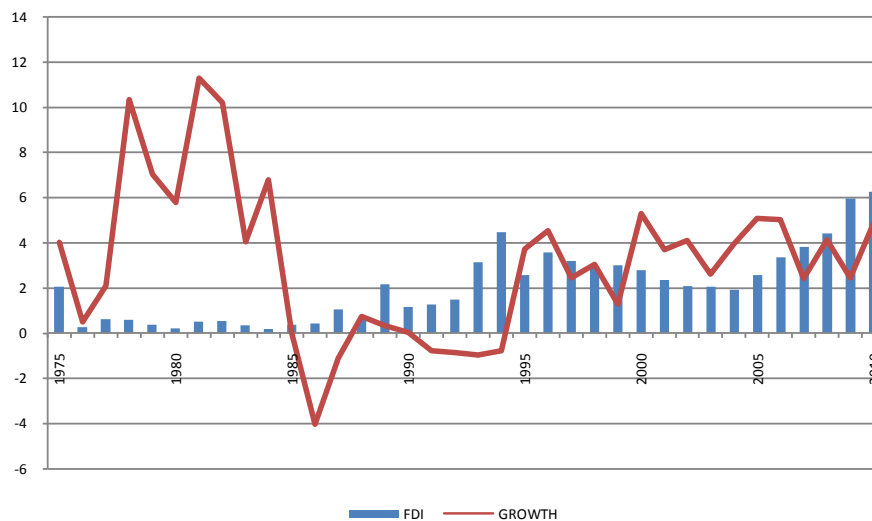


Figure 2. Trends in FDI and growth in West Africa.

on average, has been at best less than modest. Even the decade of the 1980s has often been appositely labeled as a “lost” one for the majority of countries in the continent. The scarcity of the necessary capital flows for sustained economic growth has been identified as one major clog in the wheel of economic prosperity Africa-wide. FDI, a critical component of these flows, according to Ajayi (2006) has the potential to accelerate growth and economic transformation. Although FDI to developing countries as a whole appears to have risen over the period between 1991 and 2002, these flows have been largely uneven with Africa at the lowest step of the ladder. For instance, Africa’s share of total FDI to developing countries plummeted from about 19 per cent

in the 1970s to a little less than 10 per cent in 1980s, and declined in the 1990s to an annual average of 4 per cent (UNCTAD, 2003).

This poor performance, on the basis of FDI inflow metric, however masks significant disparities among African countries in general. Nigeria, chiefly due to its large oil sector, has traditionally been one of the biggest recipients of FDI inflows to Africa. Most other countries in the sub-region have however been unable to attract substantial amounts of foreign capital. Figures 1-5 display the proportion of FDI as a percentage share of GDP (FDI) of the five regions under scope in Africa as well as the trends in the growth of real GDP per capita (GDP).

The figures depict that higher FDI flows are associated

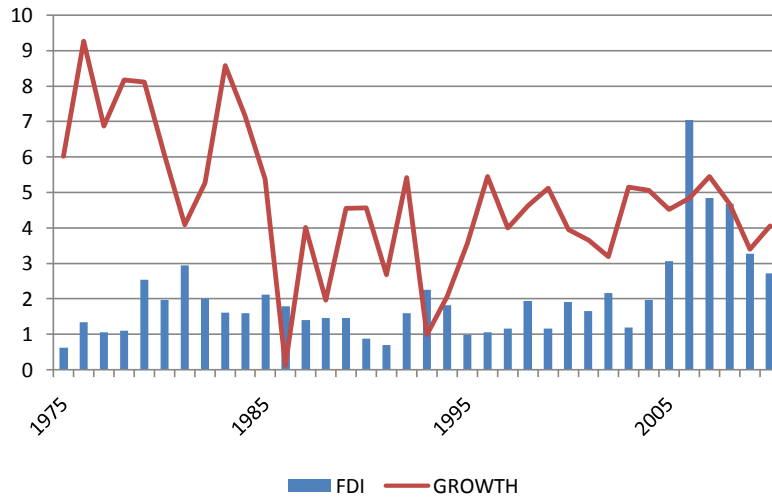


Figure 3. Trends in FDI and growth in North Africa.

