Major Determinants of Foreign Direct Investment in the West African Economic and Monetary Region

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Abstract

The main concern of this paper is to answer the question of the determinants of FDI inflows to West African Economic and Monetary Union (WAEMU). The literature on FDI recognizes not only the existence of gaps between domestic savings and investment in most developing countries but also that FDI constitutes a cure capable to bring the latest technology and management know-how into these countries. The aim of this paper is to find the macroeconomic determinants of FDI in WAEMU (constituted of 8 countries namely: Benin, Burkina Faso, Cote d'Ivoire, Guinea Bissau, Mali, Niger, Senegal and Togo). To this end, an econometric model based on panel cointegration analysis for the period 1980-2010 was estimated. The results show that countries with high potential market size (GDP per capita), large trade openness and with more business friendly environment (low political risk) attract more FDI. The findings further show that: (i) infrastructure development is one of the most important determinants that attract FDI to the region; alongside the human capital, financial development, macroeconomic stability, exchange rate and political stability; (ii) not all the variables affect FDI the same way in the WAEMU region; (iii) there is a positive relationship between FDI and economic growth which implies that FDI stimulates economic growth; (iv) this study finds a positive relationship between FDI and macroeconomic stability (inflation) in WAEMU; (v) financial development needs to be improved to enable more gain from FDI. This suggests that the impact of FDI can be enhanced through financial development under a good environment that has to be provided in WAEMU.

Keywords: WAEMU, FDI, Determinants, Granger Causality.
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1. Introduction

It is widely accepted that most LDCs operate in the low-level equilibrium trap. The proportion of educated people in these countries

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is low (World Bank, 2010). The purchasing power parity, which Todaro & Smith (2012) defined as the number of units of a foreign country's currency required to purchase the identical quantity of goods and services in the local developing country market as $1 would buy in the United States, is also low due to the low level of per capita income. These issues, which affect economic growth and by implication and economic development, can be addressed to improve the standard of living. To do so, it will necessitate heavy and steady investment in key sectors of the economy and specifically in human capital development. Such investment requires bountiful savings which, if provided, will contribute to generate sufficient spill overs in the economy which in turn will boost economic growth, *ceteris paribus*. The issue however is that most LDCs internal savings are low, meaning that there is an existence of saving gap in these countries.

This undesired situation and the poverty trap could be avoided if capital from abroad in the form of FDI is injected to fill the saving gap (Hayami, 2001; Mottaleb & Kalirajan, 2010; Khan & Khan, 2011). It is largely accepted that FDI produces economic benefits to the recipient countries by providing capital, foreign exchange, technology, competition and enhanced access to foreign markets (UNCTAD, 1998; Albulescu et al., 2010). Even more, it is argued that FDI can also enhance domestic investment and innovation (Brooks et al., 2004; Adofu, 2010). Like most LDCs, WAEMU countries are aware of the benefits of FDI. In fact, all of them are developing strategies to attract bountiful amounts. This justifies the different promotional policies, such as liberalizing trade regimes, establishing special economic zones and offering incentives to the foreign investors with the aim of improving these economies. WAEMU countries have lately succeeded in harmonizing their strategies and policies toward investments, especially toward FDI. In this regard, these strategies gave rise to many agreements and policies such as: the Lome Convention, the "Organization pour l'Harmonisation en Afrique du Droit des Affaires (OHADA)", the Africa Growth and Opportunity Act (AGOA) and many numerous meetings and conferences on trade agreements in the Uruguay Rounds. These are some of the reasons for the connectedness of WAEMU countries.

FDI is generally recognized to be beneficial to countries in many ways as summarized by the OECD (2007). FDI triggers technology spillovers, assists human capital formation, contributes to international trade integration, helps create a more competitive business environment and enhances enterprise development. Developing countries need investment in the form of FDI for their development process and reduction of poverty. According to Todaro and Smith (2012), the majority of FDI goes from one developed country to another, and flows to LDCs are heavily concentrated in just a few destinations. This is not surprising given the fact that private capital gravitates toward countries and regions with the highest financial returns and the greatest perceived safety; but LDCs are countries where debt problems are severe, governments are unstable, and economic reforms remain incomplete with the high risk of capital loss and these tend to deter investors.

In the WAEMU economy however, domestic investment (both private and public) has proven to be insufficient (IMF, 2009). Therefore, FDI is required to compensate the low level of domestic saving which is brought into being by a vicious circle of poverty that emerges from a low level of real income, reflecting low productivity, which in turn is due to the lack of capital. This, in return, is a result of the small capacity for saving and consequently investment that goes back to a low level of real income (Nurkse, 1955). FDI is able to provide additional resources and to complete domestic capital deficits. Therefore, national resources, combined with external resources (in the form of FDI) can break up the vicious circle of poverty and facilitate development, raise real income, favor a socially appropriate distribution of income and bring about a high level of employment. Therefore, FDI plays a complementary role to domestic resources. This implies that FDI may have the capacity to augment domestic resources to enable each WAEMU member country carry out her development programs effectively and raise the standard of living of her people.

Furthermore, most if not all, of the eight WAEMU countries face infrastructure deficiency (lack of good roads, lack of buildings, good telecommunication systems, etc.) and poor human capital through lack of training and human capital formation (this justifies the fact that

many MNCs and investors bring their experts over when making investments in LDCs, etc.). Hence, the need to invest in social infrastructure and in human capital justify FDI inflows in WAEMU; and there are some economists who argue that to stimulate growth in LDCs it is necessary for governments to invest in infrastructure (Musila & Sigue, 2006; Dupasquier & Osakwe, 2006). It is only with adequate infrastructure that a country will develop since power; water, transport (and others) will form the channels that facilitate growth. After that, it is the turn of entrepreneurs to create businesses to make and sell goods. The infrastructure projects will provide some tax revenues, and the businesses will provide employment which will enable the employees to buy things from other businesses which in turn allows those businesses to grow. From this, it can be inferred that where there is economic growth and with improvement in infrastructure and human capital, FDI could be attracted. In summary, it can be inferred that economic growth also leads to FDI inflows.

This study considers WAEMU, which is a panel of eight countries as an important market for this study. In terms of population and space, WAEMU constitutes an important market. According to the literature on FDI, market size is one of the key determinants of FDI (Dunning, 1993). The main purpose of this paper is to shed light on the determinants of FDI in the West African Economic and Monetary Union (WAEMU) region and to do a comparative analysis after the provision of an overall analysis of recent studies that both focus on FDI and to examine the various factors that affect it in WAEMU. This will enable us to find answers to the following questions: What are the determinants/impediments of FDI to this region of Africa?

Although there is a dearth of recent research on FDI determinants in WAEMU but the empirical investigation on the issue is not confined to the work done only for WAEMU. Therefore, further evidence on the factors that affect the inflows of FDI to the region will be provided based on other references on developing countries and WAEMU drawn from the literature review. In view of the foregoing, examining the relationship between these variables and FDI in WAEMU is imperative. Apart from this introductory section, the paper is subdivided into five other sections. Section 2 reviews the existing literature; section 3 is the methodology, section 4 presents the

empirical results, section 5 deals with the findings while section 6 presents the policy implications.

1.1 Research Questions

This paper sets out to answer the following research questions:

i. What are the key determinants of FDI inflows into the WAEMU region and how can these flows be maximised?

ii. Specifically, do per capita GDP, exchange rate volatility, human capital, financial development, infrastructure development, trade openness, macroeconomic environment and political stability affect FDI inflows positively in WAEMU over the period 1980-2010?

iii. What are the macroeconomic variables that Granger causes FDI inflows in the region?

