

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)



Jean Robert Mounkala

Lecturer, Marien Ngouabi University, Faculty of Economics.

ABSTRACT: The objective of this paper is to identify the factors of attractiveness of private capital flow (foreign direct investment and portfolio investment) in CEMAC over the period 2005-2019. To do so, we used the generalized moment model (two-step system and the static CGM model). Our main results show that the selected variables have positive and negative impacts on capital inflows into CEMAC. This implies improving the business climate, easing administrative procedures, and encouraging and facilitating the creation of businesses in order to make the sub region more attractive.

KEYWORDS: FDI, portfolio investment, private capital, CEMAC

I. INTRODUCTION

The liberalization of economies, combined with new information and communication technologies (NICTs), has favored capital mobility, particularly since the 2000s. The literature documents that private and public investments constitute the basis of the dynamism of economic activity and in return have a positive and significant influence on economic growth. Private capital is seen as a source of employment as well as financing because it is highly beneficial to countries that derive most of their revenues either from taxes from multinational companies or from revenues generated by the exploitation of resources produced by them (Ghazanchyan and Stotsky, 2013). Thus, developing countries in general, and CEMAC in particular, need large inflows of external resources to fill their savings gap in order to overcome widespread poverty and achieve an acceptable standard of living.

According to a report by the United States Conference on Trade and Financial Development (UNCTAD, 2018), globally, the United States in 2017 remained the largest recipient of FDI, attracting \$275 billion in inflows, followed by China, with record inflows of \$136 billion. FDI inflows to developing countries remained close to their 2016 level of \$671 billion. FDI flows to Africa continued to decline, while flows to Asia remained stable, and those to Latin America and the Caribbean increased slightly. Portfolio investment (PORT) in the world in 2017 was -

\$194.3 million according to the International Monetary Fund 2022 Balance of Payments. This resilience of FDI during financial crises could lead many developing countries to view it as the capital inflow of choice. (Loungani, 2001).

Over the past few decades, several authors have focused on the study of private capital in the world, consisting of debt, portfolio investment, FDI and real estate investment. In the same vein, this study attempts to identify the various determinants of capital flows and their impact on economic activity in the various CEMAC countries over the period 2005 to 2019. We focus here solely on FDI and PORT.

This problem is particularly acute because these countries have a number of handicaps, including an underdeveloped financial sector, a low level of infrastructure, an embryonic financial market, recurrent political instability, a volatile security context caused by the weak capacity of governments to deal with security problems, and a lack of good resource management. We can also add the non-diversification of these economies, which are essentially based on the marketing of raw materials and are mainly extroverted. In this context, it would be difficult for investors to choose these countries that do not have stable macroeconomic, political and social conditions.

Thus, our problem is as follows: what are the factors that guide foreign capital? Does this foreign capital have an impact on the economic growth of CEMAC countries?

The general objective of this research is to determine the factors that influence the entry of private capital into CEMAC countries. More specifically, it is to identify the factors that determine the inflow of private capital into CEMAC and to assess the impact of these capital flows on the economic activity of CEMAC countries.

The hypotheses adopted are as follows:

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)

Hypothesis 1: Internal factors explain the attractiveness of foreign capital entering CEMAC; **Hypothesis 2:** Net foreign capital flows into CEMAC have an impact on CEMAC's economic growth.

This paper is structured in five sections. In addition to the introduction (I), the second section deals with the literature review (II), and the third section addresses the methodology adopted. (III) The fourth section presents the sources and treatment of the data (IV). The fifth section presents the conclusion.

II. REVIEW OF THE LITERATURE

II-1 Theoretical Review

The issue of the determinants of the attractiveness of private capital has been the subject of several theoretical and empirical controversies. On the theoretical level, we have two approaches. The first explains the extent to which a country's macroeconomic conditions influence the attractiveness of private capital (internal factor), and the second shows the extent to which conditions in countries of origin of capital can influence private capital flows to another country (external factor).

Internal factors include, among others, the economic growth rate, the domestic interest rate, taxation, the inflation rate and exchange rate volatility. This first grid can be classified into two groups. The first explains differences in fundamentals that affect the production structure of the economy, such as technological differences, missing factors of production, government policies and institutional structure. Here we extend the Lucas paradox. The second focuses on capital market imperfections, mainly sovereignty risk and asymmetric information.

Lucas (1990) shows in a theoretical study between India and the United States that India has a capital productivity 58 times higher than that of the United States, but the heterogeneity of the factors and externalities it generates eliminates this productivity gap. This justifies the current direction of capital flows. More precisely, Lucas (1990), building on the work of Krueger (1967), shows that once differences in labor quality were taken into account, marginal productivity in India was only 5 times that of the United States, and 1.08 times if the externalities they may generate were considered. However, it is important to note that Lucas (1990) considers that externalities can only diffuse within the country. This argument is based on a strong assumption that capital would be invested in production rather than, for example, in real estate.

However, for Darreau and Pigalle (2008), the differences in human capital productivity obtained by Lucas (1990) are unrealistic enough to be able to retain the sole hypothesis of differences in human capital endowment. The hypothesis of physical capital externalities is probably more acceptable than the hypothesis of human capital externalities. It is the only one that can explain the fact that between rich and poor countries, physical capital productivities are approximately equal and that human capital productivity is higher in rich countries. The externalities of physical capital in rich countries attract both physical and human capital from poor countries.

