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External financial flows and domestic investment in the economies of WAEMU: crowding-out versus crowding-in effects

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Abstract

This paper analyzes the effect of capital inflows on domestic investment in the Economic and Monetary Union of West Africa (WAEMU). In this respect three types of foreign capital have been taken into account namely FDI, Official Development Assistance (ODA) and remittances from migrants. The empirical study is conducted based on the theoretical model Agosin and Mayer (2000) to test the hypothesis of crowding-out and crowding-in of domestic investments by different types of foreign capital considered. The econometric estimates are based on the GMM method of Arellano and Bond (1991) applied to a panel of WAEMU countries over the period 1996-2011. The results of the study reveal that FDI crowds out domestic firms in both the short and long term. Similarly, ODA have a lasting crowding out local investment. As for remittances, the econometric results show that they do not have a significant effect on domestic investment in the countries of the union.

Keywords: investment, crowding-out, crowding-in.

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Introduction

Developing countries, particularly those in Africa are confronting to the problem of financing their economies, often with insufficient domestic resources (Bruhn, Karlan, & Schoar, 2010; Chenery, Ahluwalia, Duloy, Bell, & Jolly, 1974; Lewis, 2013). To overcome this deficiency and to promote long-term development of the continent, economic strategies that advocate policy makers at national, regional and international levels give emphasis for external financial flows. Thus, African countries strive to provide a conducive to attracting foreign capital legal, political and economic environment. Accordingly, the financial flows to Africa have risen sharply since the 80s (Asiedu, 2006; Bhattacharya, Montiel, & Sharma, 1997; Elujoba et al., 2014; Herbst, 2013; Noorbakhsh, Paloni, & Youssef, 2001).

Several studies have examined the conditions for attraction of the foreign capital and their contribution to economic growth in general and in sub-Saharan economies of WAEMU especially Africa. Nevertheless, very few studies have examined the effects of capital on domestic investment in national economies. However, Sub-Saharan African countries including those of the WAEMU have special characteristics (informal sector, institutional weakness, embryonic industry etc.) that make the analysis of the relationship between foreign capital and domestic investment, a challenge major theoretical and empirical in this sub-region (Sonobe, Akoten, & Otsuka, 2011; Xaba, Horn, Motala, & Singh, 2002).

Since the end of World War II, the technology progress in the field of transport and communication has led to major changes in international economic relations (Porter, 2011; Wallerstein, 2011). The main architects of the globalization process are undoubtedly Multinational Companies (MNCs) whose contribution to the maintenance of internationalization is seen through mergers, acquisitions and relocations. These operations generate course important capital movements differently affect national economies. Thus, movements of capital to developing countries have experienced since the beginning of the 80s, a considerable growth. Their nature has changed completely from banking sources to non-bank sources such as portfolio investments and foreign direct investments (FDI) (Agénor, 2003). These capital flows are mainly directed

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towards the countries of Asia and Latin America , reaching in terms of input record \$ 500 billion in 2007 , representing an increase of 21 % compared to 2006 (Adams, 2009; UNCTAD, 2008).

Similarly, the African continent has not remained on the margins of development of capital flows. Indeed, after the failure of development strategies advocated after independence there was from the 80s to now, a change in economic policy directed towards the attraction of external investment. Comprised primarily of net official flows until the early 80s, these flows have changed to private capital especially FDI and portfolio investment. The West Africa was the first beneficiary of these flows region. Thus, the sub-region accumulated about 40% of the total stock of foreign investment in sub-Saharan Africa in the 80s. This level reached half of the total stock in the 90s and early 2000s. This is mainly due to the oil sector (including Nigeria) and other natural resource activities (Lahimer, 2009). Numerous data show that developing countries in general and sub-Saharan economies in particular have benefited from substantial external financial flows in recent years (Bost et al., 2012; Ezeoha, 2013; Fedderke, 2010).

Thus, the ratio of investment in the world (Golub, 2009) indicates that FDI flows to Africa (including North Africa) in 2008 have been estimated at \$ 88 billion, which is a new record for the region and this in spite of the global economic and financial crisis. Among these FDI flows almost a third had the destination in Southern Africa. The highest growth rate (63%) was observed in the countries of West Africa. In addition, the latest data from the Development Assistance Committee (DAC) of the OECD indicate that Official Development Assistance (ODA) towards Africa increased from USD 47.9 billion in 2010-51 2 billion in 2011. This is also a record in nominal terms, reflecting a nominal bilateral USD 3.22 billion between 2010 and 2011.

Furthermore, the amount of remittances by migrants to developing countries in 2010 is estimated at 325 billion dollars, 56.9 billion to developing countries in Africa and the Middle East (Adams Jr & Cuecuecha, 2013; Bank, 2013). Thus, Migrant Remittances (TFM) towards Africa showed strong growth during the last decade. They are estimated at approximately \$ 40 billion in 2010; almost double the 2005 level and

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four times that of 2000. At the WAEMU, the amount of funds received from migrant workers has also quadrupled between 2000 and 2011.

Given the influx of foreign capital into the economies of WAEMU, it seems appropriate to focus on the interactions they have with the economic environment of the host countries. Indeed, the neo-liberal theories comeback in the 80s, reinforced by the theory of endogenous growth (Grossman & Helpman, 1991; Romer, 1990) highlight the positive effects of foreign capital inflows on domestic investment. Not only international investment capital put at the disposal of the national economy, they also facilitate access to new technologies, create jobs and stimulate local industries through spillover effects. However, the net benefits of foreign capital are not automatic, and scale differs depending on the host country and context. Among the factors that prevent these capital fully bear fruit in some developing countries are generally low level of education and health , the low technological level of local businesses , inadequate regulatory frameworks , etc. (OCDE, 2010)

In the specific case of WAEMU economies, then what are the effects of external financial flows on the local investment? In particular, what influences exert remittances of migrants, official development assistance or foreign direct investment on domestic investment in the countries of the sub-region? The answers to these questions are still important because the investment is the engine of growth. Thus, a good knowledge of the effects of these different types of foreign capital on domestic investment is necessary to create favorable conditions for economic growth. The objective of this study is to analyze the effects of capital inflows (FDI, ODA, remittances from migrants) on domestic investment in the WAEMU countries.

