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Starving in the Midst of Plenty: Central Bank Credit, the Triple Trap, and Monetary Sovereignty Limits — a Random Effects FGLS Analysis of the CEMAC Bloc

Obed Fung

University of Bamenda, Bambili, Cameroon
Email: zumtaris@gmail.com | akuoobed@yahoo.com

Abstract

This study examines monetary policy transmission within the CEMAC bloc, evaluating the linkage between central bank credit and domestic absorption across all six member states from 2001 to 2019 (N=108). Within a "Triple Trap" conceptual framework, the analysis utilizes Feasible Generalized Least Squares (FGLS) to address cross-sectional heteroscedasticity and contemporaneous correlation. The empirical evidence indicates a probable "absorption trap," as credit growth lacks a statistically significant stimulative effect on domestic demand. Notably, the coefficient for loans to commercial banks (LCBGR) is insignificant (= -0.0106, p = 0.235), suggesting the hypothesized "accelerator" mechanism is not empirically robust. Furthermore, Dumitrescu-Hurlin panel Granger causality tests demonstrate a unidirectional temporal precedence running from absorption toward credit growth. The causal flow from Government Investment (I) toward Central Bank Credit Growth (CCBGR) is highly significant ($p < 0.01$), whereas the relationship from Consumption (C) is significant only at the ten percent level ($p = 0.051$). These findings support the epistemic position that CEMAC credit is primarily reactive to endogenous demand shifts rather than a proactive growth driver. Consequently, the study posits that "one-size-fits-all" monetary policy appears insufficient for the region's structural specificities.

KEYWORDS:
central bank credit, domestic absorption, capital formation, monetary policy transmission, structural heterogeneity, panel granger causality, sub-saharan africa.

1 | INTRODUCTION

The primary objective of central bank credit is to spur economic growth (Mishkin, 2016). However, this objective remains unmet if credit initiates spending concentrated in inefficient government projects or external debt servicing, bypassing the internal financial system (International Monetary Fund, 2025a). Such unproductive spending potentially destabilizes the external balance. The CEMAC region, characterized by a common monetary policy, presents symptoms of a liquidity trap, evidenced by sluggish growth, high unemployment, and low demand (Nkoulou, 2021), alongside declining investment which weakens economic activity (Tchounga and M'bakob, 2022).

BEAC provides credit to commercial banks, yet this oddly fuels an involuntary over liquid banking sector (Avom and Eyeffa, 2007; Avom et al., 2025). Paradoxically, abundant liquidity does not appear to encourage productive financing. Instead, a supply-side failure occurs where, despite excess reserves, investors cannot easily obtain loans. This creates a "Liquidity Trap" where money stagnates, leading to a demand-side "Consumption Trap" characterized by credit rationing and reduced spending. This double failure is exacerbated by an "Absorption Trap," where real domestic absorption, comprising consumption (predominantly imports), truncated investment, and debt-focused government expenditure, increases faster than domestic output (Alexander, 1952). This leaves the CEMAC economy "starving in the midst of plenty" (Koutima-Banzouzi et al., 2024).

The sub region faces a structural "absorption paradox" driven by three factors. First, over-dependence on the volatile oil sector (World Bank, 2024a) induces a Dutch Disease that cripples non-oil productivity; consequently, credit demand stems from the non-oil sector rather than the oil sector, the bloc's primary growth engine (Koutima-Banzouzi et al., 2024). Second, the fixed exchange rate regime has potentially overvalued the FCFA, hindering export competitiveness (Etta et al., 2010) and depleting foreign reserves. Third, over-reliance on imports rather than industrial diversification (UNECA, 2019) ensures that central bank credit fuels absorption without a corresponding increase in domestic output (International Monetary Fund, 2024). This leakage to imports fails to stimulate domestic production.

The objective of this study is to utilize a Random Effects FGLS framework to investigate whether BEAC credit serves as a tool for industrialization or merely a booster of debt and consumption that drives external instability through the "Absorption Trap." This model allows for the examination of country-specific distinctions between oil-dependent and agriculture-dependent member states, exposing the absorption trap as a structural phenomenon.

2 | BACKGROUND AND CONTEXT

2.1 | Theoretical Framework

Conceptually, the role of a central bank has evolved from a simple provider of high-powered money (Samuelson, 1997) to a complex institutional anchor for global financial stability (Ugolini, 2017). Within the CEMAC sub-region, BEAC operates as a "Bankers' Bank," utilizing fractional reserve mechanisms to manage liquidity. This study employs the Financial Accelerator Model (Bernanke et al., 1999) to explain the transmission of this liquidity into the real economy. This framework suggests that asymmetric information defines credit markets, creating an external finance premium barrier between a firm's internal funds and the cost of bank borrowing.

In the CEMAC context, the "accelerator" suggests that the effectiveness of Central Bank Credit is endogenous, to the financial health (net worth) of domestic firms. When BEAC injects credit, it should strengthen the balance sheets of borrowers according to economic theory, reducing the external finance premium and stimulating productive investment. However, if structural rigidities persist, a "negative accelerator" effect occurs. In this context, policy changes like interest rates or credit rules fail to improve the net worth of firms, keeping borrowing costs excessively high. In such an environment, credit does not catalyse capital formation; instead, it is diverted into immediate consumption or remains stagnant within the banking circuit. This synthesis allows us to derive a formal testable prediction, which is, if credit expansion increases firm net worth and reduces the finance premium, we expect a positive and significant coefficient for Central Bank Credit ($\alpha_1 > 0$). Conversely, if the premium remains high, the credit is "trapped," and we expect ($\alpha_1 \leq 0$) based on the Econometric Model on Section 3.3.

