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Bank Capital and Credit Supply in Ivory Coast: Evidence from an ARDL-Bounds Testing Approach

PRAO YAO Seraphin*
Professor-Researcher at Alassane Ouattara University (Bouaké), Member of Laboratory of Analysis and Modeling of Economic Policies, B P V 18 01, Bouaké, Ivory Coast

Kamalan Eugène
Professor-Researcher at Alassane Ouattara University (Bouaké) / LAMP-Laboratory of Analysis and Modeling of Economic Policies, Bouaké, Ivory Coast

Abstract

The aim of this paper is to examine the impact of bank minimum capital requirement on credit supply in Ivory Coast, over the period from 1982 to 2016. To this end, the ARDL method was used to study the nature of the relationship between our explanatory variables and bank credit supply in Ivory Coast. The study indicates some major results. The results showed that in the short term, real GDP per capita and bank size influence credit supply in Ivory Coast. Real GDP per capita acts negatively on credit supply in the short run while bank size has a positive influence on banks' capacity to finance the economy. In the long run, the Cooke ratio and the openness rate have an impact on bank credit supply in Ivory Coast. The recovery of bank minimum capital requirements positively influences bank credit supply while the openness of the economy negatively impacts banks' ability to offer bank credit. In terms of economic policies implications, monetary authorities must enforce and respect the policy of increasing bank minimum capital requirements. They must encourage banks to increase their banking assets.

Keywords: Capital; Credit supply; Impact; Cooke ratio; Bank capital; Bank.
JEL Classification: G21; G28.

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1. Introduction

The existence of a healthy and effective bank system is essential for every economy (Northcott, 2012) since banks contribute to financing the economy. However, financial markets are imperfect markets and the individuals participating in them do not share the same information. The extensive "financialization" of economies in the eighties led to often violent financial crises. Non-compliance to prudential regulation has been considered as both a trigger and an amplifier factor of financial crises.

Today, after several financial crises, a real and new consensus about financial regulation emerged. Micro-prudential regulation having shown its limits, macro-prudential regulation now needs to be prioritized. Moreover, substantial research efforts are engaged to help elaborate macro-prudential policies (Galati and Moessner, 2013). Bank minimum capital requirement remains one of the micro-prudential tools. In fact, the higher a bank's equity, the more solid the bank is, thereby fostering the stability of the bank system. However, the bank can also discourage loans supply by internalizing the potential social cost of credit default, through an increase of debit interest rates engendered by the high costs of equity (Adrian and Shin, 2010; Adrian and Boyarchenko, 2012; Jeanne and Korinek, 2013; Malherbe, 2015; Morrison and White, 2000; Shleifer and Vishny, 2010). In fact, the tax benefits of debt financing and asymmetric information at the bank level imply that the increase of external equity financing might be costlier for banks than debt financing (Gornall and Strebulaey, 2013; Hanson *et al.*, 2011; Tirole, 2006). Beyond the constraints related to bank products supply, credit supply and the instruments of monetary policy, the respect of regulatory norms might bring about a shortage of resources which, in turn, is likely to dampen bank credit supply. Indeed, the rules prescribed by the Basel committee are based on the principle that every increase in the volume of credit is accompanied with needs for banks equity; this could constrain banks in their credit distribution activity. Hence, given the possibility of credit constraints as a result of the implementation of the Basel I Accord, many studies have been carried out in order to appreciate the scope of these measures. At the empirical level, many authors contributed with their studies, namely, Pazarbasioglu (1997) on Finland, Ghosh and Ghosh (1999) on East Asia, Konishi and Yasuda (2004) on Japan, Chiuri *et al.* (2002) on 16 emerging countries, Dionne and Harchaoui (2003) on Canada, Van (2003) on the G-10 countries, Barajas *et al.* (2005) on Latin America, Berger and Gregory (1994) and Peek and Rosengren (2000) on the United States. Despite this well documented empirical literature, the debate remains about the likely impact of minimum capital requirements on credit distribution.