The present study titled "External financial flows and domestic investment in the economies of WAEMU: crowding-out versus crowding-in effects" is a contribution to the elucidation of the influence of foreign capital on domestic investment in the countries of the WAEMU. This work consists to three sections. The first section introduces the problem addressed by the study objectives and research hypotheses and a review of the literature about the subject. The second deals with the methodology adopted in the context of

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hypothesis testing research. Finally, the last section is devoted to the presentation and analysis of empirical results as well as contributions for improvement of the externalities generated by the external financial flows in the WAEMU countries.

Literature review

FDI and domestic investment: crowding-out or crowding-in effects?

The entry of MNCs in a country is likely to affect positively or negatively the structure of local production. Thus, economic theory focuses on two types of effects: crowding out when the foreign firm is substituted for local firms and a stimulating effect when the foreign firm is completed with local firms. Obviously, determining the nature of the effect depends on the strategy of FDI and characteristics of the host country.

- **The crowding-out effects**

FDI can have crowding-out effects on local businesses, which is likely to inhibit growth, increase unemployment and further marginalization of the poor (Meyer, 2004; Qu, Chen, Li, & Xiang, 2013; Spencer, 2008). Crowding out effects may be the result of three different mechanisms: the first is the micro and manifests through competition, the second is macroeconomic and manifests itself through the "Dutch disease" and the third is institutional and is manifested through elitist distortions.

From a microeconomic perspective, MNCs can oust local businesses where their technological superiority, managerial and financial allows them to establish positions of monopolies or quasi- monopolies and crush the local competition. In this case, FDI can create barriers to entry that small local firms (formal or informal) cannot exceed (Brainard; Helpman, Melitz, & Yeaple, 2003; Markusen & Venables, 1999). Furthermore, others factors can spark the competition in the market. In fact, the demand for foreign firms in labor and capital could increase their prices. In this case, local firms could disappear because of their inability to overcome the increase in factor prices.

Macroeconomic mechanism is observed if the FMN is oriented towards the exploitation of natural resources. Indeed, the economic literature shows that in this case the foreign investments may disadvantage local

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industries through a process type "Dutch disease" (Corden, 1984; Krugman, 1987). Thus, the increase in exports of natural resources implies a spending effect, an increase in the real effective exchange rate, which indicates a loss of competitiveness of other non-extractive tradable sectors (Sachs & Warner, 1997).

Institutionally, the economic literature shows that when countries with poor institutions receive substantial FDI flows through the exploitation of their natural resources, they may know the mechanisms of political and economic distortions to the monopolization of the rents by elites. These institutional distortions materialize particularly in the creation of barriers facing the emergence of new centers of economic power that may constitute manufacturing. Therefore, FDI, strengthening poor governance, contribute indirectly to the crowding-out of domestic investment (Farla, de Crombrughe, & Verspagen, 2013; Rodrik & Velasco, 1999; Sachs & Warner, 1997).

- **Crowding-in effect**

FDI may have stimulatory effects on local investment, which is likely to promote long-term growth, job creation and poverty reduction. The stimulus may go through three main channels.

First, the competition between MNCs and local firms is likely to improve the productivity of factors. This competition is an economic mechanism of selection of the most productive firms. Thus, although some short-term local businesses are squeezed out in the long run new firms appear to offset the initial negative effect. In this context, technology transfer from FMN to the local sector can help increase overall productivity (Chen, 2004; Desai, Foley, & Hines Jr, 2005; Meyer & Sinani, 2009).

Second, the FMN far from competing local industry can build new markets. The quality standards of foreign companies are generally more important than local standards; they grow local businesses to improve the quality of their offering. The market has now become broader attracts new local investors and can promote the transfer of the informal to the formal sector(Hejazi & Pauly, 2003).

Thirdly, foreign direct investment may promote domestic investment when reduce the constraints inherent to the investment climate of the host country. Thus, FDI may help improve physical infrastructure (Arvis,

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Mustra, Panzer, Ojala, & Naula, 2007; Dunning, 1998). Similarly, they can improve the quality of financial market when interested in banking sector. Finally, they can encourage domestic investment when tax revenues from foreign firms are invested by the State in programs to upgrade and incentives for entrepreneurship.

The impacts of FDI in the host country

The impacts of FDI in host countries have been the subject of an extensive literature. Studies focus particularly on the effects of FDI on technology transfer, training of human capital capable of mastering these technologies, exports and foreign trade.

However, de Mello Jr (1997) finds that, according to the case, the entry of foreign direct investment is not necessarily beneficial with regard to the host country. The author divides his sample of countries into two parts: the group of "leaders" who introduce technological innovations (developed countries) and the group of followers (developing countries) that import technologies from developed countries. The effects of foreign direct investment are generally positive on production in the two groups of countries. The effects are also positive on total factor productivity in developed countries but negative contrast on productivity in developing countries. This result is explained by the fact that the follower countries are only using new technology without real absorption.

The developed countries are however a substitution effect and diffusion of new technologies compared to existing ones, resulting in more efficient production. We can also interpret these results otherwise. Accompanied the technological transfer of inward foreign direct investment flows will be beneficial to the host country if it already has a fairly advanced level of ownership of the technology or if it has a high level of economic growth. UNCTAD has tested the relationship between FDI and exports in a simple model covering 33 developing countries in 1995 (UNCTAD 1999, p. 246-47).