Bissiriou and al (2005) state that human capital is an important criterion of attractiveness especially in developing countries. However, multinationals are placing increasing emphasis on the quality of the workforce as they are more interested in producing capital- and technology- intensive goods. Labor skills, training opportunities, low labor input costs, general education, and work experience are therefore of paramount importance to the investor.

North (1994) focuses on the institutional level. He defines institutions as the human constraints that structure political, economic and social interactions. Institutions are expected to affect economic performance through their effect on investment. Thus, institutional weaknesses create an imbalance between decisions by protecting the property rights of entrepreneurs against government and other segments of society and by preventing elites from blocking the adoption of new technologies. In general, weak property rights due to poor institutions can lead to a lack of productive capacity. Hence, capital mobility between different countries open to international trade can be explained by the quality of institutions, schooling, and other factors if and only if the quality of institutions is taken into account (Alfaro and al., 2005).

The latter authors found that once institutional quality is taken into account, macroeconomic policies have an impact on capital flows. Macroeconomic distortions, as well as short-term macroeconomic instability, can be a powerful deterrent to foreign investment.

The second group is based on capital market imperfections, including information asymmetry and sovereignty risk. Montiel and College (2006), for example, argue that the public sector must have the capacity to repay the loans it takes out to finance its projects if it is to attract foreign capital. In addition, they argue that the vulnerability of the government budget to civil strife in neighboring countries or natural disasters such as droughts and political and economic constraints affects spending. The inefficiency of the tax system on revenues, and even political instability, can cause the government to delay repayment of its loans, which can create a sovereignty risk and thus reduce capital flows to Africa. Also, Montiel (2006) argues that the simple neoclassical growth model assumes that an absence of informational frictions can impede investment. However, asymmetric information is known to

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)

significantly impede the execution of financial transactions by increasing their cost. Clearly, it is not enough that there are opportunities for productive investment on the continent; it is also necessary that potential external creditors be informed.

Reinhart and al (2004) argue that sovereignty risk explains the Lucas paradox not only in Africa, but also in other developing regions. The very high number of heavily indebted poor countries (HIPCs) on the continent signals that public sector debt service problems are a reality in Africa, and may even be a major impediment to investment.

Gertler and Rogoff (1990) attest that the moral hazard problem between foreign and domestic investors causes capital to flow from poor to rich countries. Moreover, they argue that an excessive stock of government debt, past episodes of default, or poor sovereign ratings may constrain access to international capital markets by domestic firms, even when they are in good health. Capital would thus remain in rich countries, even if theoretical investment opportunities are far from being exhausted in poor countries

Vasileva (2011) indicates that corporate investors prefer to invest in countries close to their home country, or in countries in the same economic union or with a similar legal system. They feel more optimistic and confident about investing in the most familiar countries because of informational advantages, despite potentially more attractive returns from developing countries.

Caselli and Feyrer (2007) believe that macroeconomic instability (inflation and banking crises), as well as capital controls, negatively affect foreign private capital. A good economic situation characterized by a high growth rate positively influences private capital flows to developing countries.

Perrault (2002) identifies factors that may affect the availability of investment opportunities in emerging market economies (EMEs), including the domestic macroeconomic environment, government restrictions on capital inflows, and policies that may affect the perceived riskiness of such investments.

Thus, Chuhan and al (1998) conclude that while global push factors would strongly explain capital flows to Latin America, host country-specific pull factors would strongly explain flows to Asia. This result was also confirmed by region by Jeanneau and Micu (2002), who demonstrated the significant role of pull factors in Asia, such as stock market indices, economic growth, and currency appreciation.

The second grid emphasizes the external role of factors in the attractiveness of private capital in a given country. External factors explain the extent to which economic conditions in the countries of origin of capital influence private capital inflows into developing countries.

Dunning (1988) attempts to integrate several of these approaches, which are considered necessary for understanding the phenomena surrounding multinationals, under the name of the eclectic paradigm. He tries to answer the question: "Why do firms multi-nationalize?" knowing that these firms are the actors of international finance. They move according to the characteristics and advantages that countries offer. They look for oligopolistic or monopolistic positions that motivate companies to become multinationals because of the size of the competition in their country. An important reason for the existence of multinationals is the idea that the markets in which they operate are imperfect.

The main external determinants of capital attractiveness since the 1960s have been the reduction in the short-term interest rate of the dollar as well as other currencies, which has helped improve the creditworthiness and reputation of developing countries because the cost of servicing debt has been lowered. To this end, Calvo and al (1993) argue in one of the first analyses of the determinants of private capital flows to developing countries that these are rather influenced by external factors, specifically the growth rate and interest rate of developed countries.

It should also be noted that the economic crisis and the lowering of short-term interest rates in industrialized countries have reduced the relative return on capital and investment in these countries. According to Fernandez-Arias (1996), the return of capital to emerging countries is strongly caused by the decline in returns in industrialized countries, and not by the fundamentals of these countries.

The important external factor influencing private capital flows to developing countries is the growth rate of developed countries. In times of economic recession in developed countries, the prospects for profits are lower in those countries, which may make developing countries more attractive (Chuhan and al., 1998; Calvo and al., 1996).

II-2 Empirical Review

Many studies on the determinants of private capital attractiveness have been argued by several authors empirically and, the results of these works are almost divergent.