In 2007, the authorities of the West African Monetary Union (WAMU) decided to increase the minimum share capital applicable to the banks and financial institutions of the Union, to ten billions and three billions, respectively. This decision is part of the promotion of a healthy and solid banking and financial system likely to effectively contribute in financing the Union's economic development. It would also be justified by the necessity of updating the former capital norm which is fifteen years old whereas the economic and financial environment as well as exploitation conditions have greatly developed. A strong consolidation of the WAMU's bank system is expected

*Corresponding Author

from the implementation of the new norm with namely, a sensitive improvement of the capital requirement and of the overall solvency of credit establishments. In Ivory Coast, the capital adequacy ratio went from 10.05 in 1990 to 7.58 in 2000. During the same period, bank credit to the economy to GDP went from 14.20 in 1990 to 11.09 in 2000. In 2016, the capital adequacy ratio was around 7.300, while the bank credit to the economy to GDP ratio was 27.60. From these figures, the influence of minimum capital requirements on credit supply does not clearly appear. Henceforth, a central question arises: to what extent did bank minimum capital requirement affect bank credit supply? Thus, the objective of this study is to analyze the effect of bank regulation on loan supply in African economies. Our general objective can be divided into specific objectives.

Specific Objective 1: Analyzing the impact of increasing minimum capital requirements on credit supply in Ivory Coast.

Specific Objective 2: Assessing the impact of banks' sizes on their capacity to provide credit.

In relation with our objectives, we formulate the following hypotheses.

Hypothesis 1: An increase of bank minimum capital requirements leads to an increase of credit supply in the long run.

Hypothesis 2: An increase of bank size has a positive impact on the financing of the economy.

Methodologically, the study uses an Autoregressive Distributed Lag Model (ARDL). For the ARDL Bound testing approach, lagged dependent variables and lagged independent variables can be introduced in the model. Indeed, such a modelling takes into account reaction times and inertia effects. This hypothesis seems reasonable in the case of monetary variables that influence the macroeconomic aggregates with a delay. This study contributes in the empirical literature on the link between bank regulation and credit supply in Ivory Coast on the 1982-2016 period. The results obtained from this study are the following. In the short run, real GDP per capita and bank size influence credit supply in Ivory Coast. In the long run, the capital adequacy ratio and the openness rate have an impact on credit supply in Ivory Coast.

The present article in organized in the following way: Section 2 is devoted to the literature review on the relationship between bank minimum capital requirements and bank credit supply. Section 3 presents the methodology of the study. Section 4 deals with the empirical results, particularly those of the econometric analysis on the relationship between bank minimum capital requirements and bank credit supply.

2. Literature Review

This section revisits the theoretical and empirical literature on the link between bank minimum capital requirements and bank credit supply. But before that, we are examining the determinants of credit supply.

2.1. Literature Review on the Determinants of Credit Supply

The credit supply provided by foreign banks in Central and Eastern Europe is explained by economic growth and financial deepening (Burcu, 2008). By studying the determinants of the credit supply granted to the private sector in the Euro zone, Calza and Sousa (2001) point that loans are positively correlated with real GDP and negatively correlated with long-run and short-run debit interest rates. In a recent study, Guo and Stepanyan (2011) state that credit growth is associated with a dynamic national economy. A strong economic growth brings about an increase of credits while higher inflation decreases credits supplied.

From a sample of 26 Pakistani commercial banks on the 2001-2010 period, Hussain and Junaid (2012) found that GDP growth, the development of the industrial sector, bank soundness, bank size, exchange rate depreciation, and budget deficit, have a significant and positive impact on bank credit supply. Still in Pakistan, Imran and Nishat (2013), on the 1971-2008 period, using time series based on the econometric approach (ARDL), point that foreign debt, national deposits, economic growth, exchange rate and monetary conditions have important repercussions on the bank credit supply granted to the private sector in Pakistan, particularly in the long run.