Table 1 The impact of FDI in the host country

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	Technology transfer	Human capital	Exports and foreign trade
FDI,	Diffusion of technical progress by spillovers (Blomström & Sjöholm, 1999; Borensztein, De Gregorio, & Lee, 1998; de Mello Jr, 1997; Dunning, 2013)	Training local employees of subsidiaries and imitation effects in the industrial sector (Blomström & Sjöholm, 1999; Damijan, Rojec, Majcen, & Knell, 2012; Görg & Strobl, 2005)	MNC encourages domestic firms to export and improve their efficiency (Aitken, Hanson, & Harrison, 1997; Dunning, 1998, 2013; Saggi, 2002; Zhang & Song, 2002)
	Acquisition of new technical and Managerial organizational (Borensztein et al., 1998; Ekperiware & Adepoju, 2013; Jovanovic & Rob, 1989; Nelson & Phelps, 1966; Rugman, 2013)	Reinforcement of educational institutions of the host country (Checchi, De Simone, & Faini, 2007; Ghosh & Mastromarco, 2013; Ritchie, 2001; Stiglitz, 2002)	Creation of local small businesses export-oriented (Leigh & Blakely, 2013; Poddar, 2004; Rhee, Belot, & mondiale, 1990)
	Improvement of technological innovation and managerial skills (Borensztein et al., 1998; Cheung & Lin, 2004; Liu & Buck, 2007; Obwona, 2001)		"virtual foreign enclaves" within the host country (Jun, Pham, Kwakwa, Peters Jr, & Ton, 1997; Singh & Jun, 1995)

Source: Created by the authors from the literature

The interest of the analysis is to decompose exports by technological intensity. Regressions show a positive and significant relationship: a 1% increase in FDI per capita in a country is associated with an increase of 0.45% of total manufacturing exports. The elasticity appears higher (0.78) to the most intensive exports technology. Among other explanatory variables, R&D and manufacturing value added per capita are also significant. These results can be criticized insofar as they do not establish a direct causal; they nevertheless suggest that FDI can be a factor supporting exports.

Hypothesis 1: FDI exert creative destruction on domestic investment through a foreclosure short-term and long-term stimulation in the WAEMU countries

Remittances of Migrants (RM) and domestic investment

To summarize, the RM has a direct impact on investment through entrepreneurship. These flows allow migrant families to create or fund primarily small businesses. These investments may take place during the

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period of migration and return migrant. Therefore, the effect of RM on entrepreneurship corresponds to logic of maximizing household income, motivated by altruism, but also by the investment pattern. Despite this stimulatory effect of RM on domestic investments, some limits are raised by a more marginal section of the literature. The influx of RM encourages migration and disinherits national economies of skilled labor, which tends to increase the cost of labor for local businesses.

Table 2 The impacts of RM on domestic investment

	Crowding-in effects of RM	Crowding-out effects of RM
Domestic investment	The decision to become an entrepreneur (startup, microenterprises) is made based on the potential salary for work on the domestic labor market in the first place (Docquier, 2005; Donato, Durand, & Massey, 1992; Durand, Parrado, & Massey, 1996; Woodruff & Zenteno, 2001).	RM may cause an increase in demand for imported goods and discourage domestic investment (De Haas, 2007; Gubert, 2005; Rodríguez, 2013)
	"Return migration" (the migrants who return home after a period of activity abroad), diaspora entrepreneurship, transnational immigrant entrepreneurs impacted local businesses (Chrysostome & Lin, 2010; Dustmann & Kirchkamp, 2002; Mesnard, 2004).	RM may also cause inflation, appreciation of the real exchange rate, reduction the competitiveness of domestic firms and markets (because exports and imports become expensive) ¹ and attenuation of well- being of families who do not receive transfers (Acosta, Lartey, & Mandelman, 2009; Chami, Fullenkamp, & Jahjah, 2003; Fayad, 2010, 2011; Lartey, Mandelman, & Acosta, 2008; Makhoul & Mughal, 2011; McCormick & Wahba, 2000).
	RM have a positive impact on rural productivity (Clark & Drinkwater, 2008; De Haas, 2010; Ratha & Mohapatra, 2009; Rozelle, Taylor, & DeBrauw, 1999).	Local communities that receive RM tend to develop a culture of dependency and vulnerability (Brown, Connell, & Jimenez - Soto, 2013; Gubert, 2005; Tall, 2005).

Source: Created by the authors from the literature

Hypothesis 2: The remittances from migrants stimulate domestic investment in both the short and long term in the WAEMU zone.

Foreign aid and domestic investment

¹ If the increase in demand is greater than the increase in production capacity of the national economy