2. Literature Review

The objective of this section is to review the existing knowledge about the relationship between FDI and some of its major determinants. Section 2.1 examines the theoretical literature while Section 2.2, the empirical literature. And finally Section 2.3 presents the gaps which this study intends to fill.

2.1 Theoretical Review of FDI Determinants

This section starts with various theoretical studies on the determinants of FDI. These studies are reviewed with a view of gaining insight into the theoretical constructs that have influenced the current state of knowledge in the area of FDI. Moreover, previous empirical studies are examined to determine their adequacy and to serve as input into this paper. In respect of this, this section is divided into four subsections. It starts with the major theories that deal with FDI while Section 2.2 examines empirical studies on the determinants of FDI both in developed and developing countries. The Section 2.3 highlights the ongoing debates on FDI in the literature.

In order to realize advances in FDI thinking, it is important to review theories relating to FDI. The view of Agarwal (1980) cited in Moosa (2002) will be considered, which states FDI theories should be regarded.

Theories of Foreign Direct Investment

This subsection reviews the theories that deal with the relationship between FDI and relevant variables including economic growth in a country; for economic theory offers various approaches that try to depict not only the determinants of FDI but also the relationship between FDI and economic growth in an economy. The paper outlines the variables identified in the literature that are correlated with the inflows of FDI. This will be followed by some researches that address the issue of FDI's impact on economic growth. An appropriate theory is chosen for the current study. But in order to realize advances in FDI thinking, it is important to review the major theories that are related to FDI. The view of Agarwal (1980) cited in Moosa (2002) is considered. It states that FDI theories should be regarded as hypotheses, due to the fact that there are a plethora of competing theories with differing degrees of power. The major theories of FDI are: (1) Strategic behaviors, (2) Product life cycle model, (3) Industrial organization, (4) Internalization paradigm, and (5) Eclectic Paradigm.

1) Strategic Behaviors

Knickerbocker (1973) develops a behavior related approach to explain FDI in foreign markets. Knickerbocker asserts that firms that operate within oligopolistic industries tend to follow the FDI moves of one another. This behavior is an oligopolistic reaction where, 'the decision of one firm to invest overseas raises competing firms' incentives to invest in the same country'. FDI by one firm into a foreign country triggers other firms to follow suit. In this follow-the-leader type behavior, the follower is looking to minimize the first mover's overall competitive advantage. When conducting FDI in new foreign markets, oligopolistic firms are not only looking to be better than their rivals, they are also looking to increase their own profitability by exploring new opportunities. Knickerbocker states that investment abroad can be characterized in one or more of the following ways: movement to supply the native market, investment to gain resources, and investment to gain a strategic export platform. The reason one firm follows another is certainly logical, however Knickerbocker does not explain the triggers behind the initial investment by the first firm to move. Therefore, it is difficult to use Knickerbocker's theory to

correctly predict what actually motivated the first firm's investment decision and why exporting or licensing are disregarded as alternatives.

2) Product Life Cycle

This concept is developed by Vernon (1966) in an effort to explain the overseas expansion behavior of American MNEs after the Second World War. In this theory, the justification for FDI and expansion is due to the stage in the product's life, not the country where the FDI takes place. Vernon (1966) proposed three stages in a product's life namely: first, the new product: Production happens at home due to the need for synthesis between the production and R&D teams, and close proximity to potential buyers. Price at home is inelastic at this stage because of increased demand, and innovative products can command a higher price. Here, the product can be advanced with the help of feedback from home customers. Secondly the maturing product: The product has started to become more established and export is taking place to developed counties as demand emerges. With an increase in demand, competition appears and innovative firms resort to FDI in developed countries to meet the needs of the demand. This action is taken to support sales and profits as the market and competition increases. At present, the country where the innovation is born is the net exporter and the foreign countries are net importers. And thirdly the product standardization: The product and the producing processes are no longer monopolized by the innovating firm. Competition on the basis of price pressures the innovating firm, and the decision is made to invest in developing countries in an effort to take back a cost advantage.

3) Industrial Organization

One of the first persons to highlight the makeup of the market and the characteristics of inward investing firms when explaining FDI is Hymer (1976). He claims that if incoming foreign MNEs are the same as their already established domestic counterparts, they will not gain from entering the domestic market. This is because the incoming MNE will be hit by higher costs, including communication and transport, bringing in staff, cultural barriers, language and the lack of an established

network with the government and local businesses. Therefore, Hymer proposes incoming firms must have some specific advantage which will counter the associated challenges of entering a new country (Moosa, 2002). Kindleberger (1969) suggests the advantage possessed by a firm needs to be firm specific for FDI to be suitable and appropriate for transfer, and powerful enough to overcome the foreign disadvantages. Licensing such an advantage to a foreign firm could result in unwanted transfer of knowledge. As with any theory in the field of FDI, the time and location where it is conceptualized features heavily on its usefulness thereafter. Critics point out that one of the main downfalls of this theory is that it does not clearly consider why expanding firms choose not to make the most of their advantages by increasing production in their home countries and exporting to foreign markets, which could be a substitute for FDI. The theory does explain why firms choose to invest abroad; it does not explain also why investing firms choose country A over country B, and credit must be given here to Vernon's theory for addressing that (Moosa, 2002).

4) Internalization

Internalization is conceptualized by Coase (1937) who finds that FDI and associated internalization take place when transaction costs (costs of negotiating, enforcing and overseeing a contract) are high, and in such cases firms internally can be a suitable substitute for markets. Also, when these costs are low, it supports positively the case for working in partnership with other firms, being part of the market, and using mutually beneficial licensing and franchising agreements. The firm is left to decide if it is more cost effective to own and run a facility overseas (internalize) or if it is better to establish a contract with a foreign firm to run, license or franchise it on their behalf (Wall & Rees, 2004). The internalization theory is developed from the imperfections in the market. Internalization can be seen as a form of vertical integration, where the firm takes ownership of duties and/or goods that it formerly relied on a third party to provide. Transactions with other firms take time and costs can be incurred in tracking firms and uncontrollable events, therefore replacing these market inherent obstacles with internal processes can reduce insecurity. The internalization argument provides reasons why firms prefer FDI in

some circumstances over importing and exporting, and why they may refrain from licensing or franchising (Moosa, 2002). The internalization argument does not appear to have any theoretical foundations, and this author supports it by stating that, '...internalization can be seen as more of an approach than a theory.' Also, with internalization, centralization is promoted. This may not be beneficial in all firms, especially those that are innovative.

5) Eclectic Paradigm

In economics, the eclectic paradigm is a theory known as the OLI-Model or OLI-Framework. It is a further development of the theory of internalization and published by Dunning (1980). The theory of internalization itself is based on the transaction cost theory. This theory says that transactions are made within an institution if the transaction costs on the free market are higher than the internal costs. This process is called internalization. For Dunning, not only the structure of organization is important. He added three more factors to the theory: (a) Ownership advantages (trademark, production technique, entrepreneurial skills, returns to scale). Ownership advantages refer to the competitive advantages of the enterprises seeking to engage in FDI.