2.2 | The "Triple Trap" and Credit Transmission

The study defines the "Triple Trap" as the intersection of over-liquidity, consumption-led demand, and structural absorption failures, which often undermines the historical role of central banks as lenders of last resort (Bagehot, 1873) in developing regions. While the Central Bank Credit Growth Rate (CCBGR) measures resource expansion via Open Market Operations (Goodhart, 2017), the Triple Trap explains why this expansion correlates with instability rather than industrialization.

The first layer, the Liquidity Trap, manifests as reserve accumulation within the banking sector. Unlike the Keynesian model driven by low interest rates, this version stems from risk-aversion, where banks prefer excess liquidity over private sector lending due to asymmetric information (Avom and Eyeffa, 2007; Nkoulou, 2021). This leads to the Consumption Trap; as investors struggle for credit, households and governments capture available liquidity for immediate or recurrent spending (Koutima-Banzouzi et al., 2024). This shift creates a demand-side bias prioritizing short-term survival over capital accumulation.

The final layer is the Absorption Trap, the aggregate result of these failures where RDA becomes detached from domestic output (Alexander, 1952). Because the productive sector cannot respond to credit injections, the "negative accelerator" effect, spending is "absorbed" via increased imports or external debt servicing (International Monetary Fund, 2024). In this environment, Central Bank credit catalyses trade deficits rather than manufacturing booms. This triple-layered bottleneck explains why BEAC interventions often result in a "starving in the midst of plenty" scenario for the CEMAC bloc (Koutima-Banzouzi et al., 2024).

2.3 | Comparative Regional Perspectives

Empirically, a growing disconnect exists between Central Bank liquidity and productive output in developing regions. Avom et al. (2025) utilize a PVAR and GMM framework to evaluate BEAC refinancing efficiency. Their findings confirm that Central Bank credit in the CEMAC bloc contributes significantly to involuntary over-liquidity; rather than fuelling investment, this credit remains "trapped" as institutions prioritize liquidity preservation, suggesting that supply-side constraints hinder the transmission mechanism.

Koutima-Banzouzi et al. (2024) provide further evidence of this structural handicap using Dynamic Panel Data Analysis (2005–2021). Contradicting classical expectations, their results indicate a negative and significant relationship between bank credit and growth. They attribute this to the "Consumption Trap," where the financial system disproportionately directs credit toward short-term consumer loans and import financing rather than industrial development. This misalignment forces the economy to absorb imports rather than internal output, effectively reducing domestic productive capacity.

Majozi (2023) evaluates Central Bank credit in Eswatini using a VECM, finding that external Southern African Customs Union receipts, rather than internal credit uptake, primarily drove growth. This highlights the "Absorption Trap," where domestic spending decouples from production, relying instead on external windfalls. Furthermore, the longitudinal findings of Kiani and Baig (2018) on Pakistan, an economy sharing CEMAC's structural rigidities provide a baseline for credit elasticity. Using an ARDL bounds testing approach, they find that a 1% increase in Central Bank loans raises RDA by 1.08% long-term, though they warn that such high absorption rates in friction-heavy economies are often inflationary.

This study utilizes a Random Effects FGLS framework to isolate country-level factors determining whether BEAC credit acts as a growth catalyst or a driver of the "Triple Trap." Synthesis of the literature suggests that credit efficacy is highly dependent on institutional frameworks. While studies in developed markets (Cucinelli et al., 2021), employing Panel Data Probit models, show a transmission from reserves to RDA, recent CEMAC-specific evidence (Avom et al., 2025; Koutima-Banzouzi et al., 2024) indicates a decoupling. This study seeks to bridge the empirical gap by identifying the Triple Trap, where supply-side over-liquidity (Avom et al., 2025) meets demand-side consumption traps (Koutima-Banzouzi et al., 2024), ultimately culminating in the structural Absorption Trap. By employing Random Effects FGLS, this paper moves beyond the descriptive limitations of Majozi (2023) and the linear constraints of Kiani and Baig (2018) to provide a more efficient estimation of how credit potentially "hollows out" the CEMAC economy.

3 | METHODOLOGY

3.1 | The Data

Data on Central Bank credit to commercial banks and member states were obtained from Banque des États de l'Afrique Centrale (2023) and International Monetary Fund (n.d.) statistics for the period 2001–2019. The disaggregated structure across the six sub-regional countries establishes the panel nature of the dataset. Control variables were sourced from the World Development Indicators (World Bank, 2024b).

The dependent variable, Real Domestic Absorption Growth Rate (RDAGR), was constructed using the 'rdana' variable from the Penn World Table (Feenstra et al., 2015). Within the PWT framework, 'rdana' represents RDA at constant 2017 national prices, serving as a standardized aggregate of total expenditure by domestic households, corporations, and the government (C + I + G). Specifically, it encompasses Household and Government Final Consumption Expenditure (C), Gross Capital Formation (I), and Primary Government Expenditure (G).

To capture the dynamic evolution of domestic demand, the level data was transformed into a growth rate. RDAGR is calculated as the annual percentage change in the 'rdana' aggregate for each country i at time t. Mathematically, the variable is defined as:

$$RDAGR_{i,t} = \left(\frac{rdana_{i,t} - rdana_{i,t-1}}{rdana_{i,t-1}} \right) \times 100 \quad (1)$$

By utilizing the 'rdana' aggregate for this growth calculation, the relative shares of its core components, Household Final Consumption Expenditure, Government Investment (proxied by Gross Capital Formation), and Primary Government Expenditure are preserved within a weighted framework. This approach provides a standardized, internationally comparable measure of combined expenditures without requiring the manual weighting of individual sub-components.