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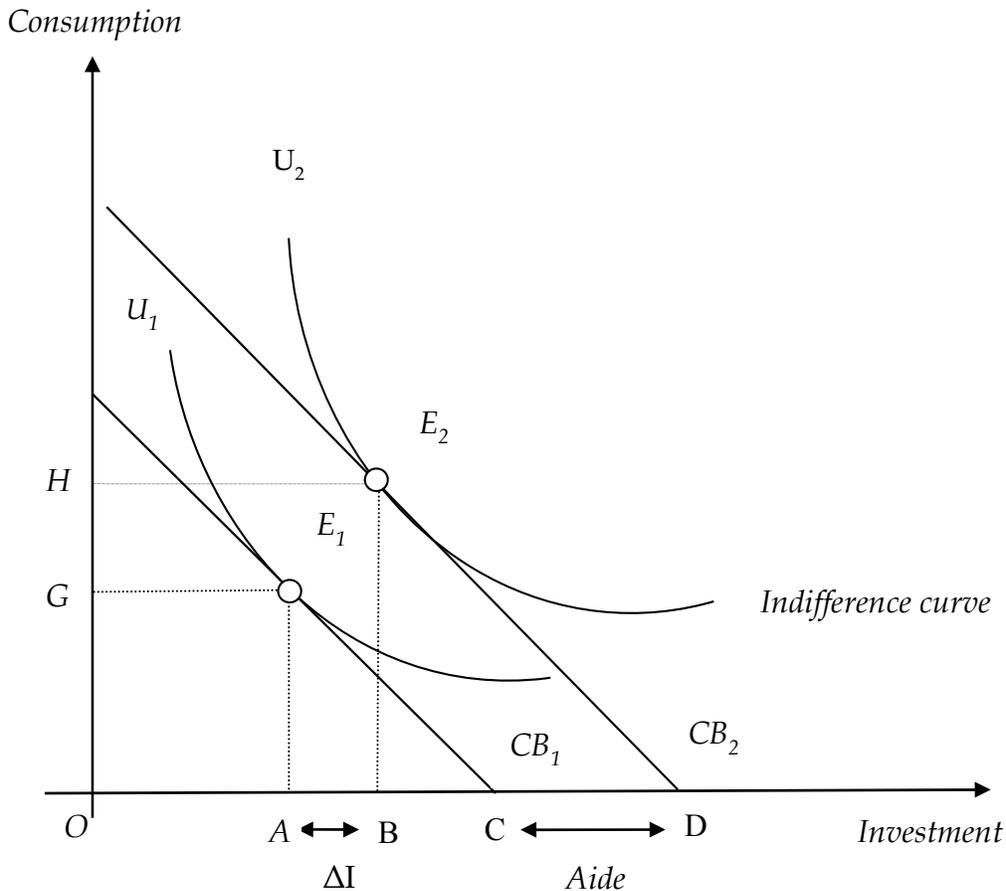
The impact of foreign aid on domestic investment is a phenomenon studied in the economic literature on international aid. Several empirical analyzes (Dollar & Easterly, 1999; Griffin, 1970; Selaya & Sunesen, 2012; Tingley, 2010) showed that international aid encourages consumption more than investment. The reason most often cited to explain such a phenomenon is the diversion of aid from its original purpose. Aid funds do not go only for investment, and part would indeed be diverted for other purposes such as financing of final consumer goods and corruption. But there is another reason that is not lower and validly explains the increase in consumption following the granting of foreign aid: the "fungible" nature (or the "fungibility") of international aid. According to (Collier & Dollar, 2004) as Sandefur (2006)², aid to strengthen domestic investment (health or education) frees local resources that the government can use at will. It may in particular those resources freed for consumption. This is commonly referred to as the "fungibility" of international aid. The figure (1) below illustrates this phenomenon.

We assume that the government of the recipient country's budget allocates two types of goods: a good final consumption and investment property. Suppose further that the government has a preference for the commodity. However, it must meet a minimum level of investment property in the country to avoid the discontent of the population. Under these conditions, at equilibrium, the government allocates to investment property, the exact amount necessary to prevent popular discontent and the rest of the budget will be devoted to the welfare of final consumption. This situation is shown on the figure above by point E1. The Government allocates [OA] to the asset and [OG] to commodity. It is thus the indifference curve U 1. A "benefactor" institution then offers to help poor countries. It gives him this aid amount [CD] for financing the investment property (textbook example). The government budget constraint shifts from CB1 to CB2. How then will increase the volume of investment property?

Figure 1 Illustration of aid fungibility

² Sandefur, J. The Economics of Foreign Aid Lecture I.

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Source: created by the authors

As the figure shows, the volume of investment property will increase by less than the amount of aid received. This occurs even if the donor ensures that all aid is devoted to investment property. One can indeed imagine if the aid is not in cash but in kind (sending textbooks). In this case, the government of the recipient country with a preference for the good of final consumption will simply readjust the allocation of its domestic resources in order to maximize its usefulness. A certain amount of its budget (here $[GH]$), which was originally dedicated to the asset will now be allocated to the welfare of final consumption. It will thus find the equilibrium point E_2 . Although all the help received is invested in increasing the volume of investment property (here $\Delta I = [AB]$) will be less than the aid received (here $[CD]$). Thus, in our example, the aid is not diverted from its original purpose (investment), but ousted domestic investment: this is the "fungibility" of aid.

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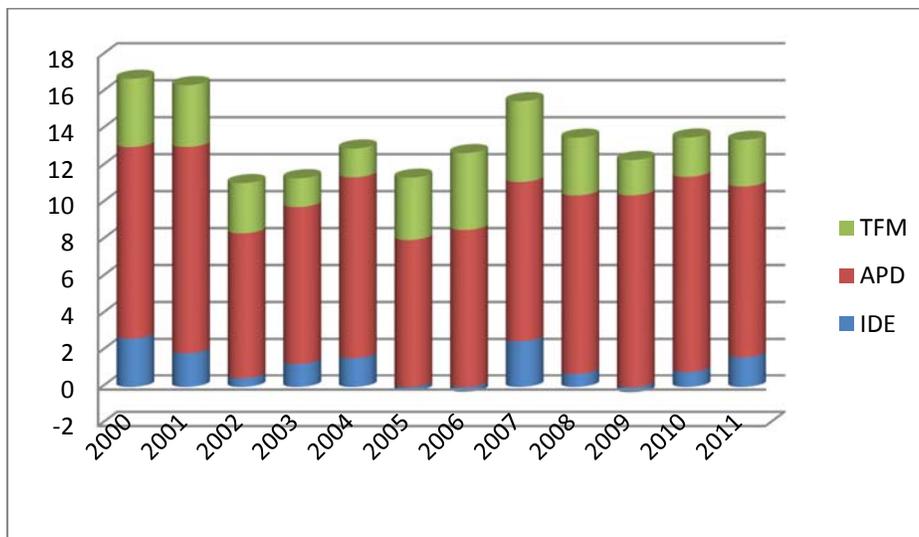
Obviously, we can consider that the allocation of international aid affects not only the budget constraint of the recipient country, but also the relative prices between goods. In this case, the budget constraint will pivot instead of moving parallel to the right. The net effect of foreign aid on the allocation of resources in the recipient country will nevertheless similar to that shown above.

Hypothesis 3: Public development aid crowd out domestic investment in both the short and long term in the WAEMU

Distribution of external financial flows in the WAEMU

The WAEMU attracts several types of foreign capital that official development assistance, foreign direct investment and remittances from migrants.