Haizhen Yang and al (2013) examine the determinants of FDI and PORT using static and dynamic panel model for six Asian and seven Latin American countries during the period 1981 to 2011. The results show that capital inflows to emerging countries can be explained by domestic and global factors such as domestic production, trade openness, financial integration, and exchange

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)

rate.

Glauco De Vita and Kwyah (2008), study the relative importance of the determinants of disaggregated capital flows, namely FDI and PORT to five developing countries during the period 1967-2001 using the structural VAR model. This study finds that shocks to real variables of economic activity such as foreign output and domestic productivity are the most important forces explaining changes in capital flows to developing countries.

Kouam and al. (2019) assess the determinants of FDI attractiveness in CEMAC, over the period from 1987 to 2017, using a fixed-effects model in which, they point out that inward FDI in CEMAC is an increasing function of the financial development index, the urbanization rate, natural resources, the public debt ratio, the population growth rate, the economic growth rate, the public investment rate, and the degree of trade openness. In contrast, they find that inward FDI in CEMAC is a decreasing function of the corruption rate, the democratic system, private investment, the level of inflation, the unemployment rate, and the real effective exchange rate.

Kinda (2006) analyzes the determinants of private capital flows (FDI and PORT) in the West African Monetary Union (WAEMU) over the period 1970-2003. Using the panel fixed effects estimation technique, the results show that the significant determinants of FDI are political instability, infrastructure and trade openness. The latter two, together with the economic growth of the countries, significantly determine portfolio investments in the union, whereas debts depend mainly on inflation, infrastructure and public consumption

Kinda (2008) analyzes the effects of physical infrastructure and financial development on private capital inflows to 61 developing countries through an equation to explain the Lucas paradox over the period 1970-2003. Using a regression based on the standard fixed effects method, the results of his study show that the physical and financial infrastructure index positively and significantly affects private capital as well as each type of capital (FDI or PORT). Moreover, he points out that physical infrastructure only affects FDI inflows and financial infrastructure only affects ports. Indeed, a 10 percentage point increase in fixed-line and cell phone subscribers increases FDI inflows by 0.3 percentage points. This result reflects the existence of minimum conditions to ensure that investments thrive and thus attract FDI.

In addition, this study reveals that portfolio investments, with a rather volatile character, are of a relatively low amount in developing countries. Similarly, only financial development positively and significantly affects portfolio investment inflows in developing countries. A 10 percentage point increase in the money supply leads to a 0.18 percentage point increase in PORT inflows. Thus, PORT inflows into a country require a fairly high level of financial development as this type of capital flow is traded in equity markets. Better financial development with well-developed financial markets should, through quality information, reduce the potential risk incurred by investors in this market.

Mimboe and al (2019), analyze the impact of strategic fiscal interactions between CEMAC countries on FDI flows. Using a spatial model inspired by the gravity model, they assess the sensitivity of a given country's FDI inflows to a variation in the degree of strategic fiscal interactions among CEMAC countries over a period from 1981 to 2010. The results of the estimations, carried out by the maximum likelihood method with random effect in panel data, show that CEMAC countries develop strategic tax behaviors among themselves, and that these behaviors favor FDI inflows into each country. Thus, far from being harmful, strategic tax interactions are an attractive factor for countries in a developing economic integration zone.

More recently, Mbanjo (2020) analyzed the existence of the Lucas paradox, taking into account intangible capital and fiscal policy for estimates of the marginal productivity of capital. He used the marginal productivity of capital, inspired by the work of Caselli and Feyrer, (2007) for a sample of 24 African countries based on 2014 macroeconomic data. The matched results of their study show that there are indeed significant differences in marginal productivity in favor of the richest countries on the continent. This result also shows that there is a Lucas paradox among African economies. Therefore, the attractiveness gap can be explained by the fundamentals of the economies. The low price of final goods relative to capital, high taxes, and a low-skilled labor force play a central role in this regard.

Guiswe Badoma and al (2017) analyze the role of institutional adjustment on the attractiveness of CEMAC countries to FDI. They sought to test whether the most commonly tested institutional determinants do indeed play a role in attractiveness in the CEMAC zone. More specifically, they first assessed the importance of the role played by market capital in attracting FDI and then measured the relative importance of the role played by political and sociocultural capital in CEMAC countries. To account for the performance of the institutional adjustment theory, they examined it in an econometric regression analysis of panel data. An equation of the determinants of FDI attractiveness of CEMAC countries is estimated by the dynamic panel generalized method of moments for the period 1985-2015. The results show that the most significant variables are those related to trade openness, market size and international competitiveness. Moreover, the coefficients of these variables have positive signs. They thus conclude that market capital explains the attractiveness of CEMAC countries to FDI more than political and sociocultural capital.

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)

Ongo Nkoa and al (2020) examine the effect of the real effective exchange rate on the FDI attractiveness of Franc Zone countries. They specify and estimate a panel data model using the Generalized Moment Method in System over the period 1970-2017. They used FDI as the dependent variable and the exchange rate, trade openness, domestic investment and human capital as independent variables. They find that the depreciation of the real effective exchange rate significantly reduces FDI inflows. This result is validated in the presence of the hypothesis of Franc zone enlargement. A reform of the Franc Zone's operating mechanisms would surely help reverse this result. The leaders of these countries must undertake reforms that are globally supported by policies to make their countries more attractive.