The theoretical grounding for selecting an aggregated measure is provided by Ram (2002), Romer (2011), and Temple and Van de Sijpe (2014). Within the CEMAC monetary union, these components are linked through a shared pool of BEAC credit, specifically the Credit to Commercial Banks Growth Rate (LCBGR) and Loans to CEMAC Member States Growth Rate (LMSGR), analysed collectively under Central Bank Credit Growth (CCBGR), and common external reserve constraints. While individual components may warrant separate analysis, the use of RDAGR enables the observation of net transmission efficacy across the domestic economy, providing a holistic view of the asymmetric relationship between credit expansions and domestic demand.

3.2 | Scope of the Empirical Specification

While the theoretical "Triple Trap" framework posits an intersection of over-liquidity, consumption-led demand, and structural absorption failures, the empirical model of this study specifically tests the Absorption Trap component. The "Liquidity" and "Consumption" traps serve as the contextual motivators that set the stage for the analysis. By utilizing RDAGR as the dependent variable, the model focuses on the final and most important stage of the transmission failure. This is the inability of central bank credit to translate into the sustained internal demand required by the bloc. This focus allows for a rigorous econometric evaluation of the "stalled" transmission mechanism without over-extending the model's variables beyond the available longitudinal data for the CEMAC bloc.

3.3 | The Econometric Model

I chose the Random Effects Model (REM) to capture both the average and country-specific effects of BEAC credit within the CEMAC bloc. Following the diagnostic results of the Durbin-Wu-Hausman test (Table 2 below); I adopted a framework that treats individual-specific effects as random components of the error structure. The functional form of the log-linear model for the analysis is:

$$Y_{i,t} = \beta_0 + \sum_{j=1}^{m} \alpha_j X_{j,it} + \sum_{k=1}^{n} \varphi_k \ln(Z_{k,it}) + \omega_{it} \quad (2)$$

Where: Y_{it} is Real domestic absorption growth rate (RDAGR) for country i at time t.

$X_{j,it}$is a vector of m independent variables expressed as growth rates; Central Bank credit to Commercial Banks growth rate (LCBGR), Loans to Member States growth rate (LMSGR), and GDP growth rate (GGR).

$\ln(Z_{k,it})$ is a vector of n independent variables in natural logarithms; Real Exchange (RER) Rates and Global inflation rate (GIR).

α_j and φ_k are parameters to be estimated, representing the marginal effects and semi-elasticities respectively.

The composite error term ω_{it} comprises two independent components.

$$\omega_{it} = \mu_i + \varepsilon_{it} \quad (3)$$

Here, μ_i represents the unobserved country-specific effect (random intercept) which is constant over time, and ε_{it} is the idiosyncratic error term. In line with Wooldridge (2010), I assume $\mu_i \sim iid(0, \sigma_\mu^2)$ and $\varepsilon_{it} \sim iid(0, \sigma_\varepsilon^2)$ with $E[\mu_i, \varepsilon_{it}] = 0$

The specific form of the model is:

$$RDAGR_{it} = \beta_0 + \alpha_1 LCBGR_{it} + \alpha_2 LMSGR_{it} + \alpha_3 GGR_{it} + \varphi_1 \ln(RER_{it}) + \varphi_2 \ln(GIR_{it)} + \omega_{it} \quad (4)$$

i : country, and t: time in years from 2001 to 2019

$RDAGR_{it}$: the dependent variable

$LCBGR_{it}$, $LMSGR_{it}$, $\ln(RER_{it})$, GGR_{it} and $\ln(GIR_{it})$: the independent variables

ω_i: the composite error term

β_0, α_j and φ_k: parameters to be estimated where j=1,2,3 and k=1,2.

The ln_RER was included to account for how exchange rate stability may lower import costs, potentially reducing demand for locally produced goods (Krugman et al., 2022). Additionally, GGR was utilized to capture fluctuations in economic activity, which inherently influence credit demand and resource allocation. Finally, ln_GIR was incorporated because external inflation often exerts significant spill over effects on emerging markets like CEMAC (Mishkin, 2009). Controlling for GIR potentially isolates the specific effects of Central Bank credit on RDA by accounting for external price pressures.

A significant challenge in panel data arises because, even if ε_{it} is homoscedastic, the presence of μ_i introduces a constant correlation between observations of the same country over time. This within-country covariance is expressed as:

$$E[\omega_{it}, \omega_{is}] = \sigma_\mu^2 \qquad \text{for} \qquad t \neq s \tag{5}$$

This results in a block-diagonal variance-covariance matrix. For a single country,i the matrix takes the form:

$$E[\omega_{it}, \omega_{is}] = \sigma_\mu^2 \text{ for } t \neq s$$

$$\Sigma = \begin{bmatrix} \sigma_\mu^2 + \sigma_\varepsilon^2 & \sigma_\mu^2 & \cdots & \sigma_\mu^2 \\ \sigma_\mu^2 & \sigma_\mu^2 + \sigma_\varepsilon^2 & \cdots & \sigma_\mu^2 \\ \vdots & \vdots & \ddots & \vdots \\ \sigma_\mu^2 & \sigma_\mu^2 & \cdots & \sigma_\mu^2 + \sigma_\varepsilon^2 \end{bmatrix}$$

Ordinary Least Squares is inefficient in this context because the errors are non-spherical (presence of heteroscedasticity and serial correlation), making the estimates less precise. To address this problem and achieve the Best Linear Unbiased Estimator properties, I applied the FGLS transformation as proposed by (Mishra, 2008; Hansen, 2022). This involves partial demeaning of the variables using a weight θ:

$$(y_{it} - \theta \bar{y}_i) = (x_{it} - \theta \bar{x}_i)\beta + (\mu_{it} - \theta \bar{\mu}_i)$$

where the weight is defined by the variances of the error components:

$$\theta_i = 1 - \sqrt{\frac{\sigma_\varepsilon^2}{T\sigma_\mu^2 + \sigma_\varepsilon^2}}$$

