

## **EXAMINING THE IMPACT OF INTEREST RATE LIBERALIZATION ON PRIVATE SECTOR CREDIT IN THE WAEMU REGION**

**Dr. Seraphin A. Prao and Dr. Eugene Kamalan**

Professors-Researchers at Alassane Ouattara University, Ivory Coast

**Abstract:** *The financing policies of African countries' development have historically been rooted in Keynesian economic theory, with low-interest rates and government control over the financial system aimed at stimulating investment and economic growth. However, these policies have often resulted in low or even negative real interest rates. This study draws on the seminal works of McKinnon (1973) and Shaw (1973) to argue that financial repression is a key factor hindering economic growth in developing nations.*

*Financial repression discourages savings due to their poor performance and inhibits the efficient allocation of capital by financial intermediaries. To foster economic growth, a shift towards financial liberalization is recommended. This entails removing interest rate caps, reducing compulsory set-asides, and eliminating directed credit programs, thereby allowing financial markets to operate freely and determine credit distribution based on market dynamics.*

*This research sheds light on the detrimental impact of financial repression on economic development in African countries and advocates for policy changes that prioritize financial market autonomy and efficiency.*

**Keywords:** *Financial repression, Economic development, Financial liberalization, Interest rate caps, African countries.*

### **1. Introduction**

From independence, the financing policies of African countries development were defined in a theoretical background inspired by Keynesian economies. Interest rates were capped at a very low level in order to foster investment and economic growth. Hence, the government controlled the entirety of the financial system and managed the development strategy of its economy. The results of these policies led to low – and even negative – real interest rates. The works of McKinnon (1973) and Shaw (1973) identified financial repressions the principal cause of low performances in terms of economic growth in developing countries. According to the authors, financial repression impedes economic development in many ways. First, savings are discouraged because of their low performance. Secondly, financial intermediaries are not encouraged to effectively spread savings. Logically, economic growth is fostered by adopting a financial liberalization policy, because in interest rates increase will facilitate savings mobilization and more effective capital distribution. Therefore, governments should cut out interest rates caps, reduce compulsory set-asides and abolish directed credit programs. It is about “freeing” financial markets from any intervention and allowing the market to determine credit distribution.

Under the auspices of the big financial institutions, the majority of sub-Saharan economies initiated financial liberalization programs from the 1980s. Apart from interest rates liberalization, many other measures were implemented in Africa as part of financial reforms (bank restructuring, abolition of direct monetary control, strengthening supervision). Nevertheless, monetarist neoliberal policies did not bring a miracle solution to economic development. Reinhart and Tokatlidis (2003), talking about sub-Saharan Africa, claimed that financial reforms had only slight effects on economies. The main reason of that failure is the existence of imperfect and incomplete markets, asymmetric information and an unstable economic environment, not conducive to the private sector. After more than two decades of liberalization in WAEMU, globally, the situation of banks in the banking system is satisfying. The bank credit to GDP ratio went from 11.63% in 2001 to 26.73% in 2013 (BEI, 2016). Between 2001 and 2007, the average annual growth rate of credits ratio was at 13.7%. In the meantime, the average real interest rate of bank credits settled at 13.7% in the Union, against 5.81% in Morocco.

From the preceding, the central issue of this study is around the following fundamental question: in what ways does interest rate liberalization stimulate credit to the private sector in the WAEMU zone? Hence, the general objective of this study is to analyze the effect of interest rate liberalization on credit supply to the private sector in the WAEMU zone. Specifically, on the one hand, we will examine the effect of financial repression on bank credit supply to the private sector in the face of credit request. On the other hand, we will appreciate the impact of financial savings on banks' capacity to supply bank credit. In relation with our objectives, we formulated the two following hypotheses. First of all, financing the economy increases when the level of financial repression decreases. Second of all, an increase of financial savings is favorable to credit supply to the private sector.

Interests and stakes do not lack in this study. In fact, the constraints of financing the economy remain a central issue in sub-Saharan Africa, particularly in the WAEMU countries where those constraints imply excess bank liquidity. The study contributes in moving forward the literature on the link between interest rates and bank credit supply in the WAEMU zone.