Table 1: OLI Advantages and Forms of Market Entry

		Categories of Advantages		
		Ownership Advantage	Internalization Advantages	Location Advantages
Forms of market entry	Licensing	Yes	No	No
	Exports	Yes	Yes	No
	FDI	Yes	Yes	Yes

Source: Extracted from Dunning (1980)

The greater the competitive advantages of the investing firms, the more they are likely to engage in their foreign production; (b) Location advantages (existence of raw materials, low wages, special taxes or tariffs) Locational attractions refer to the alternative countries or regions, for undertaking the value adding activities of MNEs. The more the immobile, natural or created resources, which firms need to use

jointly with their own competitive advantages, favor a presence in a foreign location, the more firms will choose to augment or exploit their O specific advantages by engaging in FDI; and (c) Internalization advantages (advantages by own production rather than producing through a partnership arrangement such as licensing or a joint venture). Firms may organize the creation and exploitation of their core competencies. The greater the net benefits of internalizing cross-border intermediate product markets, the more likely a firm will prefer to engage in foreign production itself rather than license the right to do so.

In summary, various theories to explain various forms of international investment of firms across national boundaries have been reviewed. All have conceptual gaps and cover for the lapses in the preceding models. Generally, they serve to explain the motivation for national firms to invest abroad. They also provide reasons for the different forms of investment of multinational firms and explain the key reasons for the success of investing firms.

2.2 Empirical Review of FDI Determinants

Some researchers address the issue of FDI and natural resources. For them, the availability of natural resources might be a major determinant of FDI to host country; that FDI takes place when a country richly endowed with natural resources lack the amount of capital or technical skill needed to extract or/and sale to the world market. This means that certain FDI may be less related to profitability or market size of host country than natural resources which are unavailable to domestic economy of the foreign firms (Borensztein, De Gregorio & Lee, 1998).

Natural resources. For instance, the works of Dupasquier & Osakwe (2006) & Aseidu (2002), for example, report that the availability of natural resources has a positive and significant effect on FDI inflows. Also, Mohamed & Sidiropoulos (2010), using a panel of 36 countries (12 Middle East and North Africa (MENA) countries and other 24 developing countries), conclude that the key determinants of FDI inflows in MENA countries are the natural resources, the size of the host economy, the government size, and institutional variables. This is confirmed by Asiedu (2006) that uses a panel data for 22 countries in Sub-Saharan Africa (SSA) over the period 1984-2000. He

finds that countries that are endowed with natural resources or have large markets attract more FDI. In addition, as for Hailu (2010) conducts an empirical analysis of the demand side determinants of the inflow of FDI to African nations and concludes that natural resources, labour quality, trade openness, market accession and infrastructure condition positively and significantly affect FDI inflows but the availability of stock market has positive but insignificant effect. In the same vein, some researchers argue that that FDI inflow is attracted largely by natural resource endowments. In their study, they employ panel data analysis and discover that countries like Angola, Botswana, Namibia and Nigeria have received FDI targeted at the oil and minerals sectors. This view is supported by many other researchers (Basu & Srinivasan, 2002; Asiedu, 2002; Aremu, 2005; Mottaleb & Kalirajan, 2010). That is why Morisset (2000) reports that, on a survey conducted of 29 African countries, there is a high correlation between FDI inflows and total value of natural resources in each country.

Trade openness. There are also studies that deal with trade openness linked to FDI. Therefore, Lemi & Asefa (2003) argue that most African countries, in their attempt to attract FDI, have liberalized trade and create enabling environment in recent decades. These authors observe that Ethiopia, like many African countries, take some steps towards liberalizing trade and the macroeconomic regime as well as introducing some measures aimed at improving the FDI regulatory framework. Their study which first deals with the nature and determinants of FDI in Ethiopia over the period 1974-2001 also gives an extensive account of the theoretical explanation of FDI as well as reviewing the policy regimes, the FDI regulatory framework and institutional set up in the country over the study period. The same study also undertakes empirical analysis to establish the determining factors of FDI. Their findings show that growth rate of real GDP, export orientation, and liberalization, among others, have positive impact on FDI. On the other hand, macroeconomic instability and poor infrastructure have negative impact on FDI. They conclude that liberalization of the trade and regulatory regimes, stable macroeconomic and political environment, and major improvements in infrastructure are essential to attract FDI to Ethiopia. Asiedu (2002) has also expressed a similar view when analyzing through a panel data

method the impact of natural resources, infrastructure and openness to trade on FDI flows to SSA. Her findings indicate that FDI in Africa is not solely determined by availability of natural resources and that governments can play an important role in directing FDI through trade reform, macroeconomic and political stability, efficient institutions and improvement in infrastructure. A lot of studies have found that countries that are opened will attract more FDI (Asiedu, 2002; Noorbakhsh et al., 2001; Morisset, 2000). In the FDI empirical literature, the most widely used measure of openness is the share of trade in GDP. Thus, the positive relationship between trade volumes and FDI implies that countries that wish to attract more FDI should increase trade. In the literature, other measures have been used including indicators like the ratio of export and/or import to GDP such as: Singh & Jun (1995), Dees (1998); average tariffs by Brainard (1997). Wheeler & Mody (1992) use an index which covers a broad range of factors besides import/export restriction, including local content requirement, expropriation risk, currency convertibility, and profit repatriation controls. Not surprisingly, conflicting results occur, although more studies show a positive correlation between FDI and trade openness. Trade openness is considered as one of the external sources of financial resources that can boost economic growth. From this angle, there is a possible link (that is long run relationship) between FDI and trade openness. Several other studies find that countries that have a higher degree of openness attract more FDI. Albulescu et al. (2010) find export orientation (export as percentage of GDP) to be the strongest factor explaining why a country attracts FDI. Chakrabarti (2001) finds openness to trade being positively correlated with FDI. Morisset (2000) finds a positive and significant correlation between trade openness and the investment climate for 29 African countries. Studying factors that significantly influence the long-run investment decision-making process of investors in 19 Sub-Saharan African countries, Bende-Nabende et al. (2002) find market growth, export-orientation policy and liberalization as the most dominant long-run determinants of FDI. A year after, Razin et al. (2002) finds openness to trade having positive and significant effect on FDI while other researchers on the matter, analyzing the impact of openness on FDI in 51 African countries, find that FDI responds significantly to

increased openness in the whole economy. Also before this one, Tsikata et al. (2000) find export-orientation as a significant determinant of FDI inflows to Ghana while Asiedu (2002), using exports and imports as a percentage of GDP to proxy openness, comes to a similar conclusion for Sub-Saharan African host countries.

Exchange rate. Other studies deal with the link between FDI and exchange rate which can be defined as the value of a foreign currency in term of the local one. This implies that a depreciated local currency, (*ceteris paribus*) attracts higher FDI while the reverse ultimately dissuades foreign investment. This is because exchange rate allows determining the effect of relative wealth and relative labor costs on FDI inflows. Thus, a depreciation of a country's exchange rate will increase the relative wealth of foreign firms and lead to an increase in foreign purchases of domestic assets. In addition, a depreciation of a country's foreign exchange will lead to capital inflows as foreign countries try to take advantage of relatively cheaper domestic labour. Raman-Raju & Gokhale (2012) try to establish a causal relationship between the nominal exchange rate and FDI in India using a time series data between 1992 and 2010. They investigate whether the fluctuation in the exchange rate in turn causes the change in the quantum of FDI inflows and vice-versa which is of importance in the wake of unprecedented depreciation of Indian Rupee against US dollar. Their analysis uses unit root test and Johenson cointegration test to show whether the variables under consideration exhibit stationarity and a long run association respectively. The test indicates absence of any long term association between the two variables under consideration. In that context, it appears that the data is not stationary at level and is stationary at first difference. The Vector Auto regressive (VAR) model depicts that the coefficients do not have any long run association. Studies examining the macroeconomic effects of exchange rate on FDI center on the positive effects of an exchange rate depreciation of the host country on FDI inflows, because it lowers the cost of production and investment in the host countries, raising the profitability of foreign direct investment. The wealth effect is another channel through which a depreciation of the real exchange rate could raise FDI. By raising the relative wealth of foreign firms, a depreciation of the real exchange rate could make it easier for those

firms to use retained profits to finance investment abroad and to post collateral in borrowing from domestic lenders in the host country capital market (Froot, 1991 and Loungani & Razin, 2001). There is a large literature on different forms of spillovers from inward investors in the form of new technologies, ideas and capital (Blomstrom, Kokko & Globerman, 2001).