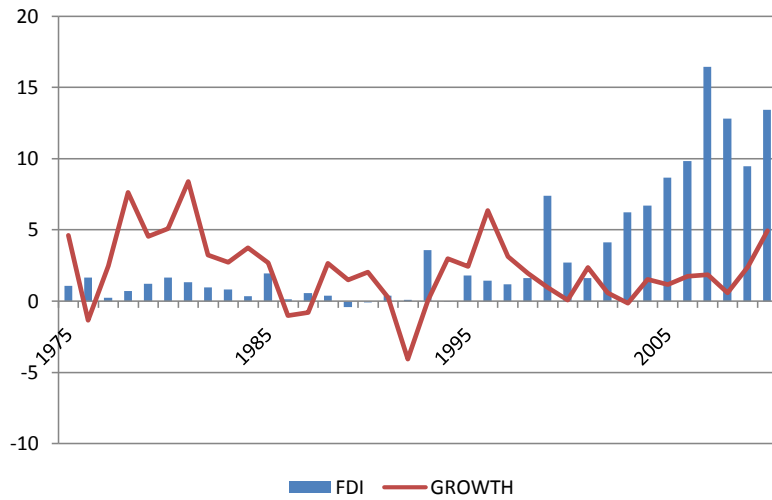


Figure 4. Trends in FDI and growth in Central Africa.

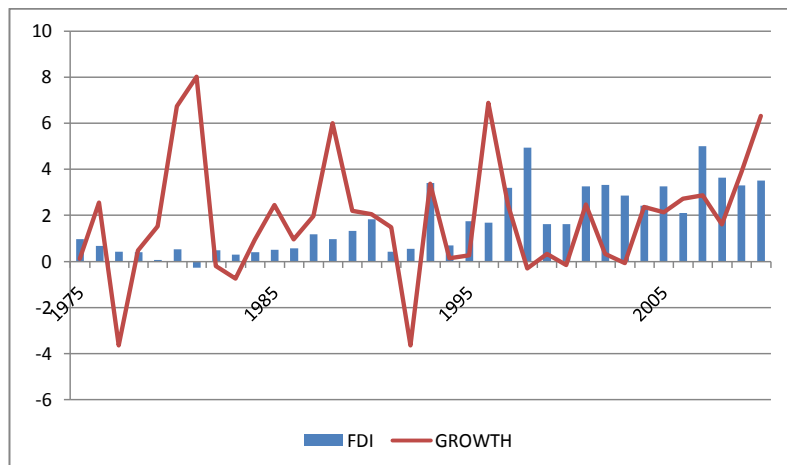


Figure 5. Trends in FDI and growth in South Africa.

with favourable growth performance in Central and North Africa. In North Africa for instance between 1975 and 1990, FDI flow has been fluctuating in the region of 0.5 to about 4.8 per cent while the growth pattern has oscillated between 0.3 and 9.2 per cent. In the late 19<sup>th</sup> to early 20<sup>th</sup> century, the region experienced FDI drought which coincided with a sharp drop in growth rate of the region. However, FDI picked again in 2005, the region recorded the highest flow and subsequent years experienced a slight fall in the flow. As expected, growth trend follows the same pattern. This same argument can also be made in the case of Central Africa with the exception that the country recorded a negative growth rate of about 4.8, 1.1 and 0.1 per cent in 1975, 1986, 1992 and 2001 respectively.

Another glimpse at the figures reveals, however, that Southern, East and West Africa each share striking similarities as well as sharp contrasts with the patterns observed in FDI in the case of North and Southern Africa. The former regions all witness a relatively increasing trend of FDI till the 19<sup>th</sup> century before a sudden rise years in succession, though the proportion is quite smaller than that of the latter. All through 1986 to 1994, Central Africa witnessed a negative growth values between 0.2 and 6 per cent.

Thus, the statistics seem to reveal considerable differences among these ECOWAS countries, implying that the potential FDI possesses in fostering economic growth could differ in significant ways across these countries. There is, therefore, the need to dig a bit further into the economic peculiarities of individual countries. In respect of this, one key factor that distinguishes economies is the extent to which the financial market is developed. It is usually opined that a well functioning financial system is an important element of the absorptive capacity required in the recipient economy for FDI to spur growth (Adeniyi et al., 2012).