At the methodological level, the study adopts the Pool Mean Group (PMG) and Mean Group (MG) methods respectively proposed by Pesaran et al. (1999) and Pesaran and Smith (1995). The advantage of these estimation methods is the introduction of heterogeneity in coefficients dynamics. By using the PMG method, the article highlights the convergence of long-term determinants on credit supply within the Union, while the short-term dynamics remain heterogeneous. This hypothesis seems reasonable for the WAEMU countries sharing the same monetary policy and aiming at the convergence of their economies in the long run. However, the study cannot be done a priori, it must be empirically tested. We used annual data over the period from 1982 to 2015. The choice of this period is according to the availability of data.

The present article is organized in the following way: Section 2 is dedicated to the literature review of the relationship between interest rate liberalization and bank credit supply to the private sector. Section 3 will present the methodology of the study. Section 4 presents data source and variables description. Section 5 will speak about empirical results, particularly those of the econometric analysis of the relationship between interest rate liberalization and bank credit supply to the private sector. Section 6 is devoted to the conclusion of the study.

## 2. Literature Review

This section revisits the theoretical and empirical literature on the relationship between interest rate liberalization and bank credit. But before that, we examine the impact of interest rates liberalization.

### **2.1. Theoretical Literature Review of the Impact of Interest Rate Liberalization**

“Financial repression” compels banks to set low – and sometimes negative – interest rates (McKinnon, 1973). It discourages savings and is harmful to the accumulation of the production capital. The analysis of McKinnon and Shaw aims at showing that within the framework of a financially repressed economy, setting rates below their equilibrium value reduces savings (reduction of bank deposits) for the benefit of current consumption. Such a measure reduces the quantity of funds available for investments, which is a consequence of the reduction of bank deposits. Conversely, interest rate liberalization favorably acts on savings. It ensures better mobilization of resources and increased investments. Thus, it permits income growth and economic development. According to financial liberalization theoreticians, underdeveloped countries suffer less from lack of financial resources than from a banking intermediation which is now ineffective due to distortions associated with the administration of interest rates. In addition, the model of Shaw (1973) is based on a debt-intermediation financial system. It is a model in which investors are not compelled to auto financing, but financial intermediaries fully play their role of turning savings to investments. The initial models of McKinnon and Shaw were taken up and enriched by a great number of authors (Kapur, 1976;

Fry, 1978; Galbis, 1977; Mathieson, 1979). The McKinnon/Shaw approach was questioned by post Keynesians and Neostructuralists. The interest rate liberalization approach neglected many of the most distinctive foundations of developing economies. The first foundation is highlighted by post Keynesians (Burckett and Dutt, 1991). According to these authors, interest rates increase does not forcefully lead to credit and investments increase. Indeed, according to Keynesian concepts, they consider that investment does not depend on the amount of deposits but rather on the anticipated demand. Hence, interest rates increase would definitely lead to savings increase, but also to consumption reduction since the substitution effect outweighs the income effect. In other words, if savings remunerations consistent enough, households are prompted to assign a part of their consumptions for the benefit of increasing their savings. So, according to the post Keynesians, interest rate liberalization leads to economic slowdown due to investments reduction induced by the reduction of global demand.

In addition, interest rates increase following financial liberalization will weigh down the cost of credit (Davidson, 1986). The second one is related to asymmetric information suitable for financial markets (Stiglitz and Weiss, 1981). According to these two authors, the McKinnon/Shaw approach does not take into account market imperfections. In this criticism, they pay particular attention to the microeconomic foundations of macroeconomic policies. The authors show that imbalances on the credit market do not only come from governments’ intervention but also from the adverse selection and incentive effects. They consider that, in a context of information asymmetry, it is difficult for interest rate liberalization to effectively operate through enhanced resource allocation and steering of savings towards more productive sectors. The third foundation is related to the existence of the informal sector (Taylor, 1983; Van Winjbergen, 1983). This criticism takes into account the existence of informal financial markets and their greater effectiveness in terms of resource allocation. Interest rates increase in the formal sector leads to interest rates increase in the informal sector, which brings about higher investment credit and, therefore, an increase of the general price level (cost-push inflation).

