Long-term Bank Financing of Productive Investments and Economic Growth in French-speaking African Countries

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Abstract: *This study focuses on the influence of long-term bank financing of investments on economic growth in French-speaking African countries over the period 2004-2022. The empirical evaluation of this link is made through a dynamic panel model and the generalized method of moments. The results indicate that long-term bank financing expressed as a percentage of the total credit offered has a positive and significant impact on economic growth in these countries. In addition, gross domestic savings positively and significantly affect economic growth. It seems essential that the public and monetary authorities implement incentive measures to encourage the more significant collection of savings and encourage banks to boost the supply of long-term loans by the more significant transformation of maturities.*

1. Introduction

Investments have always been seen as a significant lever in economic growth. This consideration applies to developed and developing countries (United Nations Conference for Trade and Development, 2015). However, over the past two decades, the multiple crises that the world economy has suffered head-on, such as the financial and economic crisis of 2008, the oil shock of 2014, and the health crisis of 2019-2020 due to the Covid-19 pandemic have each time led to a drop in investment around the world. In addition, this reduction in investments was due to the scarcity of savings, the decline in long-term financing, investor mistrust, and the slowdown in the global growth regime (Lorenzi & Navaux, 2012; Schwab & Malleret, 2020). The Economic and Monetary Community of Central Africa (CEMAC) countries[1] and the West African Economic and Monetary Union (WAEMU) countries[2] were not spared by these various shocks. They have also seen their economies hard hit. It's in this context that we observed among researchers and governments, a resurgence of interest linked to the problems of investment and growth, to the question of their financing, but above all, to more significant consideration of time in the analysis of these concerns.

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The notion of investment has several perceptions in the economic literature, but the one that holds our attention is the productive dimension of this concept. Indeed, productive investment is the act which involves companies, public administrations or any other agent in implementing financial means to carry out projects related to the productive sector of an economy. In Sub-Saharan Africa, gross investments stood at 24% of gross domestic product (GDP) in 2021 (World Economic Outlook, October 2022). For French-speaking African countries, particularly those in the franc zone, the rate of these investments was 26.15% of GDP in 2021 (Africa-France Monetary Cooperation Report, 2021). This rate is the average of CEMAC and WAEMU countries, respectively, 27.5% and 24.8% of GDP. These percentages are significantly lower than those observed in other countries, such as emerging and developing countries of Asia. In 2021, for example, for this block of countries, the level of investment stood at 39.2% of GDP (World Economic Outlook, October 2022). Faced with such a situation, gross investments within French-speaking African countries, mainly those of CEMAC and WAEMU, are still insufficient to boost economic growth and development.

According to some authors, the level of investments made in an economy is closely linked to the level and quality of financing available to entrepreneurs and project leaders, beneficial to the productive system and the industrial fabric (Doumbouya, 2010; Duport et al., 2010). Therefore, the origin and availability of financial resources are at the heart of the problem of financing the investments that are the engine of economic growth. Duport et al. (2010), for their part, consider that "the question of long-term financing remains at the heart of the dynamics of economic growth in general, and with all the more acuteness in the post-crisis period". Moreover, in terms of long-term financing of the economy, Glachant et al. (2010) find that although several financial institutions are capable of long-term investing, banks have always been and remain long-term investors due to their ability to transform savings over the long term.

With regard specifically to the supply of long-term bank credit, it is initially defined as a loan granted by banks with a maturity of more than one year (Kpodar & Gbenyo, 2010; Tasic & Valev, 2008, 2010). Other authors like Bencivenga and Smith (1991), Augier and Soedarmono (2012), and Demirgüç-Kunt et al. (2017) consider this offer a loan intended to finance a long-term investment project, also called an illiquid asset. Beyond these definitions, there are, in practice, several long-term maturities. Some are between one and five years, while the longest are over five years. This study focuses on long-term bank financing with maturities of more than one year.

Banks are predominant in financing economies in the CEMAC and WAEMU financial systems. When we look for this zone in the bank financing of productive investments included in our study as any loan with a maturity of more than one year (medium and long-term loans), we see that in 2022 for CEMAC and WAEMU, medium and long-term loans constitute respectively 45.83% and 48.24% of total bank loans granted (see Appendix Table A1). In the whole Franc zone for the same year 2022, these loans represent, on average, 47.06% of the total bank loans offered.