## METHODOLOGICAL ISSUES

The three proxies we used to measure FSD are Domestic Credit Provided by Private Sector; Liquidity Liabilities (M3), and Domestic Credit Provided by the Banking Sector. The model specified follows that of Azman-Saini et al. (2010),

$$Y_t = \alpha_1 X_t + \begin{cases} \beta_1 FDI_t + \varepsilon_1, & FIN \leq \gamma_1 \\ \beta_2 FDI_t + \varepsilon_2, & FIN > \gamma_2 \end{cases} \dots\dots(1)$$

where

$Y_t$  = real gross domestic product growth rate

$X_t$  = set of control variables<sup>3</sup>.

FDI = ratio of net inflow of FDI/GDP

<sup>3</sup>In the standard growth literature, there are over 70 variables that serve as determinant of growth but only 17 of them are statistically robust to deserve inclusion in growth regressions (Carmignani and Chowdhury, 2008 and Sala-i-Martin and Subramanian, 2003). Due to data availability, this is further reduced to four which are government consumption, inflation, trade openness and urban agglomeration.

FIN = indicator for FSD.

Equation (1) can be re-written as follows;

$$Y_t = \beta_1 FDI_t [D(FIN_t \leq \gamma_1)] + \beta_2 FDI_t [D(FIN_t > \gamma_1)] + \alpha' X_t + \varepsilon \dots\dots(2)$$

Where D = dummy variable which is 1 if  $FIN_t > \gamma_1$  and 0 if otherwise

In recent years, Ordinary Least Square has been the most common estimation technique for both time series and panel data. However, this technique has been considered to exhibit bias behaviour and endogeneity problems, thus, recent empirical analysts tend not to base their policy recommendations on OLS result only. Hence, we employ a more sophisticated technique: Two Sate Least Square-Instrumental Variable Technique.

## RESULT INTERPRETATION

Table 3 gives a summary statistics of the results

### TAR Model Result<sup>4</sup>

This study empirically tests the influence of FSD on the FDI-growth nexus by considering three FSD indicators<sup>5</sup>. The indicators can be classified into three groups: High FSD countries (60 percent and above); Medium FSD countries (40-50 percent) and Low FSD countries (below 40 percent).

Algeria (LLY), Egypt (DCP), South Africa (DCB and DCP), Tunisia (DCB and DCP) and Zimbabwe (DCP) are classified as high FSD countries. The low FSD countries are Algeria (DCP and DCB), Ethiopia, Kenya and Tunisia (LLY) and Zimbabwe (DCB). On the other side of the triangle are Zimbabwe (LLY), Kenya and Ethiopia (DCB and DCP) and Ethiopia (DCP). In addition to this, Cote d'Ivoire, Congo Republic, Democratic Republic of Congo, Nigeria and Tanzania, Zambia and Cameroun all had the three FSD indicators in the low classification.

In terms of country classification, Democratic Republic of Congo requires that the level of development of her financial sector must reach at least 10 percent for LLY while the remaining indicators have no role to play in the FDI-growth nexus following the arguments of Alfaro et al (2000). This is because the required value of development of DCB and DCP is zero. Egypt requires that the level of development of DCB and DCP must reach a hallmark of 70 and 35 percent respectively before the benefit(s) of FDI can accrue to the country.

<sup>4</sup> As earlier stated, the study adopts a time series analysis for 15 countries. Due space management, it is practically impossible to report all the variables in the model individually for the 15 countries. What we did was to report the parameter for the interactive term between FDI and FSD only, since the objective of the study is to determine the threshold value for FSD that will lead to growth through FDI. However, the full result can be made available on request.

<sup>5</sup> The level of FSD in the chapter refers to the required level of FSD that will necessitate the positive impact of FDI on growth. The value is expressed as a percentage share of GDP

**Table 3.** A summary statistics of the results.

Variables	Mean	Std dev.	Max	Min.
Growth	3.7	3.2	8.1	1.3
FDI	6.8	4.6	10.3	4.4
Government consumption	-1.92	0.34	-1.10	-2.77
Inflation	0.14	0.16	0.83	0.023
Trade openness	-0.656	0.53	0.58	1.80
Urban agglomeration	0.29	0.39	1.69	0.02
LLY	60.31	58.34	130.36	10.82
DCP	58.11	55.43	90.33	35.07

Ghana can be grouped in the region of low countries FSD. This can be justified by the fact that the level of advancement of DCP and DCB are very low which stood at 1 and 35 percent respectively. In Nigeria, DCB has no role to play following the argument of King and Levine (2003), and Alfaro et al (2000). This is because the level of DCB required is negative. Contrary to this, DCP and LLY require 4 and 30 percent respectively.