III. METHODOLOGY

III.1- Model specification

Our model is based on Haizhen Yang et al. (2013) who empirically examined the determinants affecting FDI and PORT.

$$Y_{i,t} = \beta_0 + \sum_{j=1}^n \beta_j(X_{ij})_{i,t} + \tau_t + \varphi_t + \varepsilon_{i,t} \quad (1)$$

Y represents the country, t represents time, β denotes the parameter indicating the speed of convergence, X_{it} is the set of explanatory variables, τ_t captures unobserved country-specific effects, φ_t is a specific period, common effect for all countries, $\varepsilon_{i,t}$ is a perturbation term.

The equation, taking into account heteroskedasticity problems, becomes

$$Y_{i,t} = \beta_0 Y_{i,t-1} + \sum_{j=1}^n \beta_j (X_{ij})_{i,t} + \tau_t + \varphi_t + \varepsilon_{i,t} \quad (2)$$

Based on the lessons learned from this model, the econometric model in this work is built by considering that FDI and PORT inflows can be explained by the combination of variables such as one-period lagged FDI, one-period lagged PORT, exchange rate (TCH), consumer price index (CPI), education (EDU), natural resources (RSN) and per capita gross domestic product (GDP).

Thus, the empirical model to be estimated with reference to equation (1) is as follows: For foreign direct investment (FDI)

The static model:

$$IDE_{i,t} = \beta_0 + \beta_1 TCH_{i,t} + \beta_2 PIBH_{i,t} + \beta_3 EDU_{i,t} + \beta_4 IPC_{i,t} + \beta_5 RSN_{i,t} + \tau_t + \varphi_t + \varepsilon_{i,t} \quad (3)$$

The dynamic panel model goes as follows:

$$IDE_{i,t} = \beta_0 + \lambda IDE_{i,t-1} + \beta_1 TCH_{i,t} + \beta_2 PIBH_{i,t} + \beta_3 EDU_{i,t} + \beta_4 IPC_{i,t} + \beta_5 RSN_{i,t} + \tau_t + \varphi_t + \varepsilon_{i,t} \quad (4)$$

The results of the Sargan test are shown in Table 1

For portfolio investments

The static model:

$$PORT_{i,t} = \beta_0 + \beta_1 TCH_{i,t} + \beta_2 PIBH_{i,t} + \beta_3 EDU_{i,t} + \beta_4 IPC_{i,t} + \beta_5 RSN_{i,t} + \tau_t + \varphi_t + \varepsilon_{i,t} \quad (5)$$

Dynamic model:

$$PORT_{i,t} = \beta_0 + \lambda PORT_{i,t-1} + \beta_1 TCH_{i,t} + \beta_2 PIBH_{i,t} + \beta_3 EDU_{i,t} + \beta_4 IPC_{i,t} + \beta_5 RSN_{i,t} + \tau_t + \varphi_t + \varepsilon_{i,t} \quad (6)$$

The results are presented in Table 2.

III.2- Description of the variables

The endogenous or explained variables in our study are FDI and PORT. The exogenous or explanatory variables are GDP per capita, inflation, natural resources, exchange rate and education.

FDI: A foreign investment is a direct investment when the foreign investor owns more than 10% of the shares in a coveted foreign firm.

PORT: When the foreign investment is less than 10% of the shares, it is a portfolio investment whose purpose is to diversify the securities globally and thus spread the risks, it is very often speculative investments.

GDP per capita: Defined as the value of all goods and services produced, minus the value of goods and services used in their creation, real GDP per capita is an indicator for measuring the economic performance of a country relative to its population. According to Bevan and Estrin (2004), a high GDPH would be an asset for investors developing the market strategy.

Inflation, consumer prices (% annual): Inflation as measured by the consumer price index reflects changes in the cost of a basket of goods and services purchased by the average consumer. The contents of this basket may be fixed or may change at regular intervals, such as every year. The Laspeyres index is generally the formula used. Inflation is an indicator of macroeconomic

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)

instability. Foreign investors therefore prefer to invest in a stable economy. Inflation is expected to have a negative correlation with the volume of investment.

Natural resources: Natural resources can be defined as all the wealth that constitutes the soil and subsoil of a country. They are a source of attractiveness for international investors, particularly in the extraction of raw materials, the production of hydraulic energy, deforestation and many others.

Exchange rate: According to the WB, the official exchange rate refers to the exchange rate legally set by the exchange rate market. It is calculated as an annual average based on monthly averages. More explicitly, it is a measure of international competitiveness. Exchange rate volatility can both discourage foreign investment and produce an incentive to hedge against exchange rate risk through foreign location. Thus, in the short term, a real depreciation of the currency negatively affects FDI, while the long-term effect can be positive.

Education: This corresponds to human capital, which is defined as the body of knowledge embodied in the individual, as it represents a key investment for the future, for individuals, for the economy and for society as a whole.

IV – DATA SOURCE

IV.1 –Data description

Our study covers 360 quarterly observations per country over the period 2005 to 2019 and the data come from two sources, namely: World Bank data (WDI, 2021) and BEAC data, 2020.