T represents the total periods (6 countries for 19 years giving 114 observations). The demeaned variables become:

$$y_{it}^* = y_{it} - \theta \bar{y}_i \text{ and } x_{it}^* = x_{it} - \theta \bar{x}_i$$

The structural complexities of the CEMAC bloc where a common central bank and pegged currency coexist with differing scales of volatility between oil-dependent and agrarian economies necessitate a robust estimation strategy. Unlike standard OLS or Fixed Effects, FGLS models these non-spherical error distributions to provide more efficient and unbiased coefficients. While alternatives like Driscoll-Kraay robust standard errors address spatial and serial correlation, they often do so at the cost of estimator precision (Wooldridge, 2010). Following Baltagi (2013) and the Monte Carlo evidence provided by Reed and Ye (2011), FGLS remains asymptotically efficient and yields the smallest possible variance for coefficient estimates in typical panel settings.

This methodological choice also avoids System-GMM to prevent instrument proliferation and over-identification bias in a six-country sample (Sargan/Hansen tests), ensuring the model captures unique member-state behaviours rather than group averages. Finally, I adopt a contemporaneous modelling approach, guided by Muth's (1961) Rational Expectations Theory and the unique institutional landscape of the CEMAC bloc.

As noted in recent International Monetary Fund (2025b) and World Bank (2024c) assessments of the Lake Chad Basin, central bank credit often serves as an immediate liquidity bridge to address fiscal shocks and humanitarian obligations. Consequently, the transmission to domestic absorption is almost instantaneous. The Banque des États de l'Afrique Centrale (2024), which explicitly acknowledges that regional credit is predominantly absorbed by import financing further supports this. Such immediate "leakage" justifies my focus on contemporaneous structural traps over delayed expansionary effects.

4 | EMPIRICAL RESULTS AND DISCUSSION

4.1 | Robustness Checks

To address potential reverse causality and establish temporal precedence, I employ the Dumitrescu and Hurlin (2012) panel Granger non-causality framework. This test evaluates whether BEAC credit expansion drives domestic absorption or merely reacts to changes in investment and consumption, thereby mitigating concerns regarding simultaneity bias and endogeneity.

As shown in Table 1, the results indicate that the direction of causality runs exclusively from domestic absorption to central bank credit growth. Specifically, the tests reveal a highly significant causal flow from Government Investment (I) toward Central Bank Credit Growth (CCBGR) ($p < 0.01$), while the relationship from Consumption (C) is significant at the ten percent level ($p = 0.051$) but remains borderline at the conventional five percent threshold.

Conversely, the null hypothesis that CCBGR does not Granger-cause these components cannot be rejected ($p = 0.358$ for investment and $p = 0.270$ for consumption). This lack of statistical significance in the reverse relationship aligns with the observation that credit expansion appears to struggle in driving absorption growth.

TABLE 1 Granger non-causality test results

Null Hypothesis (H_0)	Z-bar tilde	p-value	Decision
Productive Investment Relationship			
Government Investment (I) does not Granger-cause CCBGR	7.484	0.000	Reject H_0 (Significant)
CCBGR does not Granger-cause Government Investment (I)	-0.917	0.358	Accept H_0 (Not Significant)
Consumer Absorption Relationship			
Consumption (C) does not Granger-cause CCBGR	1.950	0.051	Reject H_0 (Significant)
CCBGR does not Granger-cause Consumption (C)	-1.103	0.270	Accept H_0 (Not Significant)

Source: Author's Analysis 2026 using STATA.

These results appear consistent with the hypothesis that a reactive monetary environment characterizes the "absorption trap." Rather than acting as an exogenous lever to stimulate demand, credit expansion in the CEMAC region appears to be a lagging response to shifts in domestic consumption and investment. This unidirectional flow from the real economy to the monetary sector is potentially indicative of a broken transmission mechanism, where credit follows absorption rather than driving it. Such evidence suggests that credit functions primarily as a lagging indicator of economic activity within the bloc. By highlighting this structural disconnect, the analysis indicates that the "Triple Trap" likely persists not due to a lack of credit volume, but because the current credit allocation fails to stimulate productive investment.

The Hausman specification test was utilized to compare the fixed effects and random effects estimators. Table 2 presents the coefficients for both models, alongside the calculated differences and associated standard errors for each explanatory variable. These results provide the statistical basis for evaluating whether individual-specific effects are correlated with the explanatory variables, thereby guiding the selection of the most appropriate estimator for this panel.

TABLE 2 RDAGR Hausmann Test Results

	Coefficients			
RDAGR	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b – V_B)) Std. err.
LCBGR	-0.0128837	-0.0106105	-0.0022732	0.0023519
LMSGR	-0.0000145	-0.0000129	-0.00000165	0.00000616
ln RER	85.29465	86.67696	-1.382311	1.83214
GGR	-0.8915852	-0.908579	0.0169938	0.0158313
ln GIR	-14.4149	-15.71808	1.303178	1.188907

b = Consistent under H_0 and H_a; B = Inconsistent under H_a and efficient under H_0

Test of H_0: Difference in coefficients not systematic
chi2(4) = (b – B)'[(V_b – V_B)$^{-1}$](b – B) = 4.94
Prob > chi2 = 0.6751

Source: Author's Analysis 2026 using STATA.

