MANAGEMENT OF THE WEST AFRICAN COMMERCIAL BANK : WHAT CAN THE CENTRAL BANK OF WEST-AFRICAN STATES (BCEAO) REALLY DO ?

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Abstract: Our subject aims to analyze the role of capital in the management of the West African Economic Monetary Union (WAEMU) banks in order to assess the appropriateness and relevance of the implementation of the new capital requirements.

HENRI FAYOL introduces the uniqueness of management and presents the business administration function which he delimits in five operations (foresight, organization, command, coordination, control).

The objective of our study is to show the significant impact that the missions of the BCEAO can have. Researchers continue to take an interest in financial intermediation by examining the functioning of credit institutions, on the one hand motivating their indispensable roles in the economy, on the other hand, for reasons of simplification. In addition, survival models allow the estimation of the time required for bank failure, information which may prove useful for banking supervision. The structure of the BCEAO banking market influences the survival of banks and the study paves the way for future research that can explore the role of institutions or governance in the survival of West African Economic Monetary Union (WAEMU) banks.

Keywords: Management, Commercial Bank, West Africa, BCEAO.

INTRODUCTION:

The management term comes from English to manage (direct) but was borrowed from the Italian meaning Managgiare handle, manage, operate. In French management management was wrongly translated (to manage). Indeed, for many author: we manage things but directs (manage) people.

Management can be defined as "Knowing exactly what you want that staff and ensure that it does so in the best way at the lowest cost. "(Taylor).

Historically, two extreme schools of thought will oppose: the classical school (Taylor, Ford, Fayol, Weber) who will attempt to make management a universal science by seeking the best way to manager while for other theorists, which Mintzberg, management is a complex art coexisting multiple practices determined by many factors.

Management must allow to keep control of the company to ensure the achievement of defined objectives.

Several internal and external factors undermine the coherence and cohesion within the company; the manager must take into account to prevent them away now its purpose.

The father of management is that this HENRI FAYOL without defining the function of administration of companies that defines five operations: insurance (planning), organization of command, coordination and control. In the distinction he made between these six objectives functions, Fayol already introduced the singularity of management, "while other functions involve the material and machinery, the administrative function only works on the staff." A manager sets goals for the company.

CONTEXT

The UEMOA is composed of 8 countries that use the CFA franc as its currency. In this space, we like Central Bank (BCEAO), which is responsible for several missions. Within this union, are companies, banking institutions, microfinance in which the will to make productive and profitable activities require a managerial policy that will make them competitive in the WAEMU area.

Commercial banks have their reservations to the BCEAO and it has a say in the accounts of these banks. However, banks are still the engine of modern economies. Criticized and confronted with the decision making risky future, they are too often disregarded the general public and policy makers. Over the last thirty years, they have undergone a profound transformation of their organization.

Although banks are sometimes described as "industry" for mass treatment (payment instruments, electronic banking, custody of securities, etc.), they are not businesses like any others because of the nature of the benefits, services and products offered, by the board and money. They ensuring a genuine public service because, in consideration of loans they make to the economy, they create money and ensure define and implement monetary policy within the sub regional area in which it belongs as in the case of the BCEAO. The Mint is an expression of sovereignty of the meeting of States in the WAEMU zone. The soundness of the banking system is a prerequisite important for the effectiveness of monetary policy, financial stability and economic growth. It is in this optics that the BCEAO, in its operation acts as a controller, supervisor and regulator of the activities of commercial banks in the WAEMU zone.

Which leads us to ask?

What can be the role of the BCEAO in the management of these banks? Or What kind of management the BCEAO can instill in different banks to effectively meet their goals?

PRIMARY OBJECTIVE

Show the significant potential impact of the missions of the Central Bank in the management of commercial banks.

SPECIFIC OBJECTIVES

Show organizational planning that sets up the BCEAO for commercial banks calmly reach their goals.
Show the extent of managerial policy of the BCEAO

HYPOTHESES

H1: The management of the BCEAO has a negative incident on the management of commercial banks
H2: The influence of the BCEAO on the management of commercial banks is limited by its definition framework.

PROBLEM

What kind of management the BCEAO can instill in commercial banks to confidently achieve their goals?