Table 1. Expected signs and rationale for variables

Variables	Data source	Expected sign
FDI : Foreign Direct Investment	World Bank (WDI)/BEAC	+
PORT : Portfolio Investment	World Bank (WDI)/BEAC	+
GDPH: Gross Domestic Product per capita	World Bank (WDI)	+
EDU: Human capital or access to education	World Bank (WDI)	+
CPI: Consumer Price Index (Inflation)	World Bank (WDI)	-
NSR: Natural Resource Profits	World Bank (WDI)	+

Source: Author

Table 2. Descriptive statistics

Variables	Mean	Maximum	Minimum	Std, Dev	Obs
FDI	1,81E+08	1,27E+09	-2,39E+08	2,46E+08	360
PORT	-446655,9	4,64E+07	-1,88E+08	2,87E+07	360
TCH	130,219	167,7265	103,2156	13,08875	360
GDPH	1455,096	9458,004	-1171,921	1854,567	360
EDU	24,76576	40,45481	12,50234	5,947273	360
CPI	26,70959	38,29234	15,00511	3,940537	360
NSR	6,34602	16,20757	1,033399	3,907168	360

Source: Author

Stationarity tests

We use two commonly used unit root tests: (i) Lin Levin and Chu; (ii) Im Pesaran and Shin. Indeed, LLC and IPS test the null hypothesis of the non-stationarity of the series against the stationarity under the alternative hypothesis.

Table 3. Results of the stationarity tests

		By level						By difference					
Variables Uroot		St-IPS	P-value	Decision	St-LLC	P-value	Decision	St-ISP	P-value	Decision	St-LLC	P-value	Decision
	Without Trend	-0.7066	0.2399	Non-stationary	-4.0713	0.0000	Stationary	-8.3179	0.0000	Stationary	-6.8417	0.0000	Stationary

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)

FDI	Trend	-2.2573	0.0120	Stationary	-5.0040	0.0000	Stationary	-8.3205	0.0000	Stationary	-6.2168	0.0000	Stationary
PORT	Without Trend	-1.3354	0.0909	Stationary	-5.2913	0.0000	Stationary	-8.0435	0.0000	Stationary	-6.5474	0.0000	Stationary
	Trend	-1.9723	0.0243	stationnaire	-5.8913	0.0000	Stationary	-8.1420	0.0000	Stationary	-5.9890	0.0000	Stationary
GDPH	Without Trend	1.0486	0.8528	Non-stationary	-2.8852	0.0020	Stationary	-8.2640	0.0000	Stationary	-5.3278	0.0000	Stationary
	Trend	-0.2790	0.3901	Non-stationary	-1.2947	0.0977	Non-stationary	-8.2640	0.0000	Stationary	-4.9361	0.0000	Stationary
TCH	Without Trend	-1.9195	0.0275	Stationary	-1.3033	0.0962	Non-stationary	-10.0039	0.0000	Stationary	-7.9209	0.0000	Stationary
	Trend	-2.3837	0.0086	Stationary	-3.1334	0.0009	Stationary	-9.9000	0.0000	Stationary	-7.4744	0.0000	Stationary
EDU	Without Trend	-6.6061	0.0000	Stationary	-1.9228	0.0273	Stationary	-10.4214	0.0000	Stationary	-10.5307	0.0000	Stationary
	Trend	-6.6121	0.0000	Stationary	-1.2120	0.1127	Non-stationary	-10.2703	0.0000	Stationary	-9.6491	0.0000	Stationary
CPI	Without Trend	-4.5565	0.0000	Stationary	-0.2481	0.4020	Non-stationary	-10.6012	0.0000	Stationary	-12.0479	0.0000	Stationary
	Trend	-8.7529	0.0000	Stationary	-1.7905	0.0367	Stationary	-10.3573	0.0000	Stationary	-10.8139	0.0000	Stationary
NSR	Without Trend	1.4821	0.9308	Non-stationary	-1.2410	0.1073	Non-stationary	-7.3474	0.0000	Stationary	-4.0113	0.0000	Stationary
	Trend	-0.9269	0.1770	Non-stationary	-0.5919	0.2770	Non-stationary	-7.4392	0.0000	Stationary	-3.1537	0.0000	Stationary

Source: Author

Table 4. Pearson correlation matrix

Variable	FDI	PORT	TCH	GDPH	EDU	CPI	NSR
FDI	1.0000						
PORT	-	1.0000					
TCH	-	-	1.0000				
GDPH	-	-	-	1.0000			
EDU	0.2203***	-	-	0.2021***	1.0000		
CPI		-	0.6109***	-	-	1.0000	
NSR	0.3163***	-	-	-	-	-	1.0000
			0.2380***			0.3315***	

Source: Author

Note: implies significance at 10% and 5% respectively

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)

Test of endogeneity of variables (Nakamura-Nakamura test)

Table 5. Nakamura test results

Variables	EQUATION1		EQUATION2	
	Step 1	Step 2	Step 1	Step 2
Explanatory	Variable explained (TCH)	Variable explained (FDI)	Explained (TCH)	Explained (PORT)
TCH	.8102324 (0.000)		.8102324 (0.000)	
PORT	-2.32e-08 -0,015	-.4331705 -0,011	-2.32e-08 -0,015	1 0
Res_TCH		1810623 -0,127		
Res_TCH				-1.65e-11*** -0,003
GDPH	-.0001056 -0,58	-24336.66 0	-.0001056 -0,58	1.57e-13 0
EDU	.0267059 -0,601	8959552 0	267059 -0,601	1.91e-11 -0,005
CPI	.3264323 -0,009	1.10e+07 -0,002	.3264323 -0,009	9.91e-11 0
NSR	-.0257113 -0,795	2.59e+07 0	-.0257113 -0,795	9.02e-12 (0.537)
Const	16.1877 -0,001	-7.01e+08 0	16.1877 -0,001	-1.28e-09 -0,077