Figure 2 Distribution of foreign capital inflows in the WAEMU (% GDP)



Source: created by the authors based on WDI

These foreign capitals affect different countries in the sub-region through their influence on different sectors of the economy. But this influence depends on the proportion that the capital involved in the domestic product of the country. Over the period 2000-2011, public aid for development occupies a relatively larger share in GDP of the countries of WAEMU. The figure 2 above displays the balance of ODA in the GDP of the WAEMU area countries.

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Methodology of research

The theoretical model

This work leans on the study of Agosin and Mayer (2000). Indeed, these authors define domestic investment as a capital accumulation process that is based on adaptive behaviors involving dynamic adjustment and correction based on its past achievements and current and past achievements of other economic factors. They develop a theoretical model that explains the relationship between domestic investment and foreign investment. The initial premise of this model is based on the idea that domestic investment ($I_{i,t}$) is the sum of local investments ($LI_{i,t}$) and real foreign investment ($RFI_{i,t}$):

$$I_{i,t} = LI_{i,t} + RFI_{i,t} \quad (1)$$

Local investment ($LI_{i,t}$) is a fitting function between the desired capital stock and the existing capital stock . Thus, the desired stock depends itself, on the expected growth that follows an adaptive adjustment process incorporating its earlier statements. The real capital stock depends on the depreciation rate of capital and the real domestic investment in the previous year. The real foreign investment ($RFI_{i,t}$) is a function of FDI. It is a proportion of current FDI and past IDE whose actual realization occurs only after a certain time of financial achievement.

Based on these hypothesizes, Agosin and Mayer (2000) construct a theoretical model explaining the relationship between domestic investment, economic growth and FDI. This model leads to the following equation:

$$I_{i,t} = \alpha_i + \beta_1 FDI_{i,t} + \beta_2 FDI_{i,t-1} + \beta_3 FDI_{i,t-2} + \beta_4 I_{i,t-1} + \beta_5 I_{i,t-2} + \beta_6 G_{i,t-1} + \beta_7 G_{i,t-2} + \varepsilon_{i,t} \quad (2)$$

Where

$(I_{i,t})$ is the domestic investment of country i in year t .

$FDI_{i,t-j}$ are the FDI of country i in year $t-j$, with j between 0 and 2.

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$G_{i,t-j}$ is the economic growth of country i in year $t-j$, with j between 0 and 2.

ε_i is the error term relative to country i in year t .

This model is an appropriate development of our econometric study theoretical basis. However, it does not introduce the effects of instrumental variables on domestic investment. These variables are exogenous and crucial to the comprehension of domestic investment variations. They may in particular represent the specific characteristics of WAEMU countries such as institutional, financial, geographical, human and physical constraints.

The empirical model

We adapt the function (2) for the region of study to estimate the effect of different types of foreign capital such as Migrant Remittances (MT), Public Development Aid (ODA) and Direct Investment foreign (FDI) on domestic investment in WAEMU countries. To this end, we add a matrix of instrumental variables that represent the specificities of WAEMU countries. In addition, we reduce the number of delays applied to foreign capital and domestic investment to limit the loss of information. The estimation strategy adopted is to estimate separately the effect of MT, ODA and FDI on domestic investment in the WAEMU. The model to be estimated is then as follows:

$$DInv_{i,t} = \alpha_i + \lambda_1 DInv_{i,t-1} + \lambda_2 FCF_{i,t} + \lambda_3 FCF_{i,t-1} + \alpha_k X'_{i,j,k} + \gamma_k Y'_{i,j,k} + \varepsilon_{i,t} \quad (3)$$

In this equation we can distinguish three groups of explanatory variables of domestic investment:

- The first group contains as shown in the theoretical model of Agosin and Mayer (2000), delayed domestic investments ($DInv_{i,t-1}$), current foreign capital flows ($FCF_{i,t}$) and delayed foreign capital flows ($FCF_{i,t-1}$). In our various estimates, the variable FCF will be replaced by its components that are Migrants Remittances flows (MR), Official Development Assistance flows (ODA) and Foreign Direct Investment flows (FDI) to estimate separately their influence on domestic investment.

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- The second group of variables ($X'_{i,j,k}$) contains variables directly related to the domestic investment process and may be endogenous. As such, we estimate the effects of growth, trade openness, effective exchange rate, exports of natural resources and education.
- The third group of explanatory variables ($Y'_{i,j,k}$) contains variables supposed to be strictly exogenous and/or predetermined. These variables are independent of model errors process but correlated to some extent with other explanatory variables of the first and second group (Lahimer, 2009). Thus, infrastructures, bank credit, and institutional variables are part of this group of explanatory variables.

Testing for crowding in or crowding out effects

The estimation of the equation (3) permits to find out the effects of foreign capital on domestic investment at different time horizons. In this regard, the short-term effects of external capital are given by the value and significance of their coefficient in the regressions. The long-term effects are deducted using the following coefficient:

$$\lambda_{LT} = \frac{\lambda_2 + \lambda_3}{1 - \lambda_1} \quad (4)$$

With λ_{LT} the long term coefficient of the explanatory variable FCF (MR, ODA or FDI according to the type of capital included in each regression). λ_2 is the current foreign capital coefficient ; λ_3 is the delayed foreign capital coefficient and λ_1 is the delayed domestic investments coefficient.

The value and significance of λ of short and long term permit to qualify the impact of international capital on domestic investment. Thus, we can distinguish three cases:

- If λ is significant and greater than 1, then the external capitals have a crowding in effect on domestic investment. Therefore, domestic investment increases more proportionally than foreign capitals.

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- If λ is significant and less than 1, then the external capitals have a crowding out effect on domestic investment. Whereof, domestic investment increases less proportionally than foreign capitals.
- If λ is significant and equal to 1, then the effect of international capital on domestic investments is neutral. Thus, domestic investment increases proportionally with foreign capitals.