2.2. Literature Review on the Relation between Bank Minimum Capital Requirements and Credit Supply

Theoretically, bank minimum capital requirements are justifiable. In fact, on the one side, banks must satisfy the international standards on return on equity demanded by shareholders; on the other side, international prudential norms compel banks to a strict equity coverage of their risks (Plihon *et al.*, 2006). The microeconomic implications derived are also numerous. Generally, banks are brought to take decisions on the amount of capital they should own for three reasons. Firstly, capital helps in avoiding bank failures, a situation in which a bank cannot fulfil its repayment obligations towards its depositors and other creditors, and where it bankrupts. Hence, a bank holds a capital to reduce the probability of becoming insolvent. Second of all, the capital amount affects bank owners' performance. In fact, considering the performance coefficient, the weaker the bank capital, the higher owners' profitability. Therefore, the owners of a given bank might not want that bank to hold too much capital. Thirdly, a minimum capital amount is imposed by the regulator. Since capital ownership engenders high costs, bank managers often wish to have less equity than the minimum imposed by regulatory bodies, compared to their assets. In that case, the capital amount is determined by equity requirements.

In terms of macroeconomic implications, bank capital regulation impacts financial stability ex-ante by reducing banks' willingness to take risks, and ex-post by allowing banks to amortize bank losses. With the help of a theoretical model, Malherbe (2015) point that banks choose their systemic risk exposure by choosing between gains from risk taking and the preservation of their capital value. Therefore, capital requirements can reduce risk taking and decrease not only the cost, but also the frequency of systemic crises. However, capital requirements can

exacerbate bank risk taking. Banks can use new funds obtained to invest in speculative and risky activities (Martynova *et al.*, 2015). Using the CAPM, Miles *et al.* (2012) conclude that a strongly capitalized bank reduces the possibility of bank crises. In a sample made of emerging and developing countries, De Haan and Klomp (2015) show that capital requirements reduce the risk of bank assets. In contrast, on a sample of more than 3,000 banks in 86 countries, Demirgüç-Kunt and Detragiache (2011) point out that bank capital regulation is not significantly associated with bank risk, measured by bank Z-scores.

The link between bank capitalization and banks' capacity to offer loans was also strongly documented. Some articles examined the theoretical foundations of capital regulation and its potential effects on credit expansion. The theoretical foundations of this argument are seen in the study of Bernanke and Gertler (1995). Banks' incapacity to comply with the capital increase requirement causes them to reduce bank supply (Myers and Majluf, 1984). Using cross-sectional data, Bernanke and Lown (1991) indicate that loan increase between 1990 and 1991 was positively correlated with the level of bank capital. By utilizing a sample of 16 emerging countries, Chiuri *et al.* (2002) demonstrate that introducing higher bank capital requirements could induce a slowdown in bank credit supply. On the German data, during the 1965-2009 period, Buch and Prieto (2014) found that a one-percent (1%) capital increase is associated with a 0.23% increase of bank loans. Nevertheless, bank loans decrease with bank capital only when the equity-to-asset ratio exceeds 33%. Albertazzi and Domenico (2010), on the Italian data of 2007-2009, show that a bank credit crunch is associated with weakness of bank capital.

However, Barrios and Blanco (2003), using some data for Spanish commercial banks between 1985 and 1991, notice that banks were not compelled by capital regulation during the period of study. Beatty and Gron (2001) find similar results by using some data of 438 listed American holdings between 1986 and 1995. Barajas *et al.* (2005) analyze the impact of Basel I on credit slowdown in Latin America and do not reach a clear conclusion. Holmström and Tirole (1997) demonstrate that the capital ratio behaves in a pro-cyclic way, increasing during expansion and decreasing during crunch. There is a close relationship between bank assets and liabilities (Diamond and Rajan, 2000). Deposits increase during expansion, in parallel with bank credit expansion, leading to an increase of the solvency ratio.

3. Strategy for Co-Integration and Data Issues

In this section, we first present the model specification and second, the estimation method of the short-run and long-run coefficients.