With the p-value of 0.6751 being well above the 0.05 significance level, I fail to reject the null hypothesis that the difference in coefficients is not systematic. This confirms that the unobserved individual-specific effects are not correlated with the independent variables, validating the Random Effects estimator as both consistent and efficient (Hausman, 1978; Baltagi and Liu, 2014). GMM estimators, such as those proposed by Arellano and Bond (1991), are essential for addressing endogeneity in dynamic panels. However, such techniques already supplemented by the Dumitrescu and Hurlin (2012) panel Granger non-causality test become redundant when the standard Random Effects assumptions hold and endogeneity is not a primary concern (Arellano and Bond, 1991).

Furthermore, I evaluate the necessity of correcting for cross-sectional dependence, a common concern in currency unions where countries face shared external shocks (Pesaran, 2004; De Hoyos and Sarafidis, 2006). Ignoring such interdependencies could lead to biased standard errors and inconsistent parameter estimates (Chudik and Pesaran, 2015). As shown in Table 3, the Pesaran test for cross-sectional independence for the dependent variable, RDAGR, yielded a test statistic of –0.823 with a p-value of 0.4104.

TABLE 3 Test Results of the Pesaran's Test of Cross-Sectional Independence

RDAGR	Pesaran's test of cross-sectional independence	= -0.823	Pr = 0.4104
	Average absolute value of the off-diagonal elements	= 0.197	
Consumption (C)	Pesaran's test of cross-sectional independence	= 2.276	Pr = 0.0228
	Average absolute value of the off-diagonal elements	= 0.277	

Source: Author's Analysis 2026 using STATA.

This result suggests a failure to reject the null hypothesis of cross-sectional independence, indicating that the panel units may not be subject to the synchronized shocks that typically bias standard errors. Consequently, the use of Driscoll-Kraay standard errors does not appear warranted (Driscoll and Kraay, 1998). By confirming the absence of cross-sectional dependence and the exogeneity of the primary independent variables, the FGLS-estimated Random Effects model remains a statistically appropriate method for this analysis (Driscoll and Kraay, 1998). In the absence of such dependencies, FGLS potentially provide more efficient estimates than more complex robust corrections (Wooldridge, 2010; Baltagi, 2021).

4.2 | Descriptive Statistics

As detailed in Table 4, the sample size varies between 114 and 108[1] observations, a methodological trade-off necessitated by the stabilization of the GGR series. The reduction to 108 observations results from the uniform exclusion of 2001 across the panel. According to Baltagi (2021), this decision was driven by extreme volatility in Equatorial Guinea, Congo, and Chad, where idiosyncratic oil-sector shocks produced outliers threatening FGLS estimator convergence.

The exclusion is justified by severe asymmetric shocks that characterize 2001 as a structural outlier. During this interval, the region faced dual economic disruptions: a global slowdown-induced contraction in external demand (International Monetary Fund, 2002) and localized volatility in the Gulf of Guinea's extractive sectors. Specifically, Equatorial Guinea and Chad experienced idiosyncratic growth spikes from the Ceiba field scaling and the Chad-Cameroon pipeline's capital-inflow stage (World Bank, 2003). These non-recurrent events introduced variance that Baltagi (2021) notes can distort mean growth trends. Removing these outliers ensures coefficients reflect stabilized, long-term macroeconomic dynamics rather than transitory early-2000s volatility.

By omitting the entire 2001 time-step, the study prioritizes a balanced panel and preserves a stable covariance matrix. This systematic approach, grounded in technical cleaning criteria, avoids selection bias and prevents skewing from non-random reporting gaps (Little and Rubin, 2019; Baltagi, 2021), maintaining estimator efficiency without compromising regional representation.

This process remains distinct from aggressive transformation. Winsorization was rejected because smoothing distribution peaks would mute essential signals of transmission failure (Aguirregabiria, 2010). Similarly, a transition to log-levels was unfeasible, as excluding negative growth rates would introduce selection bias and distort the reality of regional volatility (Wooldridge, 2010). By avoiding corrections that mask sparse data distributions (Billings and Johnson, 2012), the model preserves the integrity of the "stalled" transmission mechanism. This ensures the analysis accurately captures instances where credit fluctuations fail to provoke a domestic absorption response, a core phenomenon of "Triple Trap" theory.

TABLE 4 Summary of descriptive statistics

	Variable	Obs.	Mean	Std. dev.	Min.	Max.
Model 1: RDAGR	RDAGR	114	4.288291	11.34735	-40.79885	47.14496
	LCBGR	114	18.91672	110.7143	-100	595
	LMSGR	114	3680.785	36610.75	-100	390335.5
	ln RER	114	4.595924	0.0264641	4.54038	4.653298
	GGR	108	0.3714958	2.901515	-6.707477	4.585526
	ln GIR	114	4.608397	0.1796594	4.159434	5.041736

Source: Author's Analysis 2026 using STATA.

The descriptive statistics appear to reflect the volatility and structural constraints typical of the CEMAC bloc. Real internal demand (RDAGR) grew at a modest average of 4.3%, yet the high standard deviation of 11.4% suggests an unstable market environment. This volatility is consistent with movements observed in monetary indicators; while credit to commercial banks (LCBGR) averaged 19% growth, the wide range (–100%) and high standard deviation (110.7) point toward credit cycles driven by emergency liquidity support during banking stress rather than steady, proactive investment. Similarly, the exceptionally high maximum value for money supply growth (LMSGR) likely aligns with irregular credit injections from the BEAC during periods of fiscal pressure.