Financial development. The theoretical impact of FDI on the economy has been proved to be ambiguous. The effect of FDI on the economy may crucially depend on the absorptive capacities of the home country. While various types of absorptive capacities have been discussed in the literature (human capital, trade regime, infrastructure, etc.), one of these capacities that has gained increasing attention is the development of local financial markets (Hermes & Lensink, 2003; Omran & Bolbol, 2003; Alfaro et al., 2004; Durham, 2004). In the literature, there are several ways in which a higher level of financial development allows the host country to exploit FDI more efficiently. Firstly, the provision of more credit facilities enables entrepreneurs who lack internal funds to purchase new machines, adopt new technology, and hire better skilled managers and labors (Omran & Bolbol, 2003; Alfaro et al., 2004). Secondly, the development of domestic financial markets also relaxes credit constraints faced by foreign firms, allowing them to extend their innovative activities to the domestic economy (Hermes & Lensink, 2003). Finally, the presence of an efficient financial system facilitates FDI to create backward linkages, which are beneficial to the local suppliers in the form of improved production efficiency (Alfaro et al., 2004). Therefore, development of the financial systems plays a crucial role in allowing the host country to absorb the spillovers associated with FDI. In other words, the level of financial development in the host country affects its ability to absorb the benefits of FDI. In this way, finance enters into the growth equation through the interaction with FDI. Many empirical studies have been undertaken in this regard among which the followings:

Saibu et al. (2011) examine the effects of financial development and FDI on economic growth in Nigeria. They modify the standard endogenous model to incorporate FDI and financial development as the determinants of growth in the long run. Using time-series data

from 1970 to 2009, they test for the time-series properties of the variable and adopt the Autoregressive Distributed Lag (ARDL) technique to estimate the model. Their results show that financial development and FDI have negative effects on economic growth in Nigeria during the period under study. Their results, further, show that the effect of FDI differs significantly when different measures of financial market are used. Specifically FDI is only significant when combined with stock market indices. Finally, their results also show that financial market liquidity matters for economic growth in Nigeria. Nwokoma (2004) provides evidence that financial development has contributed positively to economic growth. Therefore, in his study, the author looks empirically at the relationship between FDI and growth. Finally, he concludes that there is a relationship between FDI and financial development.

As Nasser & Gomez (2009) observe, financial development is important in FDI decisions because it affects the cost structure of investment projects. Confirming this, Kinda (2010) observes that financial development is an engine of economic growth, providing better business opportunities for customers and firms. This is proxied by the ratio of domestic credit to the private sector to GDP. This is an indicator of domestic financial development, potentially an important factor in driving international finance. High domestic credit to the private sector also implies abundance of domestic capital and as such, foreign capital in the form of FDI would not be needed. Indeed, a high level of \credit to the private sector" is an indication of the abundance of domestic capital. As such, foreign capital in the form of FDI would not be needed as much hence a negative relationship between private credit and FDI inflows. Another possible explanation is that such negative relation is another manifestation of the negative relationship that exists between FDI and other types of flows, mainly bank loans (Fernandez-Arias & Haussmann, 2000). Herve (2016) found that financial integration variable impacts negatively on growth on some WAEMU countries, which signifies that financial integration policy does not lead to greater efficiency in the financial system. Further, the results show that the effect of domestic own investment is globally positive and statistically significant for all countries when using panel least square framework. This stipulates that state own investment is

determinant factors of economic growth in the region.

Human capital, both in terms of quantity and quality, is another important factor that promotes labor intensive and export oriented FDI in particular. Noorbakhsh et al. (2001), using secondary school enrolment ratio and the number of accumulated years of secondary and tertiary education in the working age population as a proxy to human capital, find human capital to be a significant determinant of FDI inflows for 36 developing countries. Before him, Lewis (1996) provides support to the proposition that human capital in host countries is a key determinant of FDI in LDCs. This author notes that education, especially in technical discipline, provides least developed countries with the skills that are required by the MNCs. Balasubramanyam et al. (1996) through a time series data analysis and its properties finds that the low level of human capital, as measured by the illiteracy rate, has a discouraging effect on FDI in Nigeria.

Also, Nonnemberg & de Mendonça (2005) perform an econometric model based in panel data analysis for 38 developing countries for the 1975-2000 periods. Among their major conclusions, FDI is correlated to the level of schooling, economy's degree of openness, risk and variables related to macroeconomic performance like inflation, risk and average rate of economic growth. Also, their results show that FDI has been closely associated with stock market performance. Finally, a causality test between FDI and GDP is performed. They discover that GDP leads to FDI. A final issue of robustness is the interaction of FDI with human capital, this having been shown to have a significant positive effect on economic growth as suggested in Borensztein et al. (1998). The study by Reiter et al (2010) shows that FDI inflows are more strongly positively related to improvement in human development when FDI policy restricts foreign investors from entering some economic sectors and when it discriminates against foreign investors relative to domestic investors. In addition, it finds that the relationship between FDI and improvement in human development is also more strongly positive when corruption is low. Markusen (2002) finds that knowledge capital is important for FDI inflows while Rodriguez & Pallas (2008) find that human capital is the most important determinants of inward FDI. Nonnemberg & de Mendonça (2005), in a panel data analysis for 38 developing countries

(including transition economies) for the 1975-2000 period, conclude that FDI is correlated to level of schooling, the economy's degree of openness, risk and variables related to macroeconomic performance like Inflation, risk and average rate of economic growth. Alsan et al. (2006) in a panel data analysis of 74 industrialized and developing countries over 1980-2000, find that gross inflows of FDI are strongly and positively influenced by population health (life expectancy) as a proxy of human capital development in low and middle-income countries. Noorbakhsh et al. (2001) and Miyamoto (2008) show the positive effect of human capital generally on FDI inflows while Tarzi (2005) and Baeka & Okawa (2001) cite workers' productivity and Khair et al. (2006) and Jeon & Rhee (2008) cite labor cost.

Infrastructure development. It has been observed that foreign affiliates depend on the host country's infrastructure in several aspects: they wish to ship their manufactures or exploited products which require a good transport infrastructure. Also, they have a need for communication with high technology media and thus require a well-functioning telecommunication and internet network (Nagou, 2016). Loree & Guisinger (1995), studying the determinants of FDI by the United States in 1977 and 1982 (both towards developed countries as well as toward developing countries), conclude that variables related to host country policy are significant in developed countries only when infrastructure is an important determinant in all regions. Easterly (2003) finds that infrastructure promotes FDI; more specifically, Campos & Kinoshita (2002) show that telecommunication is important for FDI in Asia and Bellak et al. (2010) conclude that Information Computer Technologies (ICT) is an essential factor for FDI in the enlarged EU.