3.1. Model Specification

To examine a potential long-run relationship between a set of variables, some studies use the Engle and Granger (1987) two-staged method and the Johansen and Juselius (1990) method. These two tests demand that all variables be integrated in the same order. Moreover, these tests are not appropriate for small-sized samples (Cheung and Lai, 1993). For all these reasons, we chose the ARDL Bound approach proposed by Pesaran *et al.* (2001). Our choice is motivated by several considerations. First, it is possible to test the existence of a long-run relationship, even if the orders of integration are different but do not exceed 1. Secondly, the Bound test generally provides unbiased long-run coefficients estimates and valid T-statistics although some repressors are endogenous. Third, it allows the collection of good results even with small samples, and jointly treats long-term dynamics and short-term adjustments. The potential long-run relationships between bank credit supply and bank minimum capital requirements, and perhaps other variables, are estimated by the following non-constrained error correction model:

$$\begin{aligned}\Delta CREDG_t = a_0 &+ \sum_{i=1}^{p} b_i\,\Delta CREDG_{t-1} + \sum_{i=0}^{q1} c_i\,\Delta INTRATE_{t-1} + \sum_{i=0}^{q2} d_i\,\Delta BANSIZE_{t-1} + \sum_{i=0}^{q3} e_i\,\Delta RGDPH_{t-1} \\ &+ \sum_{i=0}^{q4} f_i\,\Delta OPENR_{t-1} + \sum_{i=0}^{q5} g_i\,\Delta INFL_{t-1} + \sum_{i=0}^{q6} h_i\,\Delta CAR_{t-1} + i_i CREDG_{t-1} + j_i INTRATE_{t-1} \\ &+ k_i BANSIZE_{t-1} + l_i RGDPH_{t-1} + m_i OPENR_{t-1} + n_i INFL_{t-1} + o_i CAR_{t-1} + \varepsilon_t\end{aligned} \quad (1)$$

With $CREDG$ referring to the total share of credit supply to the economy in GDP; $INTRATE$ the debit interest rate applied by banks; $BANSIZE$ the logarithm of bank total assets; $RGDPH$ the real gross domestic product per capita; $OPENR$ the economy openness rate; $INFL$ the inflation rate; and CAR the regulatory capital held by banks. Moreover, a_0 stands for the consistency, Δ the difference operator, p and $q1, q2, q3, q4, q5, q6$ are the optimal lags, and ε the error term. According to Pesaran *et al.* (2001), the ARDL model is specified as $ARDL\,(p, q1, q2, q3, q4, q5, q6)$. The first part of Equation 1 with $b, c, d, e, f, g, and\ h$ represents the short-term dynamics, while the second part with i, j, k, l, m, n and o represents the long-term dynamics. The verification test of the long-run relationships between variables is the F-test. The null hypothesis of non-co-integration between variables is specified in the following way:

$$H_0 : i = j = k = l = m = n = O = 0 \quad (2)$$

Which means that there is no long-run relationship.

And the alternative hypothesis is:

$$H_0 : i \neq 0, j \neq 0, k \neq 0, l \neq 0, m \neq 0, n \neq 0, O \neq 0 \quad (3)$$

If the Fisher statistic is higher that the critical value of the test, then the null hypothesis of absence of co-integration is rejected at the 5% and 10% threshold, according to the variables' order of integration.

3.2. Estimation of the Long-Run Coefficients

If the existence of the long-run relationship is established according to the F-statistic, then the second step is the estimation of the long-run and short-run relationships coefficients. The long-run relationship is considered as the stationary equilibrium while the short-term relationship is assessed by the magnitude of the deviation from the stationary equilibrium. The long-run coefficients are estimated from the following model:

$$CREDG_t = \beta_0 + \sum_{i=1}^{p} \beta_1 CREDG_{t-1} + \sum_{i=0}^{q1} \beta_2 INTRATE_{t-1} + \sum_{i=0}^{q2} \beta_3 BANSIZE_{t-1} + \sum_{i=0}^{q3} \beta_4 RGDPH_{t-1} + \sum_{i=0}^{q4} \beta_5 OPENR_{t-1} + \sum_{i=0}^{q5} \beta_6 INFL_{t-1} + \sum_{i=0}^{q6} \beta_7 CAR_{t-1} + \varepsilon_t \quad (4)$$

Where $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6 \; and \; \beta_7$ represent the long-run coefficients of the model.