However, this is in contrast to the case of South Africa which can be regarded as a very high FSD country. In order to ensure positive correlation between FDI and growth, this condition must be satisfied: LLY's level of development must reach 55 percents of the country's GDP ratio while that of DCB and DCP's advancement must reach a minimum level of 150 and 120 respectively. This development is detrimental to the growth process of the economy because the required level of FSD indicators is extremely high. The chances of the country achieving these goals look unrealistic.

On indicator based classification, DCB has the highest required level of FSD. This is closely followed by DCP and LLY. A plausible reason for this is hard to proffer. However, possible reasons for this could be attributed to the fact that DCB is the most active indicator when compared to others. Besides, governments of most SSA countries take the lead role in economic participation and the private sector is left to play second fiddle role in the economy.

It is interesting to note that economic growth which is being experienced in countries like the Congo Republic, Egypt, Tunisia, South Africa and Zimbabwe are not caused by FDI. Thus, it is imperative to state categorically that other factors of economic growth other than FDI have been beneficial in such countries. Thus, governments in such countries should develop their financial sector to the required level so as to achieve the benefits of FDI. In addition to this, Democratic Republic of Congo is the only country whose different FSD indicators were able to reach the requisite thresholds. Also, five countries were able to attain the threshold value for only two FSD indicators while others were unable to reach the threshold value, thus, implying that growth of such countries is not attributable to FDI.

### Tests for the significance of threshold effects

Having identified the threshold level for FSD indicators in selected countries in SSA, it is important to determine whether the threshold effects are statistically significant. To do this, the study tests the null hypothesis of no threshold against the alternative hypothesis of one threshold. As earlier explained, under the null hypothesis, that is,  $H_0: B_1 = B_2$ , the threshold level of  $FIN \gamma^*$  is not identified. Thus, the classical tests have non-standard distributions and cannot be applied. To overcome this problem, the Bootstrap method as suggested by Hansen (2000) is adopted to simulate the asymptotic distribution of the following likelihood ratio test of  $H_0: B_1 = B_2$ .

It is imperative to say that most of the indicators are not statistically significant. This is because the Likelihood Ratio values are less than the  $C(a)$  value. In Algeria, Cameroun, Democratic Republic of Congo, Ghana, Egypt, Kenya, South Africa, Tunisia and Zambia all the three indicators (DCB, LLY and DCP) are not significant at 5 and 10% which are given as 7.3523 and 5.9395 respectively of the Asymptotic Critical Value Distribution table produced by Hansen (2000).

However, in Congo Republic, DCP was found to be significant at 5<sup>6</sup> and 10% while DCB is only significant at 10%. In Cote d'Ivoire, DCB is only significant at 5 and 10%. Ethiopia's DCP and LLY were found to be significant at 10 and 5%; 5 and 10% respectively. The only significant indicator in Nigeria is LLY which was found at 5 and 10%. Two indicators were found to be significant in Tanzania, DCB: 5% and 10%; DCP at 10%. DCP was the only significant indicator in Zimbabwe which stood at 10%.

The rejection of the threshold level may be blamed on the small size of sample used in this study. Most threshold studies are based on cross country panel data that have large sample sizes. A large sample size may lead to a lower value of the residual variance which may improve the likelihood ratio statistic. Since a time series study is constrained by sample size, it may be of interest

<sup>6</sup> The percentage values are expressed in terms of confidence interval.

for further research to test this hypothesis again, for example, by extrapolating annual data into quarterly data to increase the sample size.

Another reason could be related to the fact that "... the threshold effects usually occur in developed countries with lower financial openness... (Liao and Huang, 2009)". A justification to this contention could be related to the verity that it is only Democratic Republic of Congo that has its three FSD indicators met the required threshold, and coincidentally, it is the least financial opened country.

## CONCLUSION AND POLICY IMPLICATION

This study empirically investigates the role of FSD in the FDI-growth nexus. 15 African countries were selected based on availability of data. The problem identified by this study was based on the notion that well developed financial sector is a pre-condition for the positive impact of FDI on growth. This study is motivated by the seemingly lack of attention on the role of financial development in previous studies. The empirical evidence suggests that there are conflicting effects of FDI on growth caused by different FSD indicators used. It can be stated that the threshold effects of FSD on FDI-growth nexus are not applicable to Africa. This is hinged on the fact that the threshold effects usually occur in developed countries with lower financial openness. A justification to this contention could be related to the fact that it is only the Democratic Republic of Congo that has its three FSD indicators met the required threshold.