Gholami et al. (2006) use a sample of 23 developed and developing countries observed for the period 1976-99 based on ICT data availability to show that in developed countries, existing ICT infrastructure attracts FDI; a higher level of ICT investment leads to a higher level of FDI inflows but in developing countries the direction of causality goes instead from FDI to ICT. Findings by Sekkat & Veganzones-Varoudakis (2007) indicate that infrastructure availability, openness, and sound economic and political conditions are important for South Asia, Africa, and the Middle East in attracting FDI. In a study of South East European Countries, Dauti (2008)

identifies ICT infrastructure market as the major factor positively influencing FDI inflows while Seeking factors (GDP growth, GDP per capita, GDP level) have perverse signs, showing significantly negative effects on FDI inflows.

Economic and political stability are other variables that are found to impact the movement of FDI. Obwona (2001) notes, in his study on the determinants of FDI and their impact on growth in Uganda, that macroeconomic and political stability and policy consistency are important parameters that determine the flows of FDI into Uganda. He also argues that FDI affects growth positively but insignificantly. Ekpo (1995) reports that political regime, real income per capita, and other variables explain the variance of FDI in Nigeria. For non-oil FDI, however, Nigeria's credit rating is very important in drawing the needed FDI into the country. Some researchers point out the fact that high inflation and volatile inflation increase uncertainty and thus, lead to higher investment risk. Consequently, FDI will be discouraged in such conditions. Asiedu (2004), Campos & Kinoshita (2002) as well as Trevino et al. (2002) stress that the inflation level is an important factor for FDI inflows. Baeka & Okawa (2001) prove that exchange rate uncertainty, i.e. volatility, discourages private investment, precisely FDI into developing countries. In line with this view, it can be inferred that inflation is used as an indicator of macroeconomic instability. A stable macroeconomic environment promotes FDI by showing less investment risk.

Social and political instability are variables that are hard to define and to measure in a way that can be used for econometric work even though it impacts economic growth. According to Saibu et al. (2011), the general opinion as supported by many of the reviewed literature shows that democracy is generally supportive of positive macroeconomic performance. For Alesina & Dani (1994), political instability can be viewed in two ways: the first one emphasizes executive instability where political instability is define as the "propensity to observe government changes". These changes can be constitutional (that is take place within the law) or unconstitutional (through coup d'état); while the second one is based upon indicators of social unrest and political violence. Regarding the political determinants of FDI, Schneider and Frey, in alignment with the view

of Asiedu (2004), conclude that political instability significantly reduces the inflow of FDI. Alesina & Dani (1994) and Asiedu (2004) also arrive at similar conclusions when examining the impact of economic and political uncertainty on FDI.

Transfer of technology. There are studies that have been conducted in order to identify the link between FDI and transfer of technology. Borensztein, De Gregorio & Lee (1998) test the effect of FDI on economic growth in a cross-country regression framework, utilizing data on FDI flows from industrial countries to 69 developing countries over the last two decades. Their results suggest that FDI is an important vehicle for the transfer of technology, contributing relatively more to growth than domestic investment. However, the higher productivity of FDI holds only when the host country has a minimum threshold stock of human capital. Thus, FDI contributes to economic growth only when a sufficient absorptive capability of the advanced technologies is available in the host economy. So, these authors See FDI as an important vehicle for the transfer of technology, contributing to growth in larger measure than domestic investment. In this regard, Findlay (1978) postulates that FDI increases the rate of technical progress in the host country through a 'contagion' effect from the more advanced technology, management practices used by foreign firms. In line with Findlay (1978), Borensztein et al. (1998) highlight that FDI is viewed as important catalyst for economic growth in the developing countries. According to him, FDI affects economic growth by stimulating domestic investment, increasing human capital formation and by facilitating the technology transfer in the host countries. The main purpose of his study was to investigate the impact of FDI on economic growth in Pakistan, for the period 1990-2006. The relationship between FDI and economic growth is analyzed by using the production function based on the endogenous growth theory, other variables that affect economic growth such as Trade, domestic capital, labor and human capital are also used. His results show a positive and statistically significant relation between the real per-capita GDP and FDI.

To sum up this sub-section, it can be inferred that many variables are found in the literature as determinants of FDI namely: economic growth, trade openness, market size, macroeconomic environment,

political stability, natural resources, human capital, infrastructure development, financial development etc. (Table 2)

Table 2: Empirical Determinants of FDI to Africa: A Synopsis of the Literature on FDI Determinants

Empirical Determinants of FDI to Africa: A synopsis of the literature FDI Determinants	Econlit references on Africa	Other references on Africa, and in the world
Market Size and Growth	Morisset (2000); Bende-Nabende (2002); Asiedu (2002a, 2006); Lemi & Asefa (2003); Yasin (2005); Dupasquier & Osakwe (2006); Fedderke & Romm (2006).	Agodo (1978); Bhattacharya *et al*. (1996); Elbadawi & Mwega (1997); Bhinda *et al*. (1999); Basu & Srini-vasan (2002); Asiedu (2003); Onyeiwu & Shrestha (2004); Kinda (2010).
Availability of Natural Resources	Morisset (2000); Asiedu (2006); Dupasquier & Osakwe (2006).	Basu & Srinivasan (2002); Kols-tad & Tondel (2002); Asiedu (2003); Onyeiwu & Shrestha (2004).
Costs and Skills of Human Capital	Morisset (2000); Bende - Nabende (2002); Lemi & Asefa (2003); Yasin (2005); Asiedu (2006); Fedderke & Romm (2006).	Borensztein *et al*. (1998); Bhinda *et al*. (1999); Odenthal (2001); Kinosh-ita & Campos (2002); Ayadi (2011).
Quality and Quantity of Infrastructure	Morisset (2000); Asiedu (2002a, 2004, 2006); Lemi & Asefa (2003); Dupasquier & Osakwe (2006).	Bhinda *et al*. (1999); Pigato (2001); Asiedu (2002b, 2003); Onyeiwu & Shrestha (2004).
Openness of the Economy	Morisset (2000); Asiedu (2002); Bende-Nabende (2002); Lemi & Asefa (2003); Yasin (2005); Dupa-squier & Osakwe (2006);	Lipsey & Weiss (1981); Balasu-bramanyam et al. (1996); Bhatta-charya *et al*. (1997); Asiedu (2002); Onyeiwu & Shrestha (2004); Falk & Hake (2008).
Financial Development		Albulescu, Briciu & Coroiu (2010); Saibu *et al*. (2011).
Macroeconomic stability		Nonnemberg & Mendonca (2004); Mottaleb & Kalirajan (2010).
Political stability		Nonnemberg & de Mendonca (2004)

Source: The Authors, 2015

2.3 Identified Gaps from the Literature

A close look at the empirical literature shows the discovery of the following gaps:

i. To the best of our knowledge, there is a paucity of studies on FDI determinants in WAEMU ;

ii. The studies conducted on financial development related to FDI yet none of them was done on WAEMU community;

iii. Further, there is no known instance of a study linking FDI to exchange rate conducted for WAEMU;

iv. In terms of methodology, panel-based studies dominated, followed by time series approach. However, the unit root issue has been identified as a problem associated with panel data studies, hence the need for panel cointegration methodology. To the best of our knowledge, only few of these studies examine the unit root status of their data and adopted panel cointegration, namely Apergis *et al.* (2006), Arndt *et al.* (2007). These studies, however, consider a shorter time series period and experts argue that the use of panel cointegration is more appropriate for a longer time dimension in panel studies (Baltagi, 2008).