Source: Author

Note: * p<0.1, **p<0.05, *** p<0.01, t-statistics in brackets

1. Results of the estimation of the determinants of private capital flows in CEMAC

Explanatory variables	Dependent variables. (FDI)		Dependent variable. (PORT)	
	Static model (MCG)	Dynamic model (GMM)	Static model (MCG)	Dynamic model (GMM)
	-1	-2	-3	-4
FDI _{t-1}	-	3202074 -0,44	-	-
PORT _{t-1}	-	-	-	2610615 -1,26
TCH	1652297 -1,49	1,05 ^e 08* -1,78	-386309,8*** (-2,69)	4249297** -2,04
GDPH	-23595,64*** (-3,69)	338135,9* -1,9	-1477,753* (-1,78)	-392717,3** (-2,12)
EDU	8787715*** -4,43	-5,45 ^e +08* (-1,73)	-248427,7 (-0,97)	3,47 ^e 07* -1,84
	9711809**	2,59 ^e 08*	1147241**	-2,26E+07

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)

CPI	-2,56	-1,65	-2,34	(-1,49)
	2,50e07***	-1,04°08**	689618,7*	-1,11°07**
NSR	-7,97	(-1,22)	-1,7	(-1,99)
Const	-6,36°+08*** (-4,84)	-	2,31E+07 -1,36	-
Obs	360	342	360	330
R2	0,2212	-	0,0395	-
Wald stat (P, value)	t=102,26(prob=0,0000)	-	t=14,79(prob=0,0113)	-
Sargan test	-	chi2=48,54 (prob=0,611)	-	chi2= 1,70(prob=1,000)
Hansen test	-	-	-	-

Source: Author

Note: * p<0.1, **p<0.05, *** p<0.01, t-statistics in brackets

IV.2 – Interpretation of the results

These tables show that, overall, private capital flows have a positive effect on economic activities in the CEMAC.

Private capital (FDI and PORT) from the previous year has a positive influence on private capital in the coming year. This is because the previous year's capital demonstrates a state's ability to attract maximum investment to its territory. On the one hand, this is a good indicator for international investors wishing to establish themselves in the territory. In order to judge the economic attractiveness of a country compared to another in an objective manner, ranking indices must be established depending on whether one is on the side of the investors or the

countries receiving the investments. Investors, whatever their projects, always compare and compete between territories. Indeed, generally speaking, two kinds of indicators are generally used to determine the attractiveness of a country: foreign investment flows and stocks and synthetic indicators (Memphil Ndi, 2017). On the other hand, economic theory also justifies investment location by the fact that once a country attracts a mass of investors, others will often follow by spillover effects on the ground (Ngouhou, 2008).

Moreover, the effects of the exchange rate on FDI and PORT inflows in CEMAC are positive and significant at the 10% to 5% statistical threshold in models (2) and (4), respectively. This implies that any improvement in the exchange rate translates into an increase in private capital flows to CEMAC. These results are similar to the results obtained by Guiswe Badoma et al. (2017) and Froot and Stein (1991), who analyze the role of currency appreciation on FDI promotion under an imperfect capital market. For these authors, currency appreciation leads to a boost in the firm's wealth while reducing the costs of investing abroad. Lopez and Mejia (1999) also state that exchange rate stability, by ensuring a guarantee of profits for expatriates, has a positive effect on capital inflows.

However, the effects of GDP per capita on private capital (FDI and PORT) are negative and significant at the 1%, 5%, and 10% thresholds, respectively, in models (1), (5), and (3), while its effects are positive and insignificant in model (2). This implies that any decrease in GDP per capita leads to a decrease in private capital inflows in the CEMAC, that is, any improvement in GDP per capita leads to an increase in private capital. Our results corroborate those of Bevan and Estrin (2004), who argue that a high GDPH would be an asset for investors who develop the market strategy. Investors seek high returns by moving to countries where there is a better opportunity than others. In addition, a low GDPH can compromise the decision to invest in a country, as it is a market indicator.

Similarly, human capital has a positive and significant effect on private capital flows at the 1% and 5% thresholds in models (1) and (4), respectively. This implies that in CEMAC, the increase in human capital is an important determinant in the mechanism for attracting private capital. Indeed, multinationals are placing increasing emphasis on the quality of labor as they become more interested in the production of capital- and technology-intensive goods. Our results are in line with those of Bissiriou et al (2005) who argue that human capital is an important criterion of attractiveness, especially in developing countries.

Inflation is positively correlated with private capital inflows. This implies that all private capital inflows into the CEMAC are strongly influenced by inflation. Indeed, private capital inflows into an economy often result in higher prices for imported goods and services. However, a decline in prices generally favors an improvement in growth and productive investment as well as private

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)

capital. Urata and Kawai (2000) believe that inflation increases the cost of production and has a negative impact on foreign investment flows.