On the whole, if we exclude the neutral effect, we can distinguish four cases depending on the nature and time horizon of the effect of foreign capital on domestic investment. The following table 1 summarizes the different possible cases:

Table 3: External capital effects on domestic investment

	<i>Short term coefficient</i>	<i>Long term coefficient</i>	<i>Effect nature</i>
<i>1st case</i>	$\lambda_{CT} < 1$	$\lambda_{LT} > 1$	<i>Creative destruction</i>
<i>2nd case</i>	$\lambda_{CT} < 1$	$\lambda_{LT} < 1$	<i>Crowding out</i>
<i>3rd case</i>	$\lambda_{CT} > 1$	$\lambda_{LT} > 1$	<i>Crowding in</i>
<i>4th case</i>	$\lambda_{CT} > 1$	$\lambda_{LT} < 1$	<i>Transitory stimulation</i>

In the first case, we have a crowding out effect in short term and a crowding in effect in long term. The combination of those two effects gives what we call "creative destruction effect". Thus, the destruction of local firms in short term is balanced by the creation of new firms more productive in long term.

In the second case, we have a crowding out effect in short term and in long term. Thus, the destruction of local firms in short term continues in long term. In this case, foreign capitals lead to disinvestment in local sector that they compete. In the third case, we have a crowding in effect in short term and in long term. Thus, external capitals stimulate domestic investment in short term but as well in long term. The last case has the opposite effect in the first case. Indeed, we have a crowding in effect in short term and a crowding out effect in long term. On the whole, we obtain a transitory stimulation effect. The destructive effects in

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long term exceed the initial stimulatory effects. Thus, the crowding in effect in short term dissipates as external capitals increase.

Empirical analysis

Data and estimate method

The data used are annual and extracted from world bank database. They cover the period 1996-2011. We build a balanced panel on the WAEMU countries for our econometrical analysis. Thus, we estimate a dynamic panel model to evaluate external financial flows effects on domestic investment. To this end, the Generalized Moments Method (GMM) is used to favour the analysis of dynamic adjustment. In concrete terms, the dynamic relationships are characterized by the presence of the lagged endogenous variable of one period in the list of explanatory variables.

Estimates results

Before any estimate, we test the unit root presence with each variable. To this end, we use the unit root tests on the basis of two hypotheses. The first one supposes that individuals of our panel are homogeneous (common unit root). It is illustrated in the test of Levin, Lin and Chu. The second hypothesis implies that individuals are heterogeneous and have different unit roots. It is tested by Im, Pearson and Shin methods, ADF -Fisher and PP- Fisher. The unit root tests for the different variables are performed using Eviews7. The results indicate that the most of the variables in the different hypothesis presented above are stationary. However, some variables such as domestic investment, trade openness, credit, political stability and violence absence and migrant remittances are integrated of order 1 and therefore stationary in first difference.

In addition, the statistical robustness of the results depends on the validity of the specification tests, mainly, the over-identification test of Sargan and autocorrelation of 2nd order test. In our different regressions the Sargan test does not reject the null hypothesis of over-identification of the model. That validates the quality of instruments. As regard autocorrelation, tests do not reject the hypothesis of non- correlation of second

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order in all of the three regressions. That legitimizes the estimating equation in first differences under the hypothesis of initial perturbations independence. Thus, the specification tests validate the statistical exhaustiveness of the empirical model. That allows the interpretation of the coefficients of the explanatory variables. The results of the different estimates using stata11 are summarized in Table 4 below.

Table 4 : Estimates results

<i>Model with FDI</i>		<i>Model with ODA</i>		<i>Model with MR</i>	
<i>Variables</i>	<i>Coefficient</i>	<i>Variables</i>	<i>Coefficient</i>	<i>Variables</i>	<i>Coefficient</i>
<i>DInv (-1)</i>	- 0,42*** (- 5,37)	<i>DInv (-1)</i>	- 0,42*** (- 6,02)	<i>DInv (-1)</i>	- 0,40*** (-5,78)
<i>FDI</i>	- 0,17* (-1,92)	<i>ODA</i>	0,18** (2,14)	<i>MR</i>	-0,53 (-0,16)
<i>FDI (-1)</i>	0,16 (1,02)	<i>ODA (-1)</i>	- 0,14* (- 1,79)	<i>MR (-1)</i>	0,08 (0,28)
<i>EGR</i>	0,04 (0,34)	<i>EGR</i>	0,01 (0,10)	<i>EGR</i>	- 0,01 (- 0,12)
<i>TOR</i>	19,04*** (5,72)	<i>TOR</i>	18,17*** (5,81)	<i>TOR</i>	16,74*** (5,59)
<i>PSVA</i>	0,63 (0,82)	<i>PSVA</i>	0,31 (0,46)	<i>PSVA</i>	0,30 (0,45)
<i>CCont</i>	0,66 (0,50)	<i>CCont</i>	1,79 (1,29)	<i>ManEx</i>	0,04* (1,68)
<i>Credit</i>	0,07 (0,78)	<i>Credit</i>	0,07 (0,84)	<i>ExRNat</i>	0,04 (1,52)
<i>DEpar</i>	0,31*** (4,00)	<i>RER</i>	0,41*** (3,85)	<i>RER</i>	0,63*** (6,12)
		<i>GEff</i>	- 1,66 (- 0,98)	<i>PavR</i>	0,12* (1,77)
		<i>PavR</i>	0,11 (1,50)		

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<i>Model with FDI</i>		<i>Model with ODA</i>		<i>Model with MR</i>	
<i>Sargan Test</i>	81,99 (0,14)	<i>Sargan Test</i>	87,24 (0,07)	<i>Test de Sargan</i>	88,63 (0,06)
<i>Autocorrelation</i>	- 4,54 (0,00)	<i>Autocorrelation</i>	- 4,01 (0,00)	<i>Autocorrélation</i>	- 4,09 (0,00)
<i>1st order</i>		<i>1st order</i>		<i>1st order</i>	
<i>Autocorrelation</i>	- 0,99 (0,35)	<i>Autocorrelation</i>	- 1,34 (0,18)	<i>Autocorrelation</i>	- 0,66 (0,51)
<i>2nd order</i>		<i>2nd order</i>		<i>2nd order</i>	

Notes : Between parenthesis are indicated z statistics

() = significant at 10%; (**) = significant at 5% ; (***) = significant at 1%*

The estimates' results show through the negative and significant coefficient of the delayed investments [INVD (-1)] that domestic investment is a dynamic but not cumulative process. Thus, an increase in investment of the previous year (t-1) of one point would reduce domestic investment in the current year (t) of 0.40 to 0.42 point in the WAEMU. Therefore, the domestic investment is a decreasing function of the stock of last investment.