As regards the applicants and beneficiaries of this medium and long-term bank financing, it is essentially corporates in general but mainly small and medium-sized enterprises (SMEs) that form the basis of the economies of the countries of these sub-regional areas. Unlike large companies that can turn to the financial markets to obtain external financing, SMEs almost always turn to banks, their primary source of external financing. Thus, given the importance of banks in this context, it seemed appropriate to examine the impact of medium and long-term bank financing intended for productive investments on the economic growth of French-speaking African countries and, essentially, those in the CEMAC and WAEMU. Further, prior research on the banking sector has centred on the sector's contribution to economic growth in various contexts and areas. However, most of those studies are focused on the link between financial development and economic growth and few researches concern the specific study of the relationship between the maturity structure of bank credit supply and economic growth in general and Sub-Saharan African countries in particular. As far as we know, an investigation has yet to be led to determine the contribution of long-term bank financing to the economic growth of French-speaking African countries. The absence of empirical research on the influence of long-term bank financing on the economic growth of French-speaking African countries necessitated this study. Therefore, the study sets out to empirically consider the link between

financial development and economic growth with a particular emphasis on the role and the effect of long-term bank financing.

So, in this study we are interested in the link between financial development and economic growth with a particular emphasis on the role and the effect of long-term bank financing. This paper is organized as follows. Sections 2 introduces the literature review. Section 3 presents the methodological framework adopted. Section 4 presents and discuss the results of the empirical analysis and finally, section 5 conclude the study.

2. Literature Review

The link between financial development and economic growth is a subject widely discussed in the economic literature and on which there are many works. This study, which is part of this theme, focuses on the link between medium and long-term bank financing and economic growth. For us, it is a matter of emphasizing the influence exerted by the supply level of this specific type of bank financing intended primarily for productive investments on the evolution of economic activity.

2.1. Theoretical Review of Literature

2.1.1. Pioneering Analyzes on the Link Between Development of Finance and Economic Growth

Many scientific contributions to finance have been made over the years to understand better the role and involvement of banks in the economy. This economic literature on the analysis of the link between financial systems and the real economy has undergone considerable development since the second half of the 20th century. Schumpeter (1911), in his theory of economic development, raised the importance of credit in innovation. Thus, it granted financial intermediaries, particularly banks, play an essential role in financing entrepreneurs with innovative, buoyant and profitable investment projects that stimulate economic growth. According to him, the importance of finance for innovation and economic development is beyond doubt. This conception differs from that of the neoclassical theory, which minimizes the role of finance in the economy (Lucas, 1958). Following Schumpeter, Gurley and Shaw (1955), precursors of the theory on financial intermediation, raised the importance of financial intermediaries in financing growth. Goldsmith (1969), for his part, underlined the significant role played by the financial structure for economic development by transferring savings from agents with surplus resources to agents with a deficit who need financing.

These fundamental contributions opened the door to other reflections that went beyond the interest in the merits of finance concerning economic growth and instead on how these two notions interact together. In this logic, McKinnon (1973) and Shaw (1973), registering against the so-called policy of financial repression, presented financial liberalization as an essential determinant for economic growth and the fight against underdevelopment. This policy advocated by these authors has also had a central place in the structural adjustment programs experienced by developing countries in general and the countries of Sub-Saharan Africa in particular. However, contrary to the expected effects, the financial liberalization policies adopted by these countries did not improve their economic situation.

As a result of this failure, the following theoretical and empirical developments have emphasized financial development. This followed the emergence of endogenous growth theory. In the development of endogenous growth models, it is considered that financial development can promote, beyond level effects, growth effects (Pagano, 1993). For this author, financial development is likely to stimulate growth, and this is due to the ability of the financial system to mobilize significant savings, select profitable investment projects or those with high capital productivity and manage a fraction of these savings towards these projects. Going in this direction, Jacquet and Pollin (2012) believe that we must be able to recognize the endogenous nature of financial development concerning growth. Other authors like Bencivenga and Smith (1991) and Levine (2005) find that the development of the financial system is essential for economic growth, and this is made possible by strengthening the process of mobilizing savings, improving capital allocation and effective risk management.