3.3. Estimation of the Short-Run Coefficients

The existence of a long-run equilibrium relationship implies that an error correction mechanism exists. In order to estimate the parameters of the short-term dynamics, the error correction model associated to the long-run relationship is:

$$\Delta CREDG_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta CREDG_{t-1} + \sum_{i=0}^{q1} \beta_2 \Delta INTRATE_{t-1} + \sum_{i=0}^{q2} \beta_3 \Delta BANSIZE_{t-1} + \sum_{i=0}^{q3} \beta_4 \Delta RGDPH_{t-1} + \sum_{i=0}^{q4} \beta_5 \Delta OPENR_{t-1} + \sum_{i=0}^{q5} \beta_6 \Delta INFL_{t-1} + \sum_{i=0}^{q6} \beta_7 \Delta CAR_{t-1} + \pi ECT_{t-1} + \varepsilon_t$$

Where $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6 \; and \; \beta_7$ represent the short-run coefficients of the model and π is the coefficient associated with the delayed error correction term on a ECT_{t-1} period which captures the adjustment speed. The magnitude of π indicates the speed with which the equilibrium is reestablished.

4. Empirical Results

The empirical assessment follows the subsequent approach. Firstly, we indicate the data source and variables description. Second, we apply the unit root tests to the series in order to study the stationarity of variables. Thirdly, we estimate the long-run and short-run coefficients.

4.1. Data and Variables Description

The empirical study uses Ivory Coast's yearly data of the period from 1982 to 2016. The choice of this period of study is entirely explained by the availability of data for conducting this study. The study data primarily originate from the Central Bank of West African States (BCEAO, 2017), the World Bank (WDI), and the Global Financial Development Data (GFDD, 2017). The following variables: CREDG (Credit to the economy/GDP), INFL (Inflation), BANSIZE (Bank asset logarithm), INTRATE (Bank debit interest rate), are taken from BCEAO's database. The RDGPH (GDP per capita) and the openness degree indicator (OPENR) derive from the World Bank's database (WDI, 2017). As for the CAR (Capital Adequacy Ratio), it is extracted from the World Bank's database (GFDD, 2017).

The analysis of Table 1 shows that on the 1982-2016 period, in average, the percentage of credit supply in GDP is 17.80% against a maximum percentage of 34.05%, and a weak standard deviation of 4.81%, expressing homogeneity in credit supply. On average, bank capital minimum requirement is 8.471 against a maximum mean of 10.815 and a minimum mean of 6.049.

Table-1. Description of Variables

Variables	Observations	Mean	Std. Dev.	Minimum	Maximum
CAR	35	8.471	1.555	6.049	10.815
CREDG	35	17.802	7.079	10.371	34.056
INFL	35	17.802	4.816	-0.805	26.081
RGDPH	35	2,286.784	1,571.609	601.488	5,798.271
BANSIZE	35	6.388	0.217	6.149	6.971
INTRATE	35	12.047	1.959	9.250	17.750
OPENR	35	31.025	6.825	19.358	44.330

Source: Authors, from the data of BCEAO (2017), WDI (2017) and GFDD (2017)

Concerning inflation, the mean is 17.80%, and a maximum of 26.08% was reached in 1994, against a minimum inflation of -0.80% noted in 1990.

For the real per capita income, a mean of $2,286.784 appeared, with a maximum of $5,798.271 and a minimum level of $601.4885.

As for bank size, the mean is 6.388 million FCFA with a maximum of 6.971 million FCFA and a minimum of 6.149 million FCFA, which express a relative uniformity in assets held by banks in Ivory Coast. Concerning the debit interest rates, the mean is 10.04% with a maximum of 17.75% and a minimum of 9.25. The openness degree has a mean of 31.02% with a maximum degree of 44.33% and a minimum of 19.35%.