## ECONOMIC IMPLICATIONS AND POLICY RECOMMENDATIONS

The results suggest that there is an urgent need for concerned stakeholders to reform the domestic financial sectors to make it more attractive for any multinational firms to invest in, although, this can be considered as a pre-condition for the positive impact of FDI on growth. The continent cannot afford to wait for its financial sectors to develop to a certain (high) level before the perceived benefits of FDI can start to "kick in". Thus, the reform of the domestic financial sector should precede policies that would attract FDI inflow into the region. They also imply, perhaps not explicitly but just as importantly, that even in countries where these thresholds are attained, domestic investment could have more growth potential than FDI (Kose et al., 2011).

The major macroeconomic variables such as inflation rate, trade openness, government consumption and urban agglomeration are significant catalysts to the impact of financial openness on growth, especially for the variable of institutional quality. Governments should strive to strengthen these conditions in order to produce well-functioning economic mechanism. This indicates that improving the investment environment through better

economic and institutional incentives for all investors should be a prime guideline for policymakers (Omran and Bolbol, 2003).

## REFERENCES

- Adeniyi O, Omisakin O, Egwaikhide F, Oyinlola A (2012). FDI, Economic Growth and Financial Sector development in a Small Open Developing Economies. *Econ. Anal. Policy*. 42(1):105-127
- Ajayi SI (2006). The Determinants of Foreign Direct Investment in Africa: A Survey of the Evidence, in: S.I Ajayi (ed.), *Foreign Direct Investment in Sub-Saharan Africa: Origins, Targets, Impact and Potential*. Nairobi, Kenya: African Economic Research Consortium.
- Alfaro L, Chanda A, Sebnam K, Sayek S (2009). Does Foreign Direct Investment Promote growth? Exploring the Role of Financial Markets on Linkages. *J. Int. Econ*. 64:605-818.
- Alfaro L, Chanda A, SebnemKalemli-Ozcan, Sayek Selin (2003). FDI and Economic Growth: The Role of Local Financial Markets. *J. Int. Econ*. 61(1):512-33.
- Alfaro L, Chanda A, Sebnem KO, Sayek S (2004). FDI and economic growth: the role of local financial markets. *J. Int. Econ*, 64: 89-112.
- Asiedu E (2002). On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?. *World Deve*. 30(1):107-119.
- Azman-Saini WNW, Law SK, Ahmad AH (2010). FDI and Economic Growth. New Evidence on the Role of Financial Market. *Forthcoming in Econometrics Letters*. 1-11.
- Levine R, Beck T, Loayza N (2000). Finance and the sources of growth. *J. Finan. Econ*. 58(1-2):261-300.
- Carmignani F, Chowdhury A (2007). Why are natural resources a curse in Africa, but not elsewhere? (joint with A. Chowdhury). UQ Economics Discussion Paper 406. School of Economics, University of Queensland, 2010.
- Cattaneo N, Ezeoha AE (2011). FDI Flows to Sub-Saharan Africa: The Impact of Finance, Institution and Natural Resource Endowment. Paper Submission for the CSAE Conference 2011: Economic Development in Africa.
- Demetriades P, Hussein K (1996). Does financial development cause economic growth? *J. Deve. Econ*. 15:385-409.
- Girma S (2003). Absorptive Capacity and Productivity Spillovers from FDI: A Threshold Regression Analysis." *Eur. Economy Group Working Paper*. 1-35
- Hansen B (2000). Sample splitting and threshold estimation. *Econometrica* 68:575-603.
- Hansen H, Rand J (2006). On the Causal Links between FDI and Growth in Developing Countries. *The World Econ*. 29(1):21-41.
- Hermes N, Lensink R (2003). Foreign direct investment, financial development and economic growth. *J. Deve. Stud*. 40:142-163.
- Kabalyk M (2009). FDI and Productivity: Financial Openness Thresholds. Thesis submitted to Oregon State university 1- 50.
- King RG, Levine R (1993). Finance and Growth: Schumpeter Might Be Right. *Q. J. Econ*. 108(3):717-37.
- Kose MA, Prasad ES, Taylor AD (2011). Thresholds in the process of international financial integration. *J. Intl Money Finance*. 30(1):147-179.
- Liao H, Huang B (2009). Does Financial Openness Spur Economic Growth? A Panel Regression Approach. pp1-28
- Levine R (2000). International Financial liberalization and economic growth. *Rev. Int. Econ*. 9:688-702.
- Omran M, Bolbol A (2003). Foreign Direct Investment, Financial Development, and Economic Growth: Evidence from Arab Countries. *Rev. Middle East Econ. Financ*. 1(3):231-49
- Sala-I-Martin X, Subramanian A (2003). Addressing the Natural Resource Curse: An Illustration from Nigeria. *IMF Working Paper WP/03/139*.
- UNCTAD (2009). Transnational Corporations, Agricultural Production and Development.
- UNCTAD (2003) *World Investment Report: FDI Policies for Development: National and International Prospective*. New York:



- United Nations.
- Wang M, Wong S (2009). Foreign Direct Investment and Economic Growth: The Growth Accounting Perspective. *Econ. Inquiry* 47(4):701-710.
- Zadeh HA, Madani Y (2012). FMD, FDI and Economic Growth in Iran. *J. Basic Appl. Scientific Res.* 42(1):228-230.
- Zeng LD, Tong QS, Wnag L, Qian W (2002). On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?. *World deve.* 30(1): 107-119

## Appendix A1.

Table 4.1. Variables in the empirical model, their sources and the expected sign.

Variables	Abbreviations	Data source	Expected sign
Foreign Direct Investment (as a % of GDP)	FDI	United Conference on Trade and Development (UNCTAD)	+
Inflation (% of CPI)	INF	World Development Indicators (WDI)	-
Growth Rate (as a % of GDP)	GRW	WDI	+
Balance of Payment (as a % of GDP)	BOP	WDI	+
Government Consumption (as a % of GDP)	GOV	WDI	-/+
Domestic Credit to the Private Sector (as a % of GDP)	DCP	WDI	+
Domestic Credit Provided by the banks (as a % of GDP)	DCB	WDI	+
Liquid liabilities of the financial system (as a % of GDP)	LLF	WDI	+

Source: Authors computation. Note: \* = variables measured as a percentage share of GDP.

	Algeria			Cameroun			Dem. Rep. of Congo			Congo Republic			Cote d' Ivoire		
	DCB	DCP	LLY	DCB	DCP	LLY	DCB	DCP	LLY	DCB	DCP	LLY	DCB	DCP	LLY
CONSTANT	-4.0803	0.7908	3.2733	-11.802	-11.948		3.2325	3.2325	3.5840	663.405	-103.24		4.1440	9.0193	2.5065
*FDI	3.4068	5.0471	6.6929	6.6113	0.6608		0.2568	0.2568	0.9919	0.4131	7.1864		0.8642	4.1626	0.7374
GOV	0.1162	0.1478	0.1908	0.0792	0.0643		0.0914	0.0914	0.0973	-0.0256	0.0021		0.3269	0.2892	0.3310
INF	-0.0661	-0.1456	-0.01089	-0.0369	0.0931		-0.0385	-0.0385	-0.0471	-0.2489	-0.3123		0.0270	-0.0422	0.0161
BOP	0.0107	-0.0346	-0.0288	0.3313	0.3204		0.1367	0.5321	0.1452	-0.0300	0.1458		-0.0334	-0.0728	-0.9373
POP	0.8067	0.5267	0.1685	0.0284	-0.022		-0.2297	0.0989	-0.2190	-12.135	1.6959		-0.8353	-0.0383	-0.0071
LR value	2.0815	1.2505	2.8825	2.4532	1.9945		2.8822	2.9613	0.9736	6.3345	67.0196		1.9185	4.0047	1.3663
R-sq	0.2054	0.1954	0.2203	0.3569	0.3283		0.5333	0.6543	0.5046	0.8574	0.9374		0.6097	0.6660	0.6083
RSS	876.86	887.46	860.09	904.024	944.041		361.760	358.987	383.899	19.0443	8.3452		319.997	273.7951	321.042
	Egypt			Ethiopia			Ghana			Kenya			Nigeria		
	DCB	DCP	LLY	DCP	DCB	LLY	DCB	DCP	LLY	DCB	DCP	LLY	DCB	DCP	LLY
CONSTANT	-12.745	-27.056		-125.43	-123.73	-144.52	-0.8591	-10.147		3.5648	3.6993	1.7583	16.9945	16.9946	10.4836
*FDI	0.2770	0.3283		2.0787	1.7792	2.0815	2.1527	0.1973		1.0439	1.1043	7.1370	1.3472	1.3472	18.714
GOV	-0.0771	-0.0501		0.0037	-0.0031	-0.0099	0.0830	0.2292		0.2228	0.2258	0.2448	-0.0621	-0.0622	-0.0234
INF	-0.0816	-0.0973		-0.1052	-0.1155	-0.1432	-0.0385	-0.0422		-0.2113	-0.2107	-0.2385	-0.1093	-0.1093	-0.1552
BOP	0.1184	0.0665		0.6633	0.7096	0.7731	0.0451	-0.0078		0.0540	0.0541	0.0856	-0.3045	-0.3045	0.5976
POP	0.6634	1.4351		30.8523	30.0896	35.5556	0.2023	0.9833		0.9464	-0.3827	-0.7540	-0.9383	-0.3933	0.8721
LR value	1.7017	1.4174		7.5515	3.1996	11.6879	2.3651	0.3732		0.4673	0.5651	1.0292	3.4508	2.7742	8.1874
Rsq	0.2319	0.2268		0.5706	0.4712	0.5047	0.3767	0.2381		0.2408	0.2423	0.2509	0.1184	0.1185	0.2519
RSS	212.454	213.876		295.26	377.069	344.068	500.622	611.965		603.088	601.890	595.024	1378.47	1378.47	1169.76