The effects of FDI on domestic investment in the WAEMU

The model with FDI shows that the FDI coefficient is significant and negative. Therefore, FDI have a negative effect on domestic investment. Thus, an increase in FDI of one point implies a decrease in domestic investments of 0.17 point in short term. Therefore, FDI have a crowding out effect on domestic investment in short term. This crowding out effect is so important that the short term coefficient is negative. The FDI long term effect on domestic investment is calculated using the formula 4 presented above. The results are shown in table 5.

Table 5 Long term FDI effects on domestic investment

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<i>DInv (-1)</i>	$[\lambda_1]$	- 0,42
<i>FDI</i>	$[\lambda_1]$	- 0,17
<i>FDI(-1)</i>	$[\lambda_1]$	0,16
$\lambda_{LT} = \frac{\lambda_2 + \lambda_3}{1 - \lambda_1}$		- 0,01

From these results, an increase in FDI of one point causes a decrease in domestic investments of 0.01 point in long term. This coefficient is less than 1 and moreover negative. That indicates a long term crowding out effect. Thus, FDI have a crowding out effect in short term and in long term on domestic investment. In other words, the presence of multinational firms in the WAEMU countries has a crowding out effect on local firms in short term as well as in long term. Thus, the hypothesis of a creative destruction effect of FDI on domestic investment is set aside in favor of a sustainable destruction effect. Foreign firms have a persistent crowding out effect on domestic firms in the WAEMU countries. These results are similar to those obtained by Lahimer (2009) with a panel of 42 Saharan Africa countries including those of the WAEMU.

This persistent crowding out effect on local firms can be explained by their inability to contain competition imposed by foreign companies. Indeed, multinational firms have a technological, managerial and financial advantage allowing them to evict domestic firms on factors market as well as on products market. Thus, the presence of these multinationals in WAEMU countries is not conducive to the transmission of technology to local firms. Indeed, domestic firms have a very low technological absorption capacity. In addition, foreign companies don't employ local labour in jobs which can permit them to get benefit from learning effects. We can also explain this crowding out effect by the lack of complementarity between local firms and foreign companies. In sum, the low capacity to absorb technology and the lack of complementarity between multinational and local firms hinder technology transfer in favor of the latter.

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The effects of ODA on domestic investment in the WAEMU

The model with ODA shows that the ODA coefficient is significant and positive. Thus, official development assistances have a positive effect on domestic investment. Therefore, an increase in ODA of one point causes an increase in domestic investment of 0.18 point in short term. However, this coefficient is less than 1 and reflects a crowding out effect on domestic investment. The assistances enjoyed by WAEMU countries have a crowding out effect on domestic investment in those countries in short term. This crowding out effect is so confirmed that the delayed ODA coefficient is significant and negative. In addition to the short term effect, we estimate the ODA effect on domestic investments in long term. To this end, we calculate the ODA long term coefficient in the following table.

Table 6 Long term ODA effects on domestic investment

<i>InoD(-1)</i>	$[\lambda_1]$	- 0,42
<i>APD</i>	$[\lambda_1]$	0,18
<i>APD(-1)</i>	$[\lambda_1]$	- 0,14
$\lambda_{LT} = \frac{\lambda_2 + \lambda_3}{1 - \lambda_1}$		0,03

The long term coefficient of ODA is equal to 0.03. The positive sign of this coefficient shows that official development assistances have a positive effect on domestic investment in long term. Thus, an increase in ODA of one point implies an increase in domestic investment of 0.03 points in the long term. However, this coefficient is less than 1 and reflects a crowding out effect. Therefore, ODA have a crowding out effect on domestic investment in long term in WAEMU countries. The crowding out effect of short term is then confirmed in long term. In others words, ODA have a durable eviction effect on domestic investment. That

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can be explained by the fungible character of foreign assistances. Thus, ODA would bring the WAEMU countries to reduce the share devoted to investment in their budgets. As international assistance is often earmarked for investment, the authorities readjust the allocation of local resources by focusing on final consumption expenditure such as operating expenses of administration. This "opportunist" behavior causes a relative decline in public investments which constitute a substantial share of domestic investment. Foreign assistances exert then a crowding out effect on domestic investment by substituting for public investment.

The effects of RM on domestic investment in the WAEMU

The model with MR shows that the remittances from migrants do not affect domestic investment in the WAEMU countries. Indeed, the MR coefficient is not statistically significant in the regression. Therefore, migrants' remittances have no effect on domestic investment neither in short term or in long term. This result is explained by the preponderance of current consumption for reasons of migrants' transfer in WAEMU region. Indeed, the funds received in the union are affected up to 54.6% for consumption; real estate investment and other investments represent respectively 15.8 % and 5.5% of transfers received (BCEAO ; 2013). Thus, Migrants opt for long migrations and their remittances are primarily used for immediate consumption of their families. These migrants are not interested in entrepreneurship in their countries of origin because they do not intend to return permanently. So they just prefer send what is necessary to maintain their families and the rest of their savings is invested abroad. On the whole, the predominance of the consumption on the investment explains the non-determinism of the relationship between migrants' remittances and domestic investment in the WAEMU countries.

The effects of variables of control on domestic investment

The variables of control are the variables of the second and third group of Equation 3. They are used to control the strength of the different models. It is basically economic growth, trade openness, exports, savings, infrastructures and institutional variables (confer annex 1).