## 2.2. Empirical Literature Review on the Relationship Between Interest Rate and Bank Credit

There are a considerable number of empirical studies to confirm or infirm McKinnon/Shaw hypotheses. Demirgüç-Kunt and Detragiache (1998) brought to notice that interest rate liberalization policies exacerbated competition between banks, which incites to take a lot of risks, thereby leading to serious financial crises. In the same logic, Guillaumont and Kpodar (2006) show that interest rate liberalization positively influences economic growth. However, the latter is penalized by the financial instability deriving from it. Conversely, in the case of developing countries, Giovannini (1983, 1985) finds that savings do not significantly answer to real interest rate increase. According to Greene and Vallanueva (1991), interest rates increase reduced investments in thirty three developing countries. Demetriades and Devereux (1992) also reach a similar conclusion on a sample of sixty four developing countries. In the same vein, the study of Nadem, al. (2016) on credit supply in Pakistan revealed a harmful effect of interest rate raise on credit to the private sector, both in the short and long run.

In Africa, empirical studies do not lack. Mwege and Ngola (1991) used Kenyan data to test the relationship between interest rates and savings. The results reveal that real lending rate has marginal influence on savings in Kenya. They also noticed that high interest rates impede credit request and therefore impede investment. On a sample of thirty African countries, Diery and Yasim (1993) indicate that the real interest rate on deposits has a positive and significant impact on savings. Moreover, they find that savings have a strong impact on investment, but interest rates have a negative impact on the latter.

In Nigeria, Onwumere et al. (2012) find that interest rate liberalization had a non-significant impact of savings but a robust and negative impact on investment. Consequently, Yazid (2007) find a lowly significant and negative relationship between financial liberalization and household savings in Algeria. According to this author, financial liberalization reduced household savings. This result is explained by the fact that liberalization allowed households' easier access to consumer credit.

## 3. Methodology

In this section, we firstly present the model specification and secondly, the PMG estimation methodology.

### 3.1. Model Specification

The model to estimate in this paper can be specified in the following way:

$$CRED_{it} = \theta_0 + \theta_1 R_{it} + \theta_2 FR_{it} + \theta_3 DEP_{it} + \theta_4 NPL_{it} + \theta_5 CPI_{it} + \theta_6 DB_{it} + \mu_{it}$$

Where  $CRED$  is the bank credit granted to the private sector to GDP, the bank lending rates in annual percentage,  $R$  is a financial repression indicator measured by banks' reserves in the M2 money supply percentage,  $FR$  a financial savings indicator measured by the volume of deposits in GDP percentage,  $DEP$  the non-performing loans measured by delinquent credits in credit granted percentage,  $NPL$  the consumer price index and the budget deficit measured by the gap between public revenues and expenditures.

### 3.2. The Pooled Mean Group Estimation

$$y_{it} = \sum_{j=1}^m \lambda_{ij} y_{it-j} + \sum_{j=0}^n \delta_{ij}' x_{it-j} + \mu_i + \varepsilon_{it} \quad (2)$$

Where  $y_{it} = CRED_{it}$ ,  $x_{it} = (R_{it}, FR_{it}, DEP_{it}, NPL_{it}, CPI_{it}, DB_{it})$

a vector  $(6 \times 1)$  of coefficients;  $\lambda_{ij}$  a scalar and  $\mu_i$

relationship is derived from this model:

$$y_{it} = \theta_i x_{it} + \mu_{it} \quad (3)$$

The estimation technique chosen is the one proposed by Pesaran et al. (1999), the PMG estimator. Following Pesaran et al. (1999), Eq.(1) can be seen as an autoregressive distributed lag (ARDL) model whose form is : is a vector  $(6 \times 1)$  of explanatory variables;  $\delta_{ij}$  represents the fixed effect (country). The following long term