	South Africa			Tanzania			Tunisia			Zambia			Zimbabwe		
	DCB	DCP	LLY	DCB	LLY	DCP	DCB	DCP	LLY	DCB	DCP	LLY	DCB	DCP	LLY
CONSTANT	-0.9304	-0.7617	-1.1263	-178.97	-203.58	-234.14	11.4186	9.6277	8.9450	-6.9855	-6.9855	-17.229	10.6232	9.6031	10.1167
*FDI	0.3002	0.2797	0.5923	2.012	0.2416	0.6166	4.082561	0.3455	0.1229	0.5383	0.9584	1.1005	1.5987	2.1285	0.8717
GOV	0.0199	0.0199	0.0163	-0.2539	-0.3147	-0.2515	0.1196	0.1196	0.1762	-0.2336	-0.8634	-0.0162	0.0824	0.0642	0.0777
INF	-0.3139	-0.3139	-0.2669	0.1944	0.2089	-0.2048	0.0197	-0.0912	-0.0799	-0.0069	-0.6632	0.0111	-0.5362	-0.6353	-0.0001
BOP	0.1657	0.1657	0.1549	-0.0204	-0.0161	0.0004	-0.0746	-0.0533	-0.0504	-0.0096	0.1245	-0.0532	-0.0375	0.0227	-1.3464
POP	0.9382	0.9887	0.1763	6.6974	7.6011	8.6583				0.2655	0.2655	0.8145	-0.9383	-0.7451	0.0331
LR value	0.7882	0.5543	0.8134	7.3558	4.3465	5.9334	3.3	0.8562	0.1126	2.228	5.3298	5.0000	4.9534	5.9611	2.6517
Rsq	0.4193	0.4186	0.4183	0.9940	0.8736	0.8772	0.1770	0.1253	0.1087	0.3085	0.3076	0.2336	0.3132	0.3097	0.2544
RSS	130.9122	130.9913	130.9913	12.2574	13.3594	12.9803	357.367	379.856	387.029	228.907	229.847	253.7248	1699.53	1707.726	1844.78

Note: DCB, DCP, LLY, respectively: Algeria(40,45,60); Cameroon(30,6); Dem. Rep of Congo (2,3,10); Congo Rep. (20,30); Cote d Ivoire (23,35,15); Egypt (70, 35); Ethiopia (20,45,14); Ghana (35, 51); Kenya(35,25,45); Nigeria (-12,4,30); South Africa (150,120,55); Tanzania (25,8,24); Tunisia (83,60,40); Zambia (10,4,25) and Zimbabwe (80,45,30). The values in parenthesis are the threshold values of the FSD indicators.