In contrast, the exchange rate and price-level variables appear to be much more stable. The real exchange rate (ln_RER) shows a mean of 4.6 with a very low standard deviation (0.026), a stability that is consistent with the CFA Franc's fixed peg to the Euro. This stability, however, does not necessarily imply that the exchange rate is supporting the economy as required. Rather, it functions as a channel for import leakage, where the fixed exchange rate incentivizes the consumption of foreign goods. Finally, the low growth of GDP (GGR) and the steady trend of global inflation (ln_GIR) signal a stagnant domestic environment that

[1]The six excluded country-year observations are: Cameroon-2001, Central African Republic-2001, Chad-2001, Republic of the Congo-2001, Equatorial Guinea-2001, and Gabon-2001.

is sensitive to external shocks. Including these variables controls for external factors, enabling a clearer observation of how domestic monetary policy operates.

4.3 | Inferential Statistics

4.3.1 | Global Results

The basis for adopting a REM in this study was associated with the Hausman Test results, as provided in Table 2 above and consolidated in Table 5 below. This table contrasts the Fixed Effects and Random Effects regression results to facilitate a direct comparison of the estimators.

TABLE 5 Summary of Fixed Effects and Random Effects with FGLS Regressions for RDAGR

	Fixed Effects (within) Regression			Random-effects FGLS Regression		
RDAGR	Coefficient	Std. err.	P> |t|	Coefficient	Std. err.	P> |z|
LCBGR	-0.0128837	0.0094008	0.174	-0.0106105	0.0089348	0.235
LMSGR	-0.0000145	0.0000277	0.601	-0.0000129	0.0000266	0.627
ln RER	85.29465	49.34774	0.087	86.67696	48.46425	0.074[b]
GGR	-0.8915852	0.4028814	0.029	-0.908579	0.3956346	0.022[a]
ln GIR	-14.4149	6.093557	0.02	-15.71808	5.869539	0.007[b]
_cons	-321.4007	227.8139	0.162	-321.7803	223.7183	0.150
N	108			108		
R-squared:						
Within	0.12			0.1192		
Between	0.2638			0.5218		
Overall	0.121			0.1219		
Model F-Test: Prob > F	0.0275					
F(5,97)	2.65					
Hausman test: Prob > chi2				0.6751		
Wald chi2				14.16		
F-stat for FE: that all μ_i=0:						
F(5, 97)	0.30					
Prob > F	0.9093					
Fraction of variance due to μ_i: rho	0.0177551			0		

[a]p < 0.05; [b]p < 0.10

Source: Author's Analysis 2026 using STATA.

As Table 5 indicates, the standard errors for the key coefficients, such as LCBGR, where the error is reduced from 0.0094 to 0.0089 are consistently lower under the random effects FGLS framework. This observed precision, coupled with the FGLS estimator's ability to incorporate time-invariant regional characteristics that fixed effects would exclude, supports it as a preferred choice for our analysis. Following Wooldridge (2010), the FGLS approach thus presents a more efficient and globally consistent view of the correlation between central bank credit, inflation, and domestic absorption across the CEMAC region.

The overall R-squared of 0.1219 indicates that the model explains approximately 12.2% of the variance in RDAGR. While relatively low, this level of explanatory power aligns with results typical of panel data regressions involving growth rates, where stochastic noise and idiosyncratic shocks are prevalent (Easterly et al., 1993; Pritchett, 2000). Furthermore, this result reflects the counter-cyclical reaction function of BEAC, where credit injections serve as a reactive cushion during crises rather than a proactive driver of long-term growth (Avom and Eyeffa, 2007). Such limited explanatory power aligns with the "absorption

trap" hypothesis, wherein targeted liquidity fails to shift domestic demand meaningfully (Iossifov and Jijakli, 2012). Ultimately, the lack of a strong statistical link between credit expansion and absorption demonstrates that structural rigidities, rather than monetary volume alone, drive economic activity in the CEMAC bloc (Kireyev, 2016).

The remaining 87.8% of the variance is consistent with the influence of omitted structural and institutional variables. These factors include political stability, human capital levels, geographical location, and infrastructure quality. Longitudinal data was unavailable for these variables. Again, the Random Effects framework acknowledges this unexplained portion by capturing unobserved, time-invariant heterogeneity within the error term through the composite error-term, $\omega_{it} = \mu_i + \varepsilon_{it}$ identified in the econometric model. Despite the low R-squared, the model remains statistically robust tool for inference by identifying the significant marginal and semi-elastic impacts of GGR and ln_GIR respectively on RDAGR, which was the primary objective of this study.

The empirical investigation utilizes the Financial Accelerator Model as its theoretical framework. As indicated in Section 2.1, the model posits that central bank credit expansion lowers the external finance premium, thereby stimulating real domestic absorption. However, the Random Effects FGLS estimation results do not provide statistically significant evidence to support this hypothesis within the CEMAC bloc. The coefficient for LCBGR is statistically insignificant (α_1 = -0.0106, p = 0.235), indicating that the expected "accelerator" mechanism fails to function as theorized in this specific context. Rather than providing evidence of a catalytic effect on productive investment, the results are consistent with a scenario where BEAC credit injections remain decoupled from the productive financial circuit. This result is consistent with high external finance premiums remaining insulated from liquidity shocks, aligning with the presence of structural rigidities and information asymmetries.

Furthermore, the statistical insignificance of the LCBGR coefficient p = 0.235 appears to be consistent with the Absorption Trap interpretation. While the broader "Triple Trap" framework suggests that this failure is preceded by over-liquidity and consumption-led leakage, these two dimensions are treated here as the structural environment in which the absorption failure occurs. The model's results are noteworthy in that they do not contradict the premise that, regardless of the volume of credit injected (the liquidity dimension); the CEMAC economy apparently fails to "absorb" this credit into productive activity. This distinction indicates that the empirical findings remain a direct extension of the tested parameters while acknowledging the multidimensional nature of the region's apparent structural paralysis.