2.1.2. Theoretical Analysis of the Link Between Long-term Financing and Economic Growth

Concerning the link between the development of long-term financing and economic growth, some authors mentioned its importance in their theoretical works. These studies reveal that long-term finance plays a crucial role in supporting long-term investment projects but also in the process of economic growth. The consideration of maturity and, in particular, the long term in the study of issues related to the financing of investments and growth, has known growing interest among researchers (Boissinot & Waysand, 2012; Glachant et al., 2010; Janci, 2012; Kessler, 2015; Pébereau, 2015). With specific regard to the supply of long-term bank financing, several authors emphasize in their analyses that banks, through their ability to transform maturities, are financial institutions capable of investing over a long horizon (Bencivenga & Smith, 1991; Glachant et al., 2010; Schumpeter, 1911; Scialom, 2013).

Schumpeter (1911), in his theory of economic development, considers that the financial system and, in particular, the financial intermediaries are not limited simply to short-term loans and transaction cash but also intervene in the creation of circulating capital and fixed. Thus, for him, when banks support entrepreneurs by granting them the adapted (long-term) loans they need to invest, they are at the heart of the productive sector's evolution, innovation, and growth. Glachant et al. (2010) note that to meet the long-term investment needs of the economy, it is necessary to promote long-term financing. This is essential if we want to create the conditions for strong and sustainable growth with technological solid and innovation potential. In this sense, the challenge is to finance productive investments by favouring the orientation of savings towards long-term projects. Financial systems must, therefore, be permanently capable of transforming non-risky or short-term savings into long-term investments and creating the conditions for a broad mobilization of long-term savings (Namur, 2012). Along the same lines, Augier and Soedarmono (2012) state that "the bank is an essential channel for mobilizing savings for the financing of profitable long-term investments". Finally, Scialom (2013), focusing on banks, highlights their ability to offer long-term financing through the maturity transformation activity. This long-term savings transformation activity that banks constantly carry out consists of offering medium-term (maturity between 1 and 5 years) and long-term (maturity greater than five years) loans from deposits for the primarily short term.

Contrary to the optimism expressed by the authors mentioned above, Landau (2013) and Huther et al. (2015) find that it is not easy to encourage long-term finance because it is confronted on the one hand with the reluctance of investors to grant resources over a long horizon and on the other hand, with the difficulties encountered in forecasting and assessing the risks associated with illiquid investments.

2.2. Empirical Review of Literature

Many researchers have focused their studies on the relationship between financial development and economic growth.

2.2.1. Positive Link Between Financial Development and Economic Growth

Many studies have concluded the existence of a positive link between these two notions. For instance, Beck et al. (2000) are interested in the link between these two phenomena in 77 countries from 1960 to 1995. Using the generalised method of moments (GMM) estimator, they find that the expansion of financial intermediation positively influences economic growth in these countries. Eggoh (2009) analyzed the relationship between financial development and growth. He uses panel data for 71 developed and developing countries from 1960 to 2004. Using the dynamic panel GMM method, he finds that financial development positively affects economic growth. For ECOWAS, Barry (2012) investigated how financial development affects economic growth. Their study sample consists of 12 countries belonging to ECOWAS and UEMOA and covers the period 1962-2006. He considered vector autoregressive (VAR) models. According to their results, financial development positively affects economic growth (GDP/ capita) in the Granger sense in the WAEMU zone. In contrast, economic growth precedes financial development in ECOWAS countries not part of WAEMU. In Laos, Kyophilavong et al. (2014), using the ARDL (autoregressive distributed lag) approach and annual data for the period 1984-2012, find that financial development positively affects economic

growth by facilitating the mobilization of savings or resources, by improving the allocation of these resources and the quality of investments. Also, they find that growth also promotes financial development. He thus finds that there is a bidirectional causality between these two variables.

Yang (2018) looked at the impact of financial development on the economic growth of middle-income countries. Based on the models and methodologies adopted by other authors, such as Levine and Zervos (1998), he arrives at the result that financial development positively impacts economic growth. Moreover, he finds that this positive effect mainly involves the formation of the stock of physical capital and factor productivity.

Asteriou and Spanos (2019) looked at the relationship between financial development and economic growth during the last financial crisis in 26 countries of the European Union over the period 1990-2016. Using panel data and the fixed effects estimator, they conclude that financial development positively affected economic growth in the countries constituting their sample before the 2008 financial crisis and a negative effect during the years after its occurrence. Ibrahim and Alagidede (2018) study the influence of financial development on economic growth in Sub-Saharan African countries. To do this, they consider panel data from 29 countries in this space from 1980-2014 and use the GMM method. They find that financial development positively affects economic growth within this region. Paun et al. (2019) also arrived at the same result by analyzing this link for 45 countries from 2006-2015 and using static panel models, the OLS method, and fixed-effect and random-effect estimators.