If variables are co-integrated, then the term is a stationary process. In that case, the model can be re-specified under the form of an error-correction model in which the short-term dynamics is influenced by the long-term relationship gap:

$$\Delta y_{it} = \underbrace{\phi_i}_{\phi_i} (y_{it-1} - \underbrace{\theta_i}_{\theta_i} x_{it}) + \sum_{j=1}^{m-1} \lambda_{ij}^* \Delta y_{it-j} + \sum_{j=0}^{n-1} \delta_{ij}^* \Delta x_{it-j} + \mu_i + \varepsilon_{it} \quad (4)$$

$\phi_i < 0.$

Where  $\phi_i$  is the coefficient of adjustment,  $\theta_i$  is the vector of long-term coefficients and  $\Delta$  is the variation operator between two successive dates. We expect that One of the advantages of ARDL models is that short-

term and long-term indicators are jointly estimated. Moreover, these models allow the presence of variables that can be integrated in different orders,  $I(0)$  and  $I(1)$ , or co-integrated (Pesaran et Shin, 1999). The PMG estimator allows short-term coefficients and the adjustment coefficient to vary according to the countries, but long-term coefficients are identical for all countries ( $\theta_i = \theta$ ). In this study, the PMG estimator is based on the following error-correction model:

$$\Delta CRED_{it} = \theta_0 + \phi_i S_{it-1} + \sum_{j=1}^p \gamma_{1ij} \Delta CRED_{it-i} + \sum_{j=0}^p \gamma_{2ij} \Delta R_{it-i} + \sum_{j=0}^p \gamma_{3ij} \Delta FR_{it-i} + \sum_{j=0}^p \gamma_{4ij} \Delta DEP_{it-i} + \sum_{j=0}^p \gamma_{5ij} \Delta NPL_{it-i} + \sum_{j=0}^p \gamma_{6ij} \Delta CPI_{it-i} + \sum_{j=0}^p \gamma_{6ij} \Delta DB_{it-i} + \mu_{it} \quad (5)$$

Where  $S_{it-1} = (CRED_{it-1} - \theta_1 R_{it} - \theta_2 FR_{it} - \theta_3 DEP_{it} - \theta_4 NPL_{it} - \theta_5 CPI_{it} - \theta_6 DB_{it})$

It was shown that imposing an identical coefficient to the restoring force could lead to bias (Kiviet, 1995). The MG estimator allows heterogeneity both in short-term parameters and long-term coefficients. The MG estimator estimates the equation for each country of the sample and then calculates the unweighted means of coefficients on the whole panel. The homogeneity hypothesis of long-term coefficients is empirically tested. To this end, one recurses to a Hausman test applied to the difference between MG and PMG estimators. Under the null hypothesis, this difference is not significant, and then the PMG estimator is preferable.

#### 4. Data and Variables Description

The empirical study uses the annual data of 7 WAEMU countries excepting Guinea Bissau. The countries are Cote d'Ivoire, Senegal, Niger, Mali, Burkina Faso, Togo and Benin. The study data come principally from two major sources: BCEAO and the World Bank's World Development Indicator (WDI). The study is on the 1982-2015 period with 34 observations. The descriptive statistics of all variables are consigned in Table 1. In this table, one notices that the average interest rate is 11.31% on the period of study. That rate indicates high cost of credit in the WAEMU zone. In the meantime, credit granted to the private sector as related to GDP has a mean of 17.65%. This very low level can be associated to the very high cost of credit in the zone.

Table 2 shows high correlation between explanatory variables. Of all those variables, the pair bank deposits (DEP) and consumer price index (CIP) presents the higher correlation coefficient (0.63), but below 0.8. The pairs bank credit to the private sector (CRED) and bank deposits (DEP), then lending rate (R) and non-performing loans (NPL) respectively present correlation coefficients of 0.34 and 0.44. The inclusion of explanatory variables in our model is thus justified in addition with their theoretical interest.