Finally, natural resources positively and significantly influence private capital in model (1) and (3) at the 1 and 10% threshold respectively, their increase causes an improvement in capital flows in CEMAC. This is in line with Kouam et al (2019) who argue that FDI is an increasing function of natural resources and Campos et al (2003) who show that natural resource endowments played a significant role in attracting foreign capital between 1990 and 1998 in transition countries. Morisset (2000) proves that the ability of African countries to attract foreign private capital is largely linked to the existence of natural resources. The works of Asiedu (2006), Mohamed and Sidiropoulos (2010) also go in the same direction, they stipulate that FDI in African countries is partly explained by the endowment of these countries in natural resources.

The Wald tests validate the choice of the static model used. The same is true for the two-stage GMM model, where Sargan's tests validate the choice of instruments used. The decision rule assumes that the H0 hypothesis of the absence of autocorrelation of the residuals is retained for the model to be validated. This reflects a good overall fit of the model. The variables selected explain FDI and PORT flows in the CEMAC.

V- CONCLUSION

The objective of this study was to determine the factors of attractiveness of private capital in CEMAC and to evaluate the impact of these capital flows on the economic activity of CEMAC countries. Our results show that the selected factors explain the entry of FDI and PORT in CEMAC and have positive and negative impacts on the economy of these countries.

To address these negative impacts, some economic policy implications are necessary.

- Encourage the development of financial markets;
- Improve governance and foster regional integration;
- Reinvent a civil service based on transparent and meritocratic recruitment procedures,
- Improve communication infrastructure to facilitate the mobility of products at the community level;
- Improve the business climate and make administrative procedures more flexible in order to encourage and facilitate the creation of businesses;
- To improve the quality of education, to make the teaching programs in adequacy with the professional world.

REFERENCES

- 1) Alfaro L., Kalemli-Oczan, S. et Vadym V. (2005), « Flows in a Globalized World: The Role of Policies and Institutions », NBER Working Paper n° 11696.
- 2) Asiedu E. (2006), « Foreign Direct Investment in Africa: The Role of Natural Resources, Market Size, Government Policy, Institutions and Political Instability », *World Economy*, Vol.29, n°1, pp: 63-77.
- 3) Banque mondiale (2021) ://databank.worldbank.org/source/world-development-indicators
- 4) BEAC (2020), *Bulletin Economique et Statistique* N. 5, <https://www.beac.int/wp-content/uploads/2020/01/bulletin-economique-et-statistique-N%C2%B05.pdf>
- 5) Bevan A. A. et Estrin, S. (2004). « The Determinants of Foreign Direct Investment into European Transition Economics », *Journal of Comparative Economics*, Vol: 32, n°4, pp.775-787.
- 6) Bissiriou G., Kern, F. (2005) « L'éducation comme bien public mondial est-elle compatible avec l'accord général sur le commerce des services? » *Mondes en développement*. Vol: 33, n° 132, pp. 44-45.
- 7) Calvo G., Leiderman L., et Reinhart C., 1996, « Inflows of Capital to Developing Countries in the 1990's », *Journal of Economic Perspectives*, Vol: 10, pp :123-39.
- 8) Calvo G., Eiderman, L. L. et Reinhart, C. (1993), « Capital flows and the real exchange rate appreciation in Latin America: the role of external factors », *IMF Staff Papers*, Vol: 40, n: 1, pp: 108-151.
- 9) Campos N.F. Kinoshita, Y. (2003), « Why does FDI go where it goes? New Evidence from Transition Economic ». University of Michigan William Davidson Institute Working papers series n° 228, pp. 573
- 10) Caselli, F. et Feyrer, J. (2007), « The Marginal Product of Capital », *Quarterly Journal of Economics*, Vol: 122, n° 2, pp: 535-568.
- 11) Chuhan P., Laessens S. C. et Amingi, N. M. (1998), « Equity and Bond Flows to Latin America and Asia: the Role of Global and Country Factors », *Journal of Development Economics*, Vol: 55, n° 2, pp: 439-463.

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)