4.2. Unit Root Tests

This test is done from the Augmented Dickey-Fuller Test and confirmed or invalidated by the KPSS test (Kwiatowski *et al.*, 1992), which has the particular feature of stating the stationary hypothesis as a null hypothesis. The tests results are summarized in Table 2. The result is that only the INFL and INTRATE variables have a stationary level according to the Augmented Dickey Fuller (ADF) statistic, while all the other variables are not stationary. Hence, the unit root hypothesis is verified. However, all variables are stationary in level according to the KPSS test. By confronting these two tests, we cannot conclude that all our variables are stationary in levels. Hence, we carry out stationarity tests of primary difference on our variables.

Table- 2. Estimates of In Level Stationarity Tests

	In Level			
	ADF		KPSS	
Variables	**T Statistic**	**Critical Value**	**T Statistic**	**Critical Value**
CAR	-1.819	-2.951	0.282**	0.463
CREDG	-1.868	-2.951	0.097**	0.463
IINFL	-4.210***	-2.9511	0.310**	0.463
RGDPH	1.566	-2.954	0.654***	0.739
BANSIZE	4.508	-2.951	0.682***	0.739
INTRATE	-2.991**	-2.951	0.103**	0.463
OPENR	-0.849	-1.951	0.197**	0.463

Source: Author, from the data of BCEAO (2017), WDI (2017) and GFDD (2017)
Note: ***, **, and * respectively stand for 1%, 5% and 10% levels of significance.

Table 3 shows us that variables become first difference stationary regardless of the test chosen. At the outcome of the two tests on first difference and in level variables, we can say that the variables of our series are all I (0) and I(1).

Table-3. Estimates of First Difference Stationarity Tests

	In First Difference				Decision and Order of integration
	ADF		KPSS		
Variables	T Statistic	Critical Value	T Statistic	Critical Value	
D(CAR)	-5.103**	-2.954	0.141**	0.463	Stationary I(1)
D(CREDG)	-6.172**	-2.954	0.093**	0.463	Stationary I(1)
D(IINFL)	-	-	-	-	Stationary I(0)
D(RGDPH)	-6.043	-2.954	0.609***	0.739	Stationary I(1)
D(BANSIZE)	-6.524	-2.954	0.476***	0.739	Stationary I(1)
D(INTRATE)	-	-	-	-	Stationary I(0)
D(OPENR)	0.127**	0.463	0.127**	0.463	Stationary I(1)

Source: Authors, from the data of BCEAO (2017), WDI (2017) and GFDD (2017)
Note: ***, **, and * respectively stand for 1%, 5% and 10% levels of significance.

4.3. Estimates of the Co-Integration Bound Test

Table 4 presents the results obtained after applying the Bound test. Note that the co-integration Bound test allows us to know whether there is the presence of co-integration between variables.

Table-4. Bound Test of Co-integration

Test Statistic	Values	Number of Explanatory Variables
F-Statistic	3.628568	**6**
Significance	I(0) Bound	I(1) Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Source: Authors, from the data of BCEAO (2017), WDI (2017) and GFDD (2017)

The absence of the null hypothesis of co-integration is tested here against the alternative hypothesis. The Fisher statistic calculated is superior to or higher than the test critical value. Thus, the absence of the null hypothesis of co-integration is rejected at the 5% and 10% threshold. For the 2.5% and 1% threshold, there is the presence of co-integration between the variables. Hence, we can conclude that there is co-integration between the variables of our model at the 5% and 10% threshold.

4.4. Estimates of the Short-Run and Long-Term coefficients

This section is reserved for the presentation of the short-run and long-run coefficients as well as their economic interpretations. The analysis of Table 5 shows that in the short run, on all explanatory variables, only the RGDPH and BANSIZE variables significantly influence credit supply in Ivory Coast at the 5% threshold. These variables contrastingly influence credit supply. As the first variable has a negative relationship with credit supply, the second one positively influences credit supply.