This present study deviates from these previous studies as it intends to bridge these gaps identified in the literature. This is another gap identified that this study aims to fill.

3. Methodology and Data

This section presents a more formal analysis of the relationship between FDI and some key determinants of FDI in WAEMU. Section 3.1 discusses the data and presents the regression equation. Section 3.2 contains the empirical analysis. The theoretical framework on the determinants of FDI in WAEMU based on the reviewed theories in the previous section is provided here. There are shortcomings of the existing theories in such that no theory explains alone and fully FDI movements.

Discussion on the determinants of FDI in WAEMU which draws from Mottaleb & Kalirajan (2010) starts with the search of answer to the question "why a foreign investor invest in other countries?" or "what drives FDI to developing countries?". The decision to invest in a foreign country by a foreign investor depends mainly on the return

on investment, which is profit (Kinda, 2010).

Profit (Π) is the difference between total revenue (TR) minus total cost (TC). In functional form, Π can then be written as:

$$\Pi = f(P, Q, TC) \tag{1}$$

$$TC = IC + OC + HC,$$

With $\frac{d\Pi}{dP} > 0, \frac{d\Pi}{dQ} > 0;$

Also, $\frac{d\Pi}{dIC} < 0, \frac{d\Pi}{dOC} < 0$ and $\frac{d\Pi}{dHC} < 0.$

P =   Price of the output which is mainly determined in the competitive market;

Q =   Output, and TC = Total cost

IC =   Input cost (i.e. cost of labor, land, interest rate, raw materials, electricity, gas, water, etc.

OC =   Operation costs. It includes both financial and time costs, such as money and time required to get business/export-import license, money and time required to get gas, water, electricity, land and transaction and transportation costs.

HC =   Hidden cost. It is the difference between the time and money costs declared by the government and time and money actually paid by the investors. It also includes hassle costs.

Profit will be higher in a country where foreign investors can operate their business at a low cost and can produce at full scale in a competitive price and where there is good business friendly environment (less political and economic risk). It means the variables that determine profit can equivalently determine the inflow of FDI to a particular country. It allows us in writing the following reduced form function:

$$FDI_{it} = f(P, Q, TC, E) \tag{2}$$

where E is environment (that is political and economic stability)

Substituting the TC= IC +OC+ HC into equation (2) we can re-write it as follows:

$$FDI_{it} = f(P, Q, IC, OC, HC, E) \hspace{3cm} (3)$$

Subscripts i and t stands for the individual country and year respectively.

The reduced form version of the FDI function in equation (3) clearly shows the factors that influence the inflow of FDI to the host countries. According to equation (3) foreign investors will prefer to invest in countries where they can produce large amount of production at a lower cost. The size of the economy and its growth rate are seen to critically affect the inflow of FDI to a particular country. Large and fast growing economy can offer economies of scale and also can reduce the transportation and product marketing cost as products will be mostly sold in the host economy. In fact, UNCTAD (1998, 2000) classifies a group of foreign investors who mainly invest in foreign countries to serve the domestic market. These market-seeking-foreign investors thus prefer to invest in countries with large domestic market and in countries which are growing at a faster rate (that is GDP per capita, GDPPC, and GDP growth rate, GDPGR). It is however, difficult to imagine that market seeking foreign investors will invest in foreign countries completely to serve the host economies. Rather it might be case that foreign investors might also export a portion of their product to other countries as well as selling in the host economy. It means a country with small domestic market, but well-linked and open to the global market through international trade (trade openness, OPN) can also provide to the foreign investors scale economies similar to the countries with large domestic market. Thus, trade openness to global market might significantly determine the inflow of FDI. Probably, due to openness, a few small economies, such as Hong Kong and Singapore receive substantial amount of FDI (UNCTAD, 2009).

Foreign investors will prefer to invest in the countries where input cost, operation costs and hidden costs are low, because it will ensure higher profit. Countries with abundant cheap and skilled labor (human capital, HC), electricity and energy and countries with improved infrastructure, such as road, port facilities, telephone and internet (infrastructure development, Infd) might significantly and negatively affect the cost of doing business (exchange rare, Exr volatility). Thus

the availability of cheap and skilled labor, electricity and energy and infrastructure thus can significantly affect the inflow of FDI by attracting cost cutting and efficiency seeking foreign (UNCTAD, 1998; Kinda, 2010). According to the discovery in the literature, macroeconomic instability is captured by the inflation rate (base on the consumer price index).

Therefore, the equation derived from this theoretical framework on the determinants of FDI is:

$$FDI_{it} = f(GDPPC_{it},\ OPN_{it},\ HC_{it},\ INFD_{it},\ INF_{it},\ FD_{it},\ EXR_{it},\ PRK_{it}) \tag{4}$$

Linearly, equation (4) can be rewritten as follow in the logarithm form:

$$LFDI_{it} = \lambda_0 + \lambda_1 LGDPPC_{it} + \lambda_2 LOPN_{it} + \lambda_3 LHC_{it} + \lambda_4 LINFD_{it} + \lambda_5 INF_{it} + \lambda_6 LFD_{it} + \lambda_7 LEXR_{it} + \lambda_8 PRK_{it} + \epsilon_{it} \tag{5}$$

$\lambda_0 > 0$ or < 0, $\quad \lambda_1 > 0$, $\quad\quad \lambda_2 > 0$ or < 0, $\quad \lambda_3 > 0$ or < 0, $\quad \lambda_4 > 0$ or < 0, $\lambda_5 < 0$, $\quad \lambda_6 > 0$ or < 0, $\quad \lambda_7 > 0$ or < 0 and $\quad\quad \lambda_8 < 0$.

3.1 Data Description

Besides labor and physical infrastructure, business environment and rules regulations relating to investment and business also affect the cost of doing business in a particular country by affecting the function of the market (Kinda, 2010). Business friendly environment with appropriate rules and regulations might significantly reduce the operation and hidden cost and allows market to function well. Thus profit seeking foreign investors might prefer to invest in countries where there is business friendly environment and the rules and regulations relating to investment and business are favorable. Socio-economic and socio-politico variables, such as regulatory framework, bureaucratic hurdles and red tape, regulations relating to initiate a new business, judicial transparency, and the extent of corruption in the host country therefore might significantly affect the inflow of FDI by affecting the efficiency, productivity and cost structure.

FDI = Foreign direct investment

GDPPC= Per capita GDP

OPN= Trade openness [(export + import)/GDP]
HC= Human capital (labor force)
INFD= Infrastructure development
INF= Inflation
FD= Financial development
EXR= Exchange rate
PRK = Political instability (Dummy variable which is 1 if political instability and 0 otherwise).

3.2 Data Sources

For the variables used, secondary data from International Financial Statistics (IFS-CD ROM, 2012) and from World Development Indicators (WDI, 2012) are used for this study. They are samples consisting of time series data of 31 observations for the period 1980 to 2010. The dependent variable is Foreign Direct Investment (*FDI*) which is a variable measured by the FDI items (in the IFS or WDI over the years) as the ratio of GDP. Labor force participation rate, *HC*, (% of total population ages 15-54) is proxy by size population in the working age bracket as published in WDI. Trade openness (*OPN*) is measured by export plus import as ratio of GDP. Import is measured by total import of goods and services while export is measured by total export of goods and services. Data on other financial variables, inflation rate (*INF*), exchange rate volatility (*EXR*), financial development (*FD*) is the ratio of M_2 i.e. total credit to private sector divided by GDP), Infrastructure development (*INFD*) is telephone line per 100 people collected from the International Financial Statistics and World Development Indicator.