**Table 1. Descriptive Statistics**

Variables	Obs.	Mean	Std.Dev.	Min	Max
Bank credit to private sector (CRED)	238	17.65622	8.290538	3.302083	46.2638
Financial Repression (FR)	233	14.58288	11.54087	0.1493967	68.7819
Bank Deposits (DEP)	229	15.21742	9.725433	2.751303	47.6188
Lending Rate (R)	238	11.31017	2.852473	0.85	18.779
	232	5.303428	3.001261	0.2529732	17.80329

<i>Budget Deficit (DB)</i>	238	74.10916	24.1144	31.19	116.06
<i>Consumer Price Index (CPI)</i>	226	11.68508	11.60192	0.7622925	61.75492
<i>Non Performing Loans (NPL)</i>					

**Table 2.**  
**Matrix**  
**of**

**Pearson Correlation Coefficients**

<i>CRED</i>	1.00						
<i>R</i>	-0.2939*	1.00					
<i>FR</i>	-0.1194	-0.1627	1.00				
<i>DEP</i>	0.3460*	-0.1213	-0.0669	1.00			
<i>CPI</i>	-0.1487	0.0502	-0.2768*	0.6302*	1.00		
<i>NPL</i>	-0.0680	-0.4474*	0.2503*	-0.2223*	-0.4721*	1.00	
<i>DB</i>	-0.0143	-0.1525	0.0525	0.3086	0.2152	0.0433	1.00

*CRED R FR DEP CPI NPL DB*

Note: \* 5% threshold significance

**5. Empirical Results**

The empirical analysis follows the subsequent approach. Firstly, we apply unit roots tests to the series in order to study the stationarity of variables. Second, we estimate long-term coefficients with the PMG estimator. The integration order of variables is tested according to the tests of Im, Pesaran and Shin (IPS, 2003). The null hypothesis of the test assumes that all series are non-stationary against the alternative hypothesis which states that only one fraction of series is stationary. The test results summarized in Table 3 show that at the 5% threshold, the null hypothesis confirming the presence of unit root cannot be rejected for all level variables. These results show that credit to private sector (CRED), deposits (DEP) and inflation (CPI) are not stationary in level. However, variables are all stationary in first difference; they are  $I(0)$  and  $I(1)$ . This implies that there is a presumption of co-integration relationship between the different variables. We apply the co-integration test of Pedroni (1999) and the results are consigned in Table 4. Over all variables, on the seven statistics, four are in favor of the existence of a long-term relationship between credit supply and other variables. This suggests that variables are co-integrated and we will use an error-correction model to estimate the long term relationship<sup>1</sup>. Once the presence of co-integration is detected, the objective following is to estimate the long-term relationships between variables.

**Table3. Results of Panel Unit Root Tests with Im, Pesaran and Shin (2003)**

<sup>1</sup> Pedroni (1999) shows that the statistics panel-ADF and group-ADF have better finite distance properties than other tests statistics.

Variable	Level		First Difference	
	Statistics	P-values	Statistics	P-values
<i>LCRED</i>	3.381	0.999 0.000	-10.009**	0.000
<i>LR FR</i>	-4.029**	0.000 0.451	-14.579**	0.000
<i>LDEP</i>	-3.402**	0.272 0.027	-13.181**	0.000
<i>LCPI</i>	-0.122	0.000	-13.124**	0.000
<i>LNPL</i>	-0.604		-7.507**	0.000
<i>LDB</i>	-1.924*		-13.122**	0.000
	-3.933**		-12.297**	0.000

**Source:** Author's computation

Note: \* (\*\*) means that the rejection of the unit root hypothesis at the 5% threshold (1%). The choice of lags is based on the Akaike Info Criterion.

**Table 4. Result of Pedroni Co-integration Test (1999)**

	Panel Tests		Group Mean Tests	
	Statistics	P-values	Statistics	P-values
<i>v-stat</i>	-1.327	0.907	-	-
<i>ρ-stat</i>	2.265	0.988	3.465	0.999
<i>t-stat (PP)</i>	-1.496*	0.067	-4.495**	0.000
<i>t-stat (ADF)</i>	-2.272**	0.011	-2.714**	0.003

**Source:** Author's computation

Note : \*(\*\*) shows the test significance at the 10% threshold (5%). The choice of lags is based on the Akaike Info Criterion.