Guru and Yadav (2019), in their research findings from the dynamic one-step SYS-GMM estimated, observe that in presence of turnover ratio, all the selected banking development indicators such as size of financial intermediaries, credit to deposit ratio and domestic credit to private sector affect positively and significantly economic growth of BRICS countries over the period 1993 – 2014. Using too panel data analysis, Mollaahmetoğlu (2019), obtain the same result which reveals that financial development positively and significantly impacts economic growth in fifteen countries over the period 2003-2016. It's the same result for Matei (2020) that find for emerging European countries that over the period 1995–2016, financial development produces positive effects on their economic growth in the short-run horizon.

Akintola et al. (2020) have investigated the impact of the financial sector development on economic growth in Nigeria. They used autoregressive distributed lag (ARDL) model for empirical analysis. Their results suggest that there is a positive and significant impact of financial development on the growth of real output in the short-run. Using the same model (ARDL), Laajoul and Oulhaj (2021) reached to the main result that indicate the existence of a positive long-run relationship between financial development and economic growth in China over the period 1992 – 2017, and a causal relationship ranging from financial development to economic growth.

Ustarz and Fanta (2021) have examined the effect of financial development across economic sectors in Sub-Saharan Africa using the GMM over the period 1990–2018. Their findings show that while financial development has a positive effect on the service and agricultural sectors, a certain threshold of financial development must be reached before it can positively contribute to the growth of the industrial sector. Nguyen et al. (2022) used a panel data on 22 emerging markets over the period 1980–2020 and found that financial development has a positive effect on economic growth, and their relationship is linear. They also find solid bidirectional Granger causality between financial development and economic growth in all proxies for financial development.

From a data sample concerning twelve countries from West Africa, Southern Africa, and East Africa, over the years 2000 to 2019 and the use of the pooled mean group (PMG) or mean group autoregressive distributed lag (MG-ARDL) estimation method, Ekpeyong and Adewoyin (2023) find that financial development expressed as private sector credit to GDP has significantly drive economic growth.

Finally, we have also Chiwira (2023) who explored the short-run and long-run impact of financial development on economic growth in the Sothern African Development Community (SADC) over the period 1980-2020. Using panel data and ARDL estimation method, he found that in the short run, financial

development, through domestic credit to the private sector, spurs economic growth. But in the long run, its study reveals that financial development focus should be on promoting bank deposits.

2.2.2. Negative, Threshold or Mitigated Effects Between Development of Finance and Economic Growth

Some studies have concluded that financial development has a negative effect on economic growth. This is the case of the study carried out by Perrera and Paudel (2009), who analyzed the link between financial development and economic growth in Sri Lanka from 1955 to 2005. Using cointegration, the Granger test and the error correction model, they arrive at the overall result that financial development does not boost economic growth.

Other authors are interested in nonlinearity or threshold effects in the relationship between financial development and economic growth. Caporale et al. (2009), meanwhile, with panel data for 10 European economies in transition over the period 1994-2007 and estimation by the GMM method, find that credit and capital markets are underdeveloped in these economies and that their contribution to growth is limited. This is due to low financial depth. In this research framework, Eggoh and Villieu (2013) assessed the nonlinearity between financial development and economic growth for a panel of 71 countries from 1960 to 2006. Using the PSTR (Panel Smooth threshold regression) and GMM methods, they conclude that financial development positively affects economic growth up to a certain threshold from which the effect is reversed.

Gambacorta et al. (2014) use a panel of 24 developed economies (advanced and emerging) constructed from 1960-2013. They conclude that banks and markets are both crucial for economic growth. However, they confirm the result of Law and Singh (2014) that there is a threshold above which financial activity discourages growth. Finally, they believe countries with bank-based financial systems recessions are three times more severe than those with a market-based financial structure. For Bandura and Dzingirai (2019), they find in their study concerning 27 Sub-Saharan Africa countries that financial development has a mitigated effect on economic growth. According to their results, it starts contributing positively on economic growth ranges between 33% and 37%. For Syria, Al Khatib (2023) consider data from 1980 to 2018 and use of advanced nonlinear modelling techniques including artificial neural network VAR models, nonlinear causality tests, and nonlinear autoregressive distributed lag (NARDL) models. Their findings show a long-run equilibrium and short-run dynamics between financial development (FD) and economic growth (GR) in Syria. But they also observe that positive changes in FD have stronger, more persistent effects on EG compared to negative changes.