4. Empirical Results and Discussions

The starting point is the examination of the time series properties of the variables. Macroeconomic variables are known to be non-stationarity series. The stationarity properties among the variables in the models are examined using the standard Augmented Dickey Fuller stationary test and the result is presented in Table 3 below. The ADF test shows that all the variables are only stationary after first differencing, thus implying that the variables should enter the model in their growth rate forms. Here, the first step taken is to establish the

stationarity test and then withdraw from the model the variables that are identified in the literature as determinants of FDI but which are not stationary. This is followed by Johansen co-integration test, performed to explore any possible long-run relationship among the variables. This involves testing the number of co-integration vectors. The results obtained from the Johansen co-integration method are summarized in Table 5.

Table 3.1: Panel unit Root Test Result (At Levels)

Series	Individual Unit Root Process				Common unit Root Process	
	IPS	**ADF Fisher**	**PP-F Sqr**	**Rmk**	**LLC**	**Rmk**
fdi/gdp	0.07)	13.18	30.52**	I(0)	-0.57	
Gdpgr	-87**	99.95**	169.29**	I(0)	-4.1**	I(0)
Gdppc	1.19	23.57***	28.78***	I(0)	0.3	
Dmc	-0.41	14.26	14.56		-1.5**	I(0)
Opn	-0.56	16.81	21.35		-0.05	
Hc	3.23	10.88	21.59		4.299	
Infd	4.46	4.3	10.12		3.99	
Infl	-5.6**	62.13**	98.42**	I(0)	-6.1**	I(0)
Fd	1.49	10.99	18.23		2.98	
Exr	-0.07	11.95	15.05		-0.9	

Note: * significant at 10%; ** significant at 5%; *** significant at 1%;

Table 3.2: Panel unit Root Test Result (First Difference)

Series	Individual Unit Root Process				Common unit Root Process	
	IPS	**ADF Fisher**	**PP Fisher**	**Rmk**	**LLC**	**Rmk**
fdi/gdp	-9.04*	104.99*	223.98*	I(1)	-6783*	I(1)
Gdpgr	-18.64*	215.66*	195.93*	I(1)	-14.30*	I(1)
Gdppc	-8.07*	91.71*	145.12*	I(1)	-4.40*	I(1)
Dmc	-6.21*	70.75*	136.96*	I(1)	-5.27*	I(1)
Opn	-9.10*	105.74*	193.96*	I(1)	-6.98*	I(1)
Hc	-6.30*	75.32*	101.61*	I(1)	7.03	I(1)
Infd	-6.86*	78.39*	116.07*	I(1)	-6.37*	I(1)
Infl	-12.35*	147.06*	225.90*	I(1)	-12.62*	I(1)

Table 3.2: Panel unit Root Test Result (First Difference)

Series	Individual Unit Root Process				Common unit Root Process	
	IPS	ADF Fisher	PP Fisher	Rmk	LLC	Rmk
Fd	-7.36*	83.65*	169.54*	I(1)	-2.17*	I(1)
Exr	-6.21*	68.25*	126.76*	I(1)	-4.45*	I(1)

Note: * significant at 1%;

IPS = Im, Peseran & Shim W-test; LLC = Levin, Lin & Chu;

ADFFisher = ADF-Fisher; PP-F Chi Sqr = PP-F Sqr

Source: Computed by the Researcher, 2015.

Table 4: Kao (1999) Residual Cointegration Test

Series: FDI GDPPC GDPGR OPN HC INFD INF FD EXR PRK GFCF
User-specified lag length: 1

	t-Statistic	Prob.
ADF	-14.237	**0.0000**
Residual variance	81.344	
HAC variance	34.124	

Source: Computed by the Researcher, 2015.

Table 5: Panel Cointegration Test for the 8 WAEMU Countries
Series: FDI GDPPC GDPGR OPN HC INFD INF FD EXR PRK GFCF

Hypothesised	Fisher Stat		Fisher Stat	
No. of CE(s)	From Trace Stat	Prob	From max-eigen test	Prob
None	60.27	**0.0000**	29.04	**0.0237**
At most 1	34.22	**0.0051**	11.23	0.7951
At most 2	24.7	0.753	10.63	0.8318

Source: The Author, 2015

Therefore, looking at Table 4 (Kao residual cointegration test is performed), evidence from that test seems to suggest there is a long run equilibrium relationship between real FDI and the other variables used in this study which therefore continues with econometric techniques that take into account this long-run relationship between the variables. Moreover, this result is significant at 1% level of significance.

Evidence of cointegrating relationship between the variables are

obtained from Kao (1999) and Maddala & Wu (1999) tests. The null hypothesis of no cointegrating relationship is rejected at 1% level or lower for panel of eight countries when using Kao (1999) tests. Similarly, results from the Maddala & Wu (1999) panel cointegration test provide evidence of cointegration between the variables. From the results in Table 5, the null hypothesis of no co-integration ($r = 0$) can be decisively rejected at 1% level of significance for all sampled countries. The null hypothesis of one cointegrating vector ($r \leq 1$) given that ($r \leq 0$ was rejected) cannot be rejected. Therefore, this study has strong evidence in favour of the hypothesis of one cointegrating vector. In another word, for all country grouping the study examines a unique cointegrating vector.

Since the variables are all integrated of order one I(1), it means there is a long-run relationship between the dependent and independent variables. It is therefore necessary to treat the error term as the equilibrium error term that is used to adjust short-run behavior of FDI to its long-run value and the result is shown in Table 5.

Regression of Equation (5)

From the Table 6, it is seen that the region regression result above is perfectly in line with the *a priori* expectations that is, apart from one variable, human resources management, all the expected signs for the remaining explanatory variables are confirmed and they are significant at different levels (1%, 5% and 10% levels of significance).The constant term's value is -20.93. This implies that the model passes through -20.93 in the vertical axis meaning that if all the variables are held constant at zero, FDI will flow out of WAEMU's economy to the level 20.93. And this result is statistically insignificant.

Table 6: FDI Determinants in WAEMU

Dependent Variable: LOG(FDI)

Method: Least Squares

Sample: 1980-2010

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-20.928	12.73331	-1.643549	0.1145
LOG(GDPPC)	4.376**	2.182329	2.005241	0.0412

Table 6: FDI Determinants in WAEMU

LOG(EXR)	1.036*	0.530644	1.951667	0.0638
LOG(FD)	2.035***	0.603862	3.370498	0.0028
LOG(INFD)	0.365***	0.055313	6.605554	0.0013
LOG(HC)	-4.213**	2.200113	-1.91503	0.0329
LOG(OPN)	1.7989*	0.874012	2.057972	0.0516
INFL	-0.012***	0.001156	-10.7206	0.0029
PRK	-0.187	0.159414	-1.171531	0.2539
R-squared	0.941	Mean dependent var		4.413
Adjusted R-squared	0.919	S.D. dependent var		1.247
S.E. of regression	0.355	Akaike info criterion		1.005
Sum squared resid	2.774	Schwarz criterion		1.421
Log likelihood	-6.576	Hannan-Quinn criter.		1.141
F-statistic	43.499***	Durbin-Watson stat		1.696
Prob(F-statistic)	0.000			

Notes: *** = significant at 1% level of significance

** = significant at 5% level of significance

* = significant at 10% level of significance

Source: Computed by the Author, 2015

The coefficient of GDPPC is 4.38. This implies that there is a direct relationship between FDI and per capita GDP (proxy for market size) in the short run such that a one unit increase in per capita GDP will increase the level of FDI inflows in WAEMU by 4.38, all other variables being held constant. This finding is statistically significant at 5% level of significance. This agrees with the literature that market size is one of the major determinants of FDI in developing countries (Bhinda et al., 1999; Morisset, 2000; Bende-Nabende, 2002; Lemi & Asefa, 2003; Asiedu, 2002 and 2006; Dupasquier & Osakwe, 2006; Fedderke & Romm, 2006; and Kinda, 2010). This is understandable because MNCs and capital owners are mainly after their own interests and profits, not for the development of LDCs. In WAEMU, this study confirms that per capita GDP determines FDI inflows.