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Regarding economic growth, the results indicate a non-significant coefficient in all of our regressions. Therefore the economic growth rate does not explain the domestic investment evolution in the WAEMU countries. That may be explained by the bad visibility of investors concerning future economic conditions and the lack of an adaptive expectations behavior. Local investors have a short term behavior and their decisions are limited by the constraints of subsistence. This "myopia" generally characterizes the behavior of poor people whose rationality is limited by the need and vulnerability. It is also a characteristic of individuals with high risk aversion. Thus, uncertainty cyclical requires investors in WAEMU region to diversify their activities and to base their expectations on short term horizons to reduce the potential risks they face. Consequently, economic growth does not influence the investment decision of entrepreneurs.

As regard the trade openness, it is indicated by two variables namely the trade openness ratio and the manufacturing exports. The coefficient of trade openness ratio is significant and positive in all of the regressions. Thus, an increase in this ratio of one point induces an increase in domestic investment from 16.74 to 19.04 points. So the opening of the economies of the WAEMU region encourages seriously local investors. This result is understandable because the majority of entrepreneurs in the region are net importers. In addition, regional integration promotes trade between the countries of the zone and encourages production companies to expand their investments to get benefit from the Community market. The positive effect of manufacturing exports confirms this analysis. Indeed, the coefficient of manufacturing exports is significant and positive in the model with MR. Thus, an increase in manufacturing exports of one point is followed by an increase in domestic investment of 0.04 points. This result confirms the catalyst effect of manufacturing exports on the local industry (Elbadawi, 1999).

Roads infrastructures influence also significantly and positively domestic investment in the economies of WAEMU. Indeed, an increase in the percentage of paved roads of one point leads to an increase in domestic investment of 0.12 point. Contributing to the revitalization of economic activities, the road infrastructures encourage local entrepreneurs to consolidate their investments. Likewise, domestic saving influences significantly and positively domestic investment. Thus, an increase in saving of one point induces an

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increase in domestic investment of 0.31 points. This result shows that local entrepreneurs resort to the domestic savings for their investments.

As regard the real exchange rate, it also influences significantly and positively local investment. Thus, an appreciation of the real exchange rate of one point leads to an increase in domestic investment from 0.41 to 0.63 points. This is explained by the preponderance of imports business within the zone. Those enterprises benefit from the appreciation of the exchange rate to diversify their investments. On the other hand, institutional variables are not significant in any of our regressions. This seems to corroborate the results of Lahimer (2009) who found that institutional variables do not affect the level of domestic investment in the economies of Saharan Africa. Likewise, the natural resources exports coefficient is not statistically significant.

Conclusion

The present study was devoted to the analysis of the effect of different types of foreign capital such as FDI, ODA and Remittances of Migrants (RM) on domestic investment in WAEMU countries. To this end, three hypotheses were tested: the first states that FDI has a creative destruction effect on domestic investment. As to the second hypothesis, it assumes that ODA displace domestic investment both in the short and long term. Regarding the third hypothesis, it indicates that the RM stimulates local investment in the short term but also long term. At the end of the econometric analysis, only the second hypothesis was confirmed. Thus, the results show that ODA have a lasting crowding out domestic investment. However, assumptions about the influence of FDI and remittances on domestic investments were reversed. Thus, the econometric results refute the hypothesis of creative destruction by FDI for sustainable destruction. MNCs therefore displace local businesses both in the short and long term in the WAEMU countries. Similarly, assuming a sustainable stimulation exerted by the TFM is reversed. Econometric estimates show that remittances migrants do not have a significant effect on domestic investment in the union. Any of various types of foreign capital considered therefore generates sufficient positive externalities to stimulate domestic investment. However

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these external capitals permanently displace local investors. This thesis has proposed measures to make it more sustainable coexistence between external financial flows and domestic investment.

Practically, the results of this study show that multinationals have a lasting crowding out businesses in the sub-region. This is mainly due to the low technological absorption capacity of local firms and the lack of complementarity between them and multinationals. Given all this, we recommend that local contractors to work to benefit from the positive externalities associated with the presence of these foreign companies. For this purpose, it is necessary to WAEMU countries to strengthen the technological permeability and facilitate the transfer of technology between multinationals and local firms. Policy leaders may encourage enterprise to organize periodic continuous on behalf of employees to strengthen their professional and technical skills training and Invest in R&D in order to generate innovations that will reduce the vulnerability of domestic firms in global environment. Future research need to be done about how member states of the WAEMU and especially African countries could implement measures that could cause multinationals to employ qualified nationals in positions that facilitate the transfer of technology to local. The implementation of these measures can help to capture the investments of nationals of the union based abroad in order to increase their contribution to the financing of investments in community space, the issue of " diaspora bonds " is indicated to that effect. African countries recognize the roles of diaspora in the continent development. However, empirical studies are needed to apprehend the impacts of RM on the local business in developing countries.

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Annexes

Annex 1 List of variables of control (annex)

<i>Variables</i>	<i>Indicators</i>	<i>Designation</i>	<i>Source</i>
Economic growth	Economic growth rate	EGR	WDI

External financial flows and domestic investment in the economies of WAEMU

<i>Trade openness</i>	<i>Trade openness rate</i>	<i>TOR</i>	WDI
<i>Naturel ressources</i>	<i>Oil, ores and metals exports (percentage of total of exports)</i>	<i>NREx</i>	WDI
<i>Infrastructures</i>	<i>Paved roads (percentage of total of roads)</i>	<i>PavR</i>	WDI
<i>Institutions</i>	<i>Corruption control, governance efficacy, politic stability and violence absence</i>	<i>CCont, GEff, PSVA</i>	WDI
<i>Manufacturing exports</i>	<i>Manufacturing exports (percentage of total of exports)</i>	<i>ManEx</i>	WDI
<i>Exchange rate</i>	<i>Real exchange rate</i>	<i>RER</i>	WDI
<i>Domestic saving</i>	<i>Domestic saving rate</i>	<i>DomS</i>	WDI
<i>Bank credit</i>	<i>Domestic credit (percentage of the GDP)</i>	<i>Credit</i>	WDI