2.2.3. Some Empirical Results on the Relationship Between Development of Long-term Bank Financing and Economic Growth

Concerning empirical work studying the link between long-term finance and economic growth, several references are observed, particularly concerning the links between the maturity of credit or debt and the growth of both firms and the economy. Some studies have focused on the impact of debt maturity on firm performance—for example, Schiantarelli and Sembenelli (1997). For Caprio and Demirgüç- Kunt (1998), improving the supply of long-term business financing should be a priority for growth, especially in developing countries. These researchers find that long-term credit is rare in developing countries, especially for small firms. They believe that concerning manufacturing firms, the increase in long-term finance tends to be associated with high productivity. Moreover, finally, they argue that such credit should be subsidized. Thus, they highlight the role of incentives, which the public and monetary authorities must constantly play to promote the supply of long-term loans. Jaramillo and Schiantarelli (2002), in the case of the United Kingdom, Italy, and Ecuador, find that the increased use of long-term external financing by firms leads to the improvement of their productivity and the accumulation of capital. Moreover, short-term debt is not decisive for them and does not affect the efficiency of firms, the development of the productive system and growth.

As regards the maturity of bank credit and especially long-term bank financing, a certain number of works are illustrative. Finally, Tasić and Valev (2008) seek to know the determinants of the maturity of bank

credit and the impact that long-term bank financing has on the economic growth of the transition economies of Europe, Asia, America, Africa and the Middle East. For this, he considers panel data for a sample of 74 economies in transition spread from 1990-2005 and the GMM estimation method in dynamic panels. At the end of their investigations, they concluded that economic growth improves in countries where banks provide economic agents with more long-term loans. Kpodar and Gbenyo (2010), in the case of WAEMU, question the link between short and long-term credits and economic performance. They use panel data for a sample made up of the member countries of this zone over the period 1995-2006. Performing the GMM estimates, they arrive at results that suggest that while financial development supports growth in the region, long-term bank financing has a more significant impact on economic growth than short-term financing. They consider that long-term projects have a risk-adjusted return. They also stress the importance of long-term financial resources' availability in improving long-term bank loan supply.

Alzyadat (2022) has done a recent study to examine the relationship between bank credit maturity structure and economic growth in Saudi Arabia over the period 1995-2020. Using the vector auto-regression (VAR) model, he found that increase in the rate of economic growth is associated with higher bank credit and mainly the long-term credit.

The review of the literature reveals that the majority of theoretical and empirical studies examine the link between the development of the financial sector and economic growth. It's a field of research that continues to have a growing interest. In most of those studies, financial development is mainly measured by factors taking into consideration individually or in groups (using an index) some of its following characteristics: financial depth, financial structure, financial accessibility, financial stability or financial innovation (private sector credits to GDP, broad money supply to GDP, value of share traded, stock market capitalization, bank credit, and bank deposits, etc.). Then, concerning the role of the maturity structure of bank credit and especially the impact of long-term bank credit supply on economic growth, just a few studies have made an investigation on that relationship and the majority of them concern more Western, Asian and Middle Eastern countries than African countries. Hence, this paper is an additional contribution to the existing empirical literature on the link between long-term bank financing/credit and economic growth in the context of some French-speaking African countries.

3. Methodology and Data

In order to determine the impact of medium and long-term bank financing intended for productive investments on economic growth in French-speaking African countries, we use a panel data model on a sample of 16 countries. Fourteen countries start from the Franc zone, namely 06 for CEMAC and 08 for WAEMU. Mauritania and Madagascar are the countries that complete this sample. We use the GMM in dynamic panels for the estimation of this model. The advantage of using this methodological approach lies in the fact that it allows the control of heterogeneity between the countries of the sample and the endogeneity between the variables (Greene et al., 2005).