The coefficient of EXR is 1.03. This implies that there is a direct relationship between FDI and exchange rate volatility in the short run. This finding is statistically significant at 10% level. In other words, a moderate appreciation of exchange rate volatility enhances and

determines FDI inflows in the economy of WAEMU. This is in line with the theory and with the point of view of Asiedu (2006), Busse & Nunnenkamp (2007) and Campos & Kinoshita (2008).

The coefficient of FD is 2.03. Here also, there is a strong positive relationship between FDI and financial development in the short run such that a unit increase in credit to private sector will bring about an increase of 2.03 unit in the inflows of FDI, all other variables being held constant. This finding is statistically significant at 1% level of significance; more so, it is in line with the finding in the literature of Saibu et al. (2011), Albulescu et al. (2010), and Alfaro et al. (2004). This finding is in line with the theory which says that a moderate increase in financial development will increase economic activities (that is growth which in turn attracts FDI) and then enhances FDI inflows, *ceteris paribus*. But when the level of financial development is weak, it deters FDI inflows because foreign money and all the financial tools are needed for the increase of the production and its linkages within an economy.

The coefficient of infrastructure development is 0.36. This implies that there is a positive relationship between FDI and infrastructure development so that an increase of infrastructure development by 100% will cause FDI to flows in WAEMU by 36% all other variables being held constant. This result is statistically significant at 1% level of significance. This finding is a proof that infrastructure development is also one of the major variables that drive FDI in the Region economy. This finding is correlated with the previous ones, especially financial development and economic growth. Also, it brings an answer to the second research question of this paper.

The coefficient of human capital is negative (-4.21) meaning that there is a strong but negative relationship between FDI and human capital in WAEMU. This result implies a dearth of competent manpower to achieve the ends of investors. This is not unexpected given the poor attention directed by governments in the region to capacity building in higher institutions and the recourse lately by citizens to be schooled in the Western countries. Investors also come along with expatriates to manage their businesses. This result is consistent and statistically significant at 5% level of significance. Even though this result is contrary to expectations, it conforms to

some findings in the literature (Samir Amin, etc.). This finding confirms that the state of human resources management in the region is not favorable towards attracting FDI inflows.

The coefficient of trade openness (OPN) is 1.798. This implies that there is a positive relationship between FDI and trade openness in the short run such that a total openness to trade in the community will enhances FDI inflows weakly by 179.8%, all other variables being held constant. This result is statistically significant at 10% level of significance. This finding confirms the view of many researchers found in the literature on FDI inflows (Albulescu et al., 2010; Chakrabarti, 2001; Morisset, 2000; Bende-Nabende, 2002; Tsikata et al., 2000; Asiedu, 2002; Noorbakhsh et al., 2001; and Singh & Jun, 1995). This finding confirms that trade openness affects FDI inflows in WAEMU.

The elasticity of inflation (INFL) is -0.012. This implies that there is an adverse relationship between FDI and inflation rate in the short run such that a unit increase in inflation rate will bring about a decrease in 0.012 unit in the inflow of FDI, all other variables being held constant. Inflation is a proxy for macroeconomic stability or economic environment. So, macroeconomic instability will lead FDI inflows to fall in WAEMU in the period 1980-2010. This result is statistically significant at 1% level of significance. This finding confirms the findings in the literature that "better business friendly environment impacts positively FDI inflows".

Political instability's coefficient is -0.19 implying that any political turbulence deters FDI inflows in the economy of WAEMU within 1980-2010, all other things being held constant. But this finding is not statistically significant. This result is in line with the literature knowing that risk deters foreign private investment in Africa (Jaspersen et al., 2000; Collier & Pattillo, 1997 and 2000) meaning that no investor will take his money in an environment where there is political crisis because it will jeopardize the business activities. F-statistic is useful for joint significance of the parameter estimates. In the case of this study and at this junction, the F-statistic (43.50) shows that the model is useful in determining whether any relationship exists between FDI and the other variables in WAEMU (per capita GDP, exchange rate volatility, financial development, infrastructure

development, human resources management, trade openness, inflation (or macroeconomic environment), and political instability). The F-statistic also shows that the coefficients are jointly statistically significant at 1% level of significance.

The calculated Durbin-Watson statistic (D-W statistic) from the results presented in the above table (Table 6) gives the value of 1.69 far from 2; this shows that there is serial correlation in the model. The coefficient of determination (R^2) from our results is given as 0.9405. This implies that 94.05% of the variations in the FDI in WAEMU are accounted for by the included explanatory variables of per capita GDP, exchange rate volatility, financial development, infrastructure development, human resources management, trade openness, macroeconomic environment (i.e. inflation rate) and political instability. With this value of 94.05% for R^2, it can be inferred that this result is therefore of good fit. The adjusted coefficient of determination (adjusted R^2) is given as 0.9189. This means that precisely 92 % of the variations in the FDI inflows of WAEMU are accounted for by the included variables, after the coefficient of determination has been adjusted to make it insensitive to the number of included variables.

5. Summary of Findings

(i) The study finds that not all the variables identified in the literature determine FDI inflows after the empirical research through the running of some econometric regressions.

(ii) A moderate appreciation in the level of exchange rate volatility enhances and determines positively the inflows of FDI in WAEMU.

(iii) The level of financial development in WAEMU favors and encourages inflows of FDI during the period under study.

(iv) The state of human resources management (or labor force) does not favour FDI inflows in the WAEMU region during the period 1980-2010.

(v) Trade openness is found to be one of the major determinants of FDI inflows in the region during the period 1980-2010.

(vi) Macroeconomic instability deters and does not favor inflows of FDI in the WAEMU region during the period 1980-2010.

6. Policy Implications

First, in order to avoid wastage, regional governments should not implement policies drawn by international institutions and developed countries without being sure that their proposed strategies and policies fit their economy. Rather economic decisions should be made based on the investigations made on that economy not after some generalized economic policies. Secondly, the movement of exchange rate (the value of US dollar in term of CFA Franc) should be monitored knowing that volatility in the depreciation of foreign money will deter and discourage considerably FDI inflows in WAEMU.

Thirdly, innovation should be brought into the financial sector to revitalize the bank system and the financial market in order to boost FDI inflows in that economy which will favor economic growth and development. Fourthly, knowing that educated and healthy people will favor an increase of production and productivity, policy yielding to train and form the labor force should be encouraged for it will attract more of FDI in WAEMU. Finally, knowing that no investor will take his money to an unstable environment, economic and political leaders should take sound decisions that will favor business friendly environment in WAEMU by reducing political risk, ensuring property rights, most importantly bolstering growth in the market size, as well as wage moderation, lowering corporate tax rates, and ensuring full integration of their economy into the world economy.

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