The potential decoupling suggests that the financial sector in the CEMAC region may face challenges in acting as a conduit for growth. These findings are broadly consistent with regional observations from Avom and Eyeffa (2007), who highlight that excess liquidity in CEMAC often fails to reach the private sector due to risk aversion. Similarly, Koutima-Banzouzi et al., (2024) suggest that credit expansion, in the absence of accompanying structural reforms, may fail to drive capital formation. Consequently, the Financial Accelerator appears to be weakened in this context, as the transmission from central bank balance sheets to real economic activity may be hindered by the very market imperfections the model intended to describe. The lack of statistical significance for LCBGR could suggest that the net worth of firms remains unresponsive to monetary easing, a phenomenon potentially linked to public sector crowding-out or a preference for low-risk, non-productive assets.

In contrast, the model identifies significant structural drivers. The GDP Growth Rate (GGR) exhibits a significant negative coefficient (-0.908, p = 0.022), suggesting a potential divergence between national income and domestic demand. In the CEMAC context, economic expansion (often in extractive sectors) appears associated with a contraction in internal absorption, likely due to capital outflows or the repatriation of oil rents. Furthermore, the highly significant negative coefficient for Global Inflation (ln_GIR, -15.71, p = 0.007) suggests that external price shocks function as an implicit tax on domestic disposable income, potentially neutralizing the stimulus provided by internal credit expansion.

This evidence aligns with the broader discussion surrounding the "Domestic Absorption Trap." The results are consistent with a mechanism where the transmission channel for monetary policy is constrained by external vulnerabilities. The empirical finding that a 1% increase in central bank credit fails to produce a statistically significant increase in absorption is compatible with the hypothesis of a structural paralysis. Given the statistically negligible impact, it could be suggested that conventional monetary policy instruments, as currently deployed, appear to face structural limitations in their capacity to stimulate internal demand (RDAGR) within the CEMAC bloc.

4.3.2 | Country-Specific Results

The country-level regression results in Table 6 suggest that the transmission of monetary policy is highly contingent on national economic structures. Within the CEMAC bloc, Central Bank credit growth (CCBGR) does not appear to function as a uniform policy tool, as its impact is modulated by the specific industrial and fiscal profiles of each member state.

TABLE 6 Country-Specific RDAGR Regression Results

Variable	Cameroon	CAR	Chad	Congo	Equat. Guinea	Gabon
Central Bank	-0.0081674[a]	0.3279749[a]	0.0162533	0.0045207	-0.000019	-0.0001775
Credit Growth Rate	(–4.58)	(2.32)	(0.42)	(0.78)	(–0.43)	(.)
Log of Real	43.89039[a]	–77.91113	3.3466	58.488	173.8272[a]	92.11858
Exchange Rates	(3.64)	(–0.83)	(0.05)	(0.74)	(2.21)	(1.33)
GDP Growth Rate	0.0193338	–0.4654378	–1.055517[a]	–1.450129[a]	–0.706956[b]	–0.5954145[b]
	(0.21)	(–1.25)	(–2.98)	(–3.07)	(–1.54)	(–1.6)
Log of Global	5.739362[a]	–1.133608	–22.960[a]	–35.95529[a]	–18.80831[b]	–13.00799
Inflation	(3.33)	(–0.1)	(–2.31)	(–2.76)	(–1.48)	(–1.22)
Constants	–223.6655[a]	362.5628	94.73749	–98.73972	–708.1932[a]	–359.1515
	(–4.07)	(0.86)	(0.32)	(–0.27)	(–1.95)	(–1.16)

Z values in parentheses. [a]$p < 0.05$; [b]$p < 0.1$

Source: Author's Analysis 2026 using STATA.

In Cameroon, the significantly negative coefficient for CCBGR (-0.00817) suggests the possibility that credit extensions are being absorbed by debt servicing or consumption rather than productive capital formation. Conversely, the Central African Republic (CAR) presents a distinct case where credit shows a strong, positive relationship with RDAGR (0.328). This is consistent with the interpretation that in fragile, aid-dependent contexts, BEAC interventions may more directly support core economic activity. However, for the oil-dependent states (Chad, Congo, Equatorial Guinea, and Gabon), the statistical insignificance of credit variables persists. This aligns with a scenario of a structural disconnection where liquidity may fail to reach non-oil productive sectors.

The significant negative association between GDP growth and RDAGR in the oil-exporting states (ranging from -0.595 to -1.45) provides evidence of a potential "Growth Trap." This dynamic aligns with established literature on Dutch Disease, where rising income in the extractive sector is often associated with a structural weakening of the non-oil economy (Corden and Neary, 1982). These results are consistent with the "Absorption Trap" framework, suggesting that wealth generated during periods of high oil revenue appears to struggle to be demonstrably reinvested to diversify the domestic economic base. Instead, such wealth appears to be cycled back into the capital-intensive needs of the extractive sector or directed toward public consumption and imports, aligning with a limited capacity to trigger a self-sustaining cycle of internal investment.

The relationship between real exchange rates (ln_RER) and domestic absorption suggests a further structural divide. A notable sensitivity is observed in Cameroon (43.9) and Equatorial Guinea (174), where a more competitive real exchange rate, which is often indicative of real depreciation appears linked to growth in domestic absorption. For Cameroon, this suggests the "Absorption Trap" may be associated with price competitiveness; an overvalued currency might act as a direct tax on non-oil exports, potentially limiting investment.