The PMG and MG estimates are consigned in Table 6. The Hausman test presented in Table 5 shows that the homogeneity hypothesis of long-term coefficients cannot be rejected, which means that PMG estimations are the most appropriate ones. This result was expected a priori and reasonable for WAEMU countries that share the same monetary policy and aim at the convergence of their economies in the long run<sup>2</sup>. In that case, the results interpretation will be on the PMG method.

**Table 5: Hausman Test Result**

Variables	Coefficients		Difference (b-B)
	MG (b)	PMG (B)	
<i>LR</i>	-0.670	-0.733	0.063
<i>LFR</i>	0.007	-0.210	0.217
<i>LDEP</i>	0.567	0.509	0.058
<i>LCPI</i>	-0.838	-0.702	-0.136
<i>LNPL</i>	-0.159	-0.416	0.257
<i>LDB</i>	-0.108	-0.066	-0.042

<sup>2</sup> MG estimators only give coherent results when the panel dimension approaches infinity (Pesaran and Smith, 1995).

$$\chi^2(6) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 12.05 \text{ Prob} > \chi^2 = 0.0609$$

**Source:** Author’s computation

Note: The Hausman test is applied to the difference between MG and PMG. Under the null hypothesis, the difference between the estimated MG and PMG coefficients is not significant and PMG is more effective. The test probability is superior to the 5% threshold. The PMG estimator, the effective estimator under the null hypothesis, is preferred.

Most long-term effects have the same sign in the two regressions, but their scale is varying. In the “PMG estimators” regression where 7 countries are compelled to have the same long-term relationship, long-term coefficients are practically all significant. The estimates seem satisfying. The coefficient values obtained are nearly all significant, except public expenditures. The *phi* adjustment coefficient is statistically significant at the 1% threshold. This confirms the existence of the long-term relationship between variables. *phi* is equal to -0.311, which implies that an imbalance coming after a shock is completely corrected in the first term of the fourth year following a 31.1% rate per year.

**Table 6. Estimates of the Long-Term Relationship**

Variables	PMG	MG						
Coef. S.E p-value	Coef. S.E p-value	LR	-0.733**	0.080	0.000	-0.670*	0.277	0.016
LFR	-0.210**	0.030	0.000	-0.007		0.085	0.929	
LDEP	0.509**	0.075	0.000	0.567	0.298	0.057		
LCPI	-0.702**	0.183	0.000	-0.838		0.588	0.155	
LNPL	-0.416**	0.036	0.000	-0.159		0.145	0.273	
LDB	-0.066	0.043	0.131	-0.108		0.281	0.699	

*Coef. of adjustment*

<i>Phi</i>	-0.311**	0.120	0.010	-0.571**	0.102	0.000
$\Delta LR$	-0.004	0.103	0.966	0.118	0.105	0.261
$\Delta LFR$	-0.054	0.028	0.056	-0.020	0.034	0.553
$\Delta LDEP$	0.050	0.068	0.465	-0.127	0.079	0.110
$\Delta LCPI$	-1.332**	0.209	0.000	-1.002**	0.274	0.000
$\Delta LNPL$	0.100**	0.028	0.000	0.082	0.050	0.101
$\Delta LDB$	0.004	0.029	0.881	0.042	0.063	0.501

**Source:** Author’s computation

Note: The upper pad shows long-term coefficients and the lower pad shows short-term coefficients. \* (\*\*) shows the non-rejection of the long-term coefficients’ null hypothesis of homogeneity at the 5% threshold (1%).