In this model that we consider, economic growth measured by the growth rate of real GDP per capita ($Ecogrowth_{i,t}$) depends mainly on the level of development of long-term bank finance ($LTBF_{i,t}$). Another important variable is the lagged level of GDP per capita growth rate ($Ecogrowth_{i,t-1}$). This is the initial level of GDP/inhabitant which makes it possible to capture the effects of convergence.

As for the other factors that we consider as control variables ($X_{i,t}$), these are gross fix capital formation (GFCF), gross domestic savings (GDSavings), inflation (INF), population growth rate (POP) and trade openness (TOPEN). Our specified model therefore looks like this:

$$Ecogrowth_{i,t} = \alpha_0 + \alpha_1 * Ecogrowth_{i,t-1} + \alpha_2 * LTBF_{i,t} + A * X_{i,t} + u_i + \varepsilon_{i,t} \qquad (1)$$

With u_i being the country-specific unobserved effect, $\varepsilon_{i,t}$ the error term, i the country and t the time.

Table 1 shows the explanatory variables used for the estimation of the specified model as well as their measurement and the signs expected from them.

Table 1. Description, Measurement and Expected Sign of Variables

Variables	Description and Measurement	Reference authors and Expected signs for independent variables
Ecogrowth	Economic growth is measured by the growth rate of real gross domestic product per capita.	Dependent variable
$LTBF$	This variable is captured by the total of medium and long-term bank loans expressed as a percentage of the total loans offered.	+ (Alzyadat, 2022)
GFCF	Gross fix capital formation: Total private and public productive investment expressed as a percentage of GDP.	+ (Ibrahim & Alagidede, 2018)
GDSavings	Gross domestic savings: it is expressed as a percentage of GDP.	+(Mollaahmetoğlu, 2019)
INF	Inflation: This is the annual growth rate of consumer prices.	- (Nguyen et al., 2022)
POP	This is the annual demographic or population growth rate.	+/- (Eggoh & Villieu, 2013)
TOPEN	Trade openness: this is the sum of exports and imports as a percentage of GDP.	+ (Nguyen et al., 2022)

As for the data, they are annual and relate to the period of study 2004-2022. This study period was chosen based on data availability. Data come from the World Bank (World Development Indicators) database, the Bank of Central African States, the Central Bank of West African States, the Central Bank of Madagascar and the Central Bank of Mauritania.

4. Results and Discussion

The first stage of our empirical evaluation is devoted to descriptive statistics analysis. The second step consists of carrying out the actual estimations of our model through the use of the Arellano-Bond GMM estimator and verifying its significance by the Wald Chi2 statistic and its robustness through the Sargan test (or Hansen) of instrument validity and the Arellano- Bond serial correlation test.

The results for unit root tests are presented in Appendix Table A2. They suggest that among variables, economic growth and inflation are stationary in level and the rest of variables are stationary in first difference. Concerning the correlation matrix presented in Appendix Table A3, it reveals that there is no higher degree of correlation between variables used in this study.

For descriptive statistics, their results are presented in Table 2. We can observe that between 2004 and 2022, the annual growth rate of GDP per capita was, on average, 0.87% (see Table 2). For this study, the minimum rate of -36.77% was observed in the Central African Republic in 2013, while the maximum rate of 31.87% was noted in Equatorial Guinea in 2004. As for the level of medium- and long-term bank financing expressed as a percentage of the total bank loans offered, it has evolved on average to 37.80%. Its minimum rate, 6.11%, was noted in Guinea Bissau in 2004. Regarding the maximum rate of this exciting variable, it is 78.94% and was observed in Benin in 2022.

Table 2. Results of Descriptive Statistics

Variables	Observations	Average	Standard Deviation	Minimum	Maximum
Ecogrowth	305	0.8736828	5.024711	-36.7777	31.87428
LTBF	305	37.79963	13.35738	6.105458	78.94165
GFCF	299	22.9183	10.17101	4.72228	81.02102
GDSavings	299	19.86276	17.94774	-9.533006	83.28704
INF	304	3.071313	3.373856	-8.97474	18.36382
POP	305	2.865914	0.636384	-0.076949	4.780037
TOPEN	299	66.67745	24.71302	31.49425	148.5866

Regarding the results of the estimates, they are shown in Table 3. The first model considers all the variables specified in equation (1), while the other three (2, 3, 4) exclude successively TOPEN, POP, TOPEN and INF variables whose p-values are highly insignificant.