Conversely, for CAR, Chad, Congo, and Gabon, the real exchange rate appears statistically insignificant. This might point toward a profound structural disconnection where even favourable price signals may fail to transmit into economic activity due to infrastructure gaps, governance challenges, or entrenched conflict. In these contexts, the exchange rate channel appears to be less effective, suggesting that barriers to absorption may be more deep-rooted than mere price competitiveness.

Finally, the impact of global inflation (ln_GIR) suggests an economic schism within the union. Cameroon demonstrates a degree of resilience as global inflation exhibits a positive association with domestic absorption (5.74). This may reflect a price-led export response from its more diversified, agrarian-leaning economy, where rising commodity prices could potentially boost agricultural export values.

These dynamics shift significantly for the oil-dependent interior states of Chad (-23.0), Congo (-36.0), and Equatorial Guinea (-18.8), where global inflation appears to function as a severe external tax. Their structural reliance on imported food and capital goods suggests that rising global prices may directly escalate production costs. This negative impact is consistent with the "Absorption Trap" mechanism, as inflationary shocks potentially divert available liquidity; any credit expansion provided by the BEAC appears to be largely absorbed by the higher cost of essential imports rather than productive investment.

5 | CHALLENGES AND COUNTER-CONSIDERATIONS

The structural and methodological hurdles of this study must be acknowledged for a transparent assessment of the CEMAC "Absorption Trap." First, data granularity remains a constraint; while aggregate annual panel data was necessary for this doctoral scope, it may bypass high-frequency shocks or seasonal fluctuations visible in quarterly data. Furthermore, the region's high economic informality creates a "black box." Official figures exclude informal credit markets, which likely influence domestic absorption but remain outside standard econometric reach.

Institutional rigidities also complicate the analysis. The CEMAC region's unique monetary peg and relationship with the French Treasury mean "monetary sovereignty" is not absolute. Isolating domestic credit impact from these all-encompassing external stability mechanisms remains a significant challenge for any purely domestic policy prescription.

Finally, while the FGLS model provides a robust statistical overview, it cannot account for micro-level infrastructural deficits, such as energy or transport bottlenecks. These constraints suggest that even with optimized credit transmission, the "trap" may persist until broader structural reforms are realized. This reality reinforces the idea that monetary policy alone cannot bridge the developmental gap.

6 | POLICY RECOMMENDATIONS AND IMPLICATIONS

Based on the empirical evidence provided by the Random Effects FGLS model, the following policy directions are proposed for consideration:

The finding that uniform credit expansion (CCBGR) fails to significantly drive domestic absorption suggests that a standardized monetary approach may be ineffective across the heterogeneous CEMAC bloc. Since the current transmission mechanism appears stalled, the BEAC might consider exploring more targeted credit frameworks. Such mechanisms would be intended to ensure that central bank liquidity is more closely aligned with productive domestic investment rather than being diverted into import-leakage or debt servicing. However, the specific design of such sectoral credit allocation remains an important avenue for future research.

Furthermore, the observed disconnect between GDP growth and domestic demand in resource-rich member states is consistent with Dutch Disease effects, where commodity-driven wealth fails to translate into stable domestic absorption. While this suggests a theoretical need for counter-cyclical fiscal frameworks, the empirical scope of this study does not permit a definitive recommendation on specific fund designs. Instead, future research should formally test whether the strengthening of regional stabilization funds acts as an effective mitigator for the commodity-driven shocks observed in the GGR series. Such studies would be essential to determine if managing fiscal inflows more effectively can protect non-oil sectors from the volatility identified in this study.

Finally, the significance of external factors, such as global inflation (ln_GIR), indicates that domestic absorption remains highly sensitive to outside shocks. Given that these pressures routinely undermine domestic monetary policy, regional policymakers may need to focus on strategies that enhance internal resilience. Strengthening the link between central bank liquidity and real economic activity is essential; however, further evidence is required to determine how deepening regional financial markets or improving domestic cost structures might formally facilitate this transmission and prevent the "Absorption Trap" from persisting.

7 | CONCLUSION

The analysis suggests that significant heterogeneity and a structural "Absorption Trap" characterize the relationship between central bank credit and domestic absorption in the CEMAC zone. The study's contribution is structured around three tiers of empirical certainty. First, panel Granger causality tests indicate that central bank credit within this sub-region is primarily reactive. A statistically significant causal flow runs from domestic absorption (investment and consumption) toward credit expansion, rather than the reverse. This suggests a neutralized transmission mechanism where credit is a symptom of economic shifts rather than a proactive growth driver. National divergences are notable: in Cameroon, a negative relationship suggests credit may be channelled away from productive formation, while in the Central African Republic, a positive link suggests that BEAC interventions may more directly support economic activity in fragile contexts. Second, the findings align with the "Triple Trap" framework. In oil-dependent Gabon, Congo, and Chad, the inverse relationship between GDP growth and RDAGR is consistent

with a crowding-out dynamic, where extractive sector performance coincides with the weakening of non-oil sectors, a hallmark of Dutch Disease. Additionally, the region's high sensitivity to global inflation aligns with its "price-taker" status, where external shocks attenuate the intended effects of domestic credit. Finally, while the model identifies a "stalled" transmission, it suggests that the Liquidity and Consumption traps described in the theoretical framework are consistent with a worsened "Absorption Trap." From a policy perspective, a "one-size-fits-all" approach appears increasingly inadequate. However, the specific design of counter-cyclical fiscal frameworks or regional stabilization funds remains a hypothesis for future inquiry. Further evidence is required to determine how structural reforms aimed at realigning credit toward non-oil productive investment might formally bypass the rigidities identified in this study.

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