In the long run, the regression level has a significant and negative impact on credit to the private sector. This means that an increase of the banks’ reserves ratio on money supply would reduce bank loans possibilities. According to McKinnon (1973), the higher that ratio, the more “financially repressed” the

bank system is. Financial repression is thus harmful to credit activity in the WAEMU zone. Concerning the effect of lending rate on bank credit supply to the private sector, the former does not have the expected sign. Indeed, interest rates increase negatively affects credit supply. The higher credit costs, the less banks are able to finance the activity. High credit costs discourage credit request which, as a last resort, negatively impacts on bank financing of the economy. At a given level of the lending rate, market balance might be characterized by credit rationing. Imperfections and the oligopolistic structure of credit market begin the expected advantages of liberalization. This result is in conformity with that of Tanimoune (2001) who shows that interest rates liberalization did not favor firms' access to credit in the WAEMU zone.

As for bank savings, it has a significant and positive effect on credit to the private sector in the zone. Bank deposits increase is favorable to bank financing of the activity in the Union. Liquidity management seems to be an important factor in credit decisions for the private sector in the WAEMU zone. This result was highlighted in the study of Saxegaard (2006); according to him, the "willful excess liquidity" of the Union's banks is the consequence of the sociopolitical instability observed in the zone. Furthermore, the results show that inflation is harmful to bank credit to the private sector. Indeed, for given and fixed real interest rates, inflation increase demands an increase of nominal interest rates. The consequence would be weighing down credit cost and discouraging companies from borrowing. Most theories are conclusive enough on the harmful effect of inflation on credit.

About the effect of non-performing loans, it is in conformity with our expectation. The impact of nonperforming loans on credit to the private sector seems very significant and negative in the long run. Bad credits have a crowding-out effect on private investments financing. Indeed, the more doubtful debts banks have, the less they are able to offer new credits, which reduces credit offer at the macroeconomic level. The effect of budget deficit is not significant, which means that it is not possible on the period of study to mention the notion of "crowding-out effect" between the public sector and the private sector. Public expenditures might be complementary with private investments.

## **6. Concluding Remarks**

In this study, our objective was to analyze the effect of interest rates liberalization on bank credit to the private sector in the WAEMU zone, on the period from 1982 to 2015. To this end, we estimated a panel data model between six explanatory variables and bank credit granted to the private sector related to GDP. The results show that financial repression reduction, especially the reduction of compulsory set-asides imposed to African banks, is favorable to bank financing of the private sector. The same applies for the reduction of non-performing loans and credit cost. Likewise, fighting inflation is favorable to bank financing of the activity. In sum, these results provide a given number of implications in terms of policies. First of all, the accommodative policy started by the Central Bank of West African States (BCEAO) should be pursued. BCEAO should reduce its compulsory set-asides rates in order to encourage bank credit to the private sector. Moreover, bank risk control is useful in increasing banks' share in financing the activity. Secondly, macroeconomic stability is an important requirement for the bank financing of the activity. A future study could be dedicated to determining the threshold from which inflation negatively acts on bank credit supply to the private sector.

## **References**

- Banque Européenne d'Investissement (2016). Tendances récentes dans le secteur bancaire en Afrique Subsaharienne: du financement à l'investissement. Rapport de mars 2016
- Burkett, P. and Dutt, A. K. (1991). Interest rate policy effective demand and growth in LDC's. *International Review of Applied Economics*, 5(2), 127-153.
- Davidson, P. (1986). Finance, Funding, Saving and Investment. *Journal of Post Keynesian Economics*, 9(1), 101-110.
- Demetriades, P. and Devereux, M. (1992). Investment and financial repression: Theory and Evidence from 63 LDC's. Working Paper 92-16, Keele University.
- Demirgüç-Kunt, A. and Detragiache, E. (1998). Determinants of banking crises in developed and developing countries. *IMF Staff Papers*, 45(1).
- Diery, S. and Yasim, E. H. (1993). Financial liberalization in Africa. *World Development*, 21(11), 1867-1881.
- Fry, M. J. (1978). Money and capital or financial deepening in economic development. *Journal of Money, banking and credit*, 10(4), 464-475.
- Galbis, V. (1977). Financial intermediation and economic growth in less-developed countries : A theoretical approach. *Journal of Development Economics*, 13, 58-72.
- Giovannini, A. (1983). The interest elasticity of saving in developing countries: The existing evidence. *World Development*, 11(7), 601-607.
- Givannini, A. (1985). Savings and the real interest in LDC's. *Journal of Development Economics*, 197-217.
- Greene, J., & Villanueva, D. (1991). Private investment in developing countries. *IMF Staff Papers*, 38(1), 33-58.
- Guillaumont, S. and Kpodar, K. (2006). Developpement financier, instabilité financière et croissance économique. *Economie & Prévision* (174), 87-111.
- Im, K. S., Pesaran, M. H. and Shin, Y. (2003). Testing for Unit Roots in Heterogeneous Panels. *Journal of Econometrics*, 115(1), 53-74.
- Kapur, B. K. (1976). Alternative stabilisation policies for less developed countries. *Journal of Political Economy*, 84(4), 777-795.