By observing the results in the Table 3, we find that all the estimated models are globally efficient. This can be seen through the significance of the p-values associated with the various specifications. The significance at the 5% level of the probability associated with the Chi-square statistic testifies to the overall quality of this model. This model is also robust. This robustness is observed through the non-significance at the 5% threshold of the p-value associated with the Sargan (or Hansen) test of the validity of the instruments and the non-significance at the same threshold of the probability linked to the test for the absence of serial Arellano-Bond correlation of order 2.

Table 3. Results of Estimations by the GMM Method

Dependent variable: Per capita GDP growth rate (Ecogrowth)	(1)		(2)		(3)		(4)	
	Non - robust results	Robust results	Non - robust results	Robust results	Non - robust results	Robust results	Non - robust results	Robust results
$Ecogrowth_{t-1}$	0.11*	0.108	0.11**	0.111	0.11**	0.109	0.1**	0.104
	(0.06)	(0.096)	(0.05)	(0.073)	(0.05)	(0.07)	(0.05)	(0.073)
$LTBF$	0.07*	0.072**	0.08**	0.079**	0.08**	0.077**	0.068*	0.068**
	(0.038)	(0.029)	(0.04)	(0.032)	(0.04)	(0.033)	(0.04)	(0.03)
GDSavings	0.21***	0.22***	0.23***	0.23***	0.23***	0.23***	0.21***	0.21***
	(0.04)	(0.042)	(0.04)	(0.05)	(0.04)	(0.05)	(0.38)	(0.06)
GFCF	-0.08**	-0.082*	-0.07*	-0.07	-0.07*	-0.07		
	(0.04)	(0.05)	(0.04)	(0.054)	(0.04)	(0.05)		
INF	0.031	0.031	0.04	0.04				
	(0.96)	(0.065)	(0.09)	(0.07)				
POP	0.7	0.0707						
	(0.97)	(1.58)						
TOPEN	0.01	0.0306						
	(0.367)	(0.0317)						
Cons	-7.04**	-7.044	-5.5***	-5.54	-5.4***	-5.4***	-6.1***	-6.1***
	(3.39)	(4.62)	(1.72)	(2.08)	(1.68)	(2.23)	(1.63)	(1.89)
Observations	267		267		268		268	
Number of countries	16		16		16		16	
Prob > Chi2	0.0000		0.0000		0.0000		0.0000	
Sargan test	0.1605		0.1750		0.1686		0.1204	
AR (2)	0.6254		0.6963		0.6254		0.6719	

Note: Values in brackets are standard errors. ***, ** and * respectively represent the significance at 1%, 5% and 10%.

Always following the robustness check results in Table 3, we now interpret the influence of explanatory variables having a significant effect on the economic growth starting by the variable of long-term bank financing (LTBF). The coefficient associated to this variable is positive and consistent with what was expected and it's significant at the 5% level of significance. Thus, in all of the estimated models, a one-point increase in the level of medium- and long-term bank financing leads, all things being equal, to an increase of 0.07 points in the growth rate of GDP per capita. This result corroborates the conclusions of the author Alzyadat (2022), who, at the end of his analysis, find that the development of long-term bank financing positively affects the economic growth. This result is explained by the growing importance of bank loans with long maturities (medium and short terms) granted to the private sector in French-speaking African countries. The levels of these loans, although overall and on average still below those of short-term loans, contribute to supporting the productive sector. This contribution is not negligible in a country marked by the importance of productive investment needs and the quest for industrial development.

Gross domestic savings (GDSavings) came out with the positive sign that was expected. Moreover, the coefficient of this variable is significant at the 1% level in all 4 estimated models. So, all other things being equal, an increase of one point in gross domestic savings leads to an increase of 0.21 points in the growth rate of per capita GDP (models 1, 2, and 3). This result highlights that in French-speaking African countries, particularly in CEMAC and WAEMU, gross domestic savings contribute to stimulating economic growth. This conclusion corresponds to that obtained by Mollaahmetoğlu (2019) that savings positively influence economic growth.

Finally, concerning gross fix capital formation (GFCF), it appears in all estimated models with a negative sign, which is opposite to the expected one. But the coefficient linked to this variable is just significant at the 10% level in model (1). So, all other things being equal, an increase of one point in this factor negatively impacts the growth rate of per capita GDP by 0.08 points. This result is reverse to the one found by Ibrahim and Alagidede (2018). Concerning inflation, population growth rate and trade openness, they emerge from the various estimated models with insignificant coefficients. Thus, these different variables do not affect really the evolution of the GDP per capita growth rate in the French-speaking African countries constituting the sample of this study.