- 12) CnuCED (2018), rapport sur l'investissement dans le monde. https://unctad.org/system/files/official-document/wir2018_overview_fr.pdf
- 13) Darreau P. et Pigalle F. (2008), « Les paradoxes de Lucas et Romer », *Revue économique*, Vol 59, n° 4, pp. 843-851.
- 14) Dunning J. H. (1988), « Multinationals, Technology and Competitiveness », Unwin Hyman Ltd. London, pp: 3-4.
- 15) Fernandez-Arias E. (1996), « The New Wave of Private Capital Inflows: Push or Pull? », *Journal of Development Economics*, vol. 48, n° 2, pp: 389-418.
- 16) Ferreira A. (2011). « On the differences between the marginal product of capital across countries ». *The Manchester School*, Vol: 79, n° 3, pp:455-479.
- 17) Froot K.A., Stein, J.C., (1991). « Exchange Rates and Foreign Direct Investment: A Imperfect Capital Market Approach ». *Quarterly Journal of Economics*. Vol. 106, N° 4, pp. 1191-1217.
- 18) Gertler M., et Rogoff, K. (1990). « North-South lending and endogenous domestic » *Journal of Monetary Economics*, Vol . 26, n° 2, pp. 245-266.
- 19) Glauco De Vita, K. et Kyaw, S. (2008), « Déterminants des flux de capitaux vers les pays en développement : une analyse VAR structurelle », *Journal of Economic Studies*, vol. 35, no. 4, pp. 304-322.
- 20) Guiswe Badoma et al (2017), « Les Déterminants de l'Attractivité des Pays de la Communauté Economique et Monétaire de l'Afrique Centrale (CEMAC) à l'égard des IDE » *Global Journal of Management and Business Research : C Finance* Vol : 17, n° 6, pp :31-34.
- 21) Haizhen Yang et al (2013), « A Comparative Study of Determinants of International Capital Flows to Asian and Latin American Emerging Countries » *Procedia Computer Science*, Vol 17, pp : 1258 – 1265
- 22) Jeanneau S. et M. Micu (2002), « International Bank Lending to Emerging Market Countries: Explaining the 1990s Roller Coaster », *BIS Quarterly Review*, Vol :52 n° 64.
- 23) Kinda, T. (2006), « Les déterminants des flux de capitaux privés dans l'UMOA : Une approche empirique sur données de panel », *Revue de la Stabilité Financière dans l'Union Économique et Monétaire Ouest Africaine*, Vol. 2, pp. 41-68.
- 24) Kinda., T. (2008), « Infrastructures et flux de capitaux privés vers les pays en développement », *Revue économique*, Vol. 59, n° 3, pp. 2-8
- 25) Kouam J. C. et Daba, N. (2019), « Les déterminants de l'attractivité des investissements directs étrangers dans la Communauté économique et monétaire de l'Afrique centrale », *BEAC Working Paper, BWP n° 05*, pp. 11-15
- 26) Kose et al (2009), « Mondialisation financière et politique économique », *Economie mondiale et développement*, n° 34, pp. 18-80
- 27) Krueger, A. (1967), « Factor endowments and per capital income differences among countries » *Economic Journal*, vol. 2, n° 78, pp. 641-659
- 28) Lopez-Mejia, A. (1999), « Large Capital Flows: Causes, Consequences and Policy Responses », *Finance and Development* Vol: 36, pp. 28-31
- 29) Loungani P, Razin Assaf (2001), *How Beneficial Is Foreign Direct Investment for Developing Countries?* *Finance et développement*, June, volume 38, number 2.
- 30) Lucas R. (1990), « Why doesn't capital flow from rich to poor countries? », *American Economic Review*, Vol :80, n° 2, pp. 92-96.
- 31) Mbanjo Kitimbi Michael Peter (2020), « Existe-t-il une différence de productivité marginale du capital entre les économies d'Afrique ? » final report : Université de Douala (Cameroun)
- 32) Memphil Ndi Evelyne Patience (2017), « Attractivité économique des investissements directs étrangers en zone CEMAC: harmonisation des instruments juridiques aux règles internationaux », thèse de Droit Université Nice Sophia Antipolis, pp: 29-30
- 33) Mimboe Noah B. et Fambon, S. (2019), « Interactions fiscales stratégiques entre pays de la CEMAC et flux entrants d'investissements directs étrangers », *Région et Développement*, n° 49, pp. 133-142
- 34) Mohamed S. et Sidiropoulos, M. (2010), « Another Look at the Determinants of Foreign Direct Investment in MENA Countries: An Empirical Investigation », *Journal of Economic Development*, Vol. 35, n° 2, pp: 75-96.
- 35) Montiel P (2006), « Obstacles to Investment in Africa: Explaining the Lucas Paradox » Presented at the high-level seminar Realizing, The Potential for Profitable Investment in Africa.
- 36) Montiel, P. J. et College, W. (2006), « Réaliser le potentiel d'investissements rentables en Afrique », *Séminaire de haut*

Determinants of the Attractiveness of Private Capital in the Central African Economic and Monetary Community (CEMAC)

niveau organisé par l'institut du FMI en coopération avec l'Institut multilatéral d'Afrique, Tunis, Tunisie, 28 février – 1^{er} mars 2006.

- 37) Morisset, J. (2000), « Foreign Direct Investment in Africa: Policies also Matter. », World Bank Policy Research Working Paper n°2481, pp: 01-26.
- 38) Ngouhouo Ibrahim (2008), « Les investissements directs étrangers en Afrique centrale : attractivité et effets » Economies et finances. Université du Sud Toulon Var. pp:41
- 39) North D.C. (1994), « Economic performance through time », The American Economic Review, 84 Vol: 3, pp: 359-368.
- 40) Ongo Nkoa B. E., Song J. S. (2020), « L'attractivité des IDE en zone franc: le taux de change effectif réel importe-t-il? » Annales de l'Université Marien N'GOUABI Sciences Économiques et Gestion, Vol:20, n^o1, pp:163-183
- 41) Perrault, J.-F. (2002), « Private Capital Flows to Emerging Market Economies » Bank of Canada Review. Printemps 2002, pp:37-47
- 42) Reinhart C.M. et Rogoff K.S (2004), « Serial Default and the 'Paradox' of Rich to Poor Capital Flows », American Economic Review, Vol: 94, n^o 2, pp. 53-59
- 43) Urata, Kawai, H. (2000) « The Determinants of the Location of Foreign Direct Investment by Japanese Small and Medium-sized Enterprises » Small Business Economics. Vol. 15, pp. 179 - 103.
- 44) Vasileva, K (2011), « Foreign Direct Investment – a Behavioural Finance ». London: Unpublished thesis.



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.