Kiviet, J.F. (1995). On bias, Inconsistency and efficiency of various Estimators in Dynamic Panel Models. *Journal of Econometrics*, Vol. 68, 53-87.

Mathieson, D. J. (1979). Financial reform and capital flows in a developing economy. *IMF Staff Papers*, 26(3), 450-489.

McKinnon, R. I. (1973). *Money and Capital in Economic Development*. Washington DC: Brookings Institution.

Mwega, F. and Ngola, S. (1991). The role of interest rates in the mobilization of private savings in Africa: A case study of Kenya. *Journal of Economics and Finance*, 1(1), 1-14.

Naddem, A., Khalil, J. and Irfan, U. (2016). Impact of interest rate on private sector credit : Evidence from Pakistan. *Jinnah Business Review*, 4(1), 47-52.

Onwumere, J., Okore, A. and Imo, G. (2012). The Impact of interest rate liberalization on savings and investment: Evidence from Nigeria. *Journal of Finance and Accounting*, 3(10), 130-136.

Pedroni, P. (1999). Critical Values for Cointegration Tests in Heterogeneous Panels with Multiple Regressors. *Oxford Bulletin of Economics and Statistics*, 61, 653-670.

Pesaran, M. H., & Smith, R. P. (1995). Estimating Long-run Relationship from Dynamic Heterogeneous Panel. *Journal of Econometrics*, 68(1), 79-113.

Pesaran, M. H., Shin, Y., & Smith, R. P. (1999). Pooled Mean Group Estimation of Dynamic Heterogeneous Panels. *Journal of American Statistical Association*, 94(446), 621-634.

Reinhart C. et Tokatlidis I. (2003), Financial liberalization: The African experience, *Journal of African Economies*, vol. 12, octobre 2003, p. 53-88.

Saxegaard, M. (2006). Excess Liquidity and Effectiveness of Monetary Policy: Evidence from Sub-Saharan Africa. *IMF Working Paper No. 06/115*

Shaw, E. S. (1973). *Financial Deepening in Economic Growth*. New York: Oxford University Press.

Stiglitz, J. and Weiss, A. (1981). Credit rationing in markets with imperfect information. *American Economic Review*, 71(3), 393-410.

Tanimoune, A. O. (2001). Impacts de la libéralisation financière sur l'intermédiation bancaire dans l'UEMOA: Essai d'évaluation sur données de panel. *Laboratoire d'Economie d'Orléans*.

Taylor, L. (1983). *Structuralist Macroeconomics: Applicable Models for the Third world*. New York: Basic Books.

# **American Research Journal of Economics, Finance and Management**

Volume 10 Issue 3, July-September 2022

ISSN: 2836-9416

Impact Factor: 4.85

Journal Homepage: <https://americaserial.com/Journals/index.php/ARJEFM>,

Email: [contact@americaserial.com](mailto:contact@americaserial.com)

Official Journal of America Serial Publication

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Wijnbergen, V. S. (1983). Interest Rate Management in LDC's. *Journal of Monetary Economics*, 12(3), 433-452. Yazid, M. B. (2007). Libéralisation financière et épargne des ménages: quel(s) lien(s) ? *Cahiersdu CREAD* (81-82), 171-198.