In the short term, income negatively influences credit supply in Ivory Coast. Indeed, on this time scale, the credit distributed is a short-term credit, hence a consumption credit. Yet, increasing the income of economic agents brings those agents to reduce credit requests thereby limiting supply in the short term. It is possible to consider that in the short run, in an inter-temporal time, an agent having a good finance wealth will defer money demand, and will therefore not request for credit. This result is similar to that of Prao (2009), who shows that in Ivory Coast and Senegal, the economy largely remains self-financed.

Table-5. Estimates of the Short-Term Dynamics

Variable Explained: Credit to the Economy to GDP (CRED_GDP)

Explanatory Variables	Coefficients	T. Statistic	Probabilities
D(CAR)	-0.236	-0.225	0.823
D(INFL)	0.026	0.129	0.898
D(RGDPH)	-0.064**	-2.047	0.052
D(BANSIZE)	99.928**	2.280	0.032
D(INTRATE)	-0.224	-0.429	0.671
D(OPENR)	-0.061	-0.307	0.761

Source: Authors, from the data of BCEAO (2017), WDI (2017) and GFDD (2017)
Note: (***), (**), and (*) respectively stand for the 1%, 5% and 10% levels of significance

Concerning bank size, it positively influences credit supply to the economy. The loans granted by banks, the obligations available to banks in their portfolio and the number of structured products in their possession, have a positive impact of credit supply to the economy. The estimates of the long-term dynamics are recorded in Table 6.

Table-6. Estimates of the Long-Term Dynamics

Variable Explained: Credit to the Economy to GDP (CRED_GDP)

Variables Explained	Coefficients	T Statistic	Probabilities
CAR	5.509**	2.345	0.028
INFL	0.056	0.129	0.898
RGDPH	0.011	0.942	0.356
BANSIZE	-46.952	-0.700	0.491
INTRATE	-0.484	-0.446	0.659
OPENR	-0.894**	-2.188	0.039
C	295.455	0.706	0.487

Source: Authors, from the data of BCEAO (2017), WDI (2017) and GFDD (2017)
Note: ***, **, and * respectively stand for the 1%, 5% and 10% levels of significance.

In the long run, the CAR variable significantly explains the evolution of credit to the economy with a positive coefficient at a 5% threshold. However, the openness degree of the economy negatively explains the evolution of credit to the economy.

As for the positive impact of bank minimum capital requirement on credit to the economy, our results are similar to those of Naceur and Kandil (2013). Also, this result is an extension of Martynova *et al.* (2015) works,

which show that a strongly capitalized bank increases its financial stability by reducing bank risks and increasing anti-losses techniques.

As for the negative impact of the openness rate on credit supply, it can be explained by the country's wrong specialization. In this case, an external openness leading to a deterioration in the terms of trade results in a negative current account. Ultimately, this negative current account has a negative impact on the country's wealth. Such a situation could explain the negative impact of external openness on bank financing of the economy.

5. Concluding Remarks

In this study, our objective was to examine the impact of bank capital minimum requirement on loan supply in Ivory Coast, on the period from 1982 to 2016. Our study was motivated by the importance of adherence to prudential norms in the stability and solidity of the banking system. At the methodological level, we used the Bound test developed by Pesaran *et al.* (2001). Data cover the period from 1982 to 2016. The study arrived at important results. In the short run, real GDP per capita and bank size influence credit supply in Ivory Coast. In the long run, the Cooke ratio and the openness rate have an impact on credit supply in Ivory Coast. In the long run, adherence to prudential norms, especially the norm on increasing African banks' minimum capital, is favorable to bank financing to the economy.

Overall, these results provide a given number of policy implications. Firstly, the policy on increasing bank capital in Africa should be continued. Moreover, a strongly capitalized bank allows banks to resist shocks. Secondly, a monetary policy likely to increase bank size is favorable to credit supply to the economy in Ivory Coast.

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