5. Conclusion, Policy Implications and Future Directions

Financial development is considered a critical determinant of economic growth in the economic literature. Regarding financing economies in developing countries like those of French-speaking Africa, the banks play a preponderant role in this area. Moreover, given the importance of productive and long-term investment needs observed in these countries, ever-increasing interest is now being given to the issue of long-term financing. Thus, when we look at long-term bank financing, understood as any loan whose initial maturity is more significant than one year, we wonder about the capacity of this specific type of loan to stimulate economic growth. Our objective was, therefore, to study the impact that the level of development of long-term bank financing has on economic growth in French-speaking African countries over the period 2004-2022. With this in mind, we used a dynamic panel model and the generalized method of moments for estimation. Our results show that the impact of long-term bank financing on economic growth in these countries, particularly CEMAC and WAEMU, is positive and significant. This result highlights that the gradual increase in the supply of this type of credit over the years helps to stimulate growth in these countries. We find also that gross domestic savings affects positively and significantly economic growth. Concerning gross fix capital formation, inflation, population growth rate and trade openness they do not affect growth significantly.

In order to promote the development of bank financing for productive and long-term investments, we recommend that public and monetary authorities set up guarantee funds or strengthen existing ones to encourage banks to increase the granting of long-term bank loans. In addition, the central bank can also, when necessary, lower its primary key interest rates and introduce prudential standards that are not very restrictive in order to encourage the improvement of the intermediation margins obtained by the banks, which will encourage the latter to boost their long- term transformation activity and increase the supply of

long- term bank loans. The public authorities must also create the conditions for a more significant savings mobilization and ensure efficient allocation to productive and profitable investment projects.

For futures research, we intend to make multiple comparatives analyzes on the relationship between maturity structure of bank credit and specifically long-term bank financing and economic growth concerning on one hand Africa and on the other hand the rest of the world. From the same perspective, we could carry out comparative studies which take into consideration both long-term bank financing and the other types of long-term financing.

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End Notes

1. *There are six countries that compose CEMAC zone: Cameroon, Congo, Central African Republic, Chad, Equatorial Guinea, and Gabon.*

2. *There are eight countries that compose WAEMU zone: Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo.*

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Appendixes

Table A1. Evolution of Bank Loans according to Initial Maturity in the Franc Zone in 2021 (in billion francs and in %)

Franc Zone	Year		Short term credit	Medium term credit	Long term credit	Total
CEMAC	2021	Amount	5 078	3 814	294	9 186
		%	55.28	41.52	3.2	100
	2022	Amount	5 317	4 194	305	9 816
		%	54.17	42.73	3.1	100
WAEMU	2021	Amount	15 066	10 109	1 128	26 303
		%	57.28	38.43	4.29	100.0
	2022	Amount	16 029	13 761	1 175	30 965
		%	51.76	44.44	3.8	100

Source*: Authors from Africa-France monetary cooperation report, 2021 and Central Banks data 2022.*

Table A2. Unit Root Test Results

Variables	Stationnarity in level or in first difference from the Im, Pesaran and Shin (IPS) W-stat.	Integration Order
Ecogrowth	-5.35036***	I (0)
LTBF	-8.05255***	I (1)
GFCF	-6.06739***	I (1)
GDSavings	-7.98210***	I (1)
INF	-6.38830***	I (0)
POP	-5.53739***	I (1)
TOPEN	-5.50722***	I (1)

Notes: ***, ** and * respectively represent the significance at 1%, 5% and 10%.

Table A3. Correlation Matrix of the Variables

	Ecogrowth	LTBT	GFCF	GDSavings	POP	INF	TOPEN
Ecogrowth	1						
LTBT	0.048	1					
GFCF	0.0239	0.143	1				
GDSavings	0.0098	0.0141	0.5485	1			
POP	0.1273	-0.1628	0.2913	0.4305	1		
INF	-0.043	-0.1499	0.1335	0.0167	-0.0961	1	
TOPEN	-0.1007	-0.1165	0.5587	0.7574	0.3399	0.0903	1