LITERATURE PAPER

Modern financial theory and especially the literature on banking theory, focused on the reasons for the proliferation of derivative products, the development of financial engineering, and development of a risk management more scientific. Governments must ensure that institutions give their regulatory framework that will not only keep them but also to realize their full potential local and international development. The banking prudential regulation should promote fairness, solvency and efficiency of the financial system. As part of the reforms of the banking, several approaches, methods and specialized organizations have emerged.

Indeed, the objective of prudential regulation is primarily the assurance of financial stability of the system in its entirety and protects depositors in particular. Diamond and Dybvig (2002) discussed the theoretical foundation on which is based the authorities to explain the lack of a deposit insurance mechanism may give rise to panic in the banking system [.

As part of the modern theory of financial intermediation, the most significant explanations for the existence of intermediaries like depository institutions are their ability to provide liquidity and improved control services As indicated Diamond and Dybvig (2002), the value of banks appear as they provide liquidity and offer depositors an implicit insurance against bank runs. By collecting deposits, banks can achieve growth in a competitive market for these free resources allow better distribution of risk between the shareholders.

Banks are expected to have more information on their investment projects those depositors. They can learn this information but only after paying a control cost. The measures taken for liquidity insurance liabilities represent the balance of the side of the bank and those control services represent the portion of the asset. Diamond and Rajan (2002) examined this in a model where investors and borrowers account for liquidity. They showed that banks can go bankrupt or because they are insolvent or following a liquidity shortage that affects their solvency.

Researchers continue to show interest in financial intermediation by examining the operation of credit institutions, firstly motivated by their indispensable role in the economy, the other for reasons of simplification because the models are sufficiently complicated to contain different forms of intermediation. In the case of banking, the researchers have not yet reached consensus on the fact that the banks should be regulated or not. If so how should they be regulated?

Dewatripont and Triole (1994), proposed a rational banking regulations used instead of the agency problem with a separation between owners and managers, as well as the inability of depositors to monitor banks. The starting point of their argument is that banks are dealing with problems of moral hazard and adverse selection. Indeed, it is important for investors to have control over the bank, but it is expensive and requires access to information and that bank debt is mainly held by unsophisticated depositors with a lack of necessary information for a more effective control.

METHODOLOGY

The goal set by this study is to analyze the role of equity in the management of WAEMU banks to assess the timeliness and relevance of the implementation of the new capital requirements. In other words, the paper attempts to analyze to what extent the new capital requirements can influence in a positive or negative sense determinants of survival of banks. The starting point of our methodological approach is the identification of the main determinants of survival of WAEMU banks from statistical and econometric methods. To this end, we mobilize survival models (or duration) that are in this context more appropriate than traditional classification techniques, such as discriminant analysis and binary choice models (logit and probit). Unlike other methods, parameter estimation of banks' survival determinants can be made from semi-parametric survival models that do not require a specific hypothesis formulation on the distribution of the life of banks. Second, survival analysis provides a continuous time analysis of the probability of bank failure. Third, both data survival analysis provides a continuous time analysis of the probability of bank failure. Third, both data survival analysis provides a continuous time analysis of the probability of bank failure. Third, both data

Complete the censored data on the lifetime are easily incorporated into this approach. Moreover, unlike other available techniques, survival models allow the estimation of the time required for bank failure, information that can be useful for banking supervision.

Finally, analysis of survival is a more flexible method to analyze the determinants of a bank failure regression by ordinary least squares (OLS) because the latter requires a proxy of bank failure or insolvency risk such as z-score. The major drawback of a regression on the z-score is the latter being a proxy, does not receive information on the current failure event. Also, the calculation of z-score requires having information on a sufficient period of time for each bank, which, in this study, would eliminate sample several newly established banks.

I. ANALYSIS OF SURVIVAL

Survival analysis is a statistical technique to model the time to an event occurring (bankruptcy, death, find a job etc.), given a set of determining factors. It is based on the concepts of survival function (survival function) and the hazard function or the failure rate (hazard function).

Suppose the WAEMU banks go bankrupt in a given time interval, or (0, T). Let$T \geq 0$ lifetime, a random variable with probability density function f (t) and t a particular value of T. The random variable distribution function$T$ continuous assumed is defined by: $F(t) = P\ (T \leq t) = (1)\int_0^t f(u)\ du$

The survival function (t) Is the probability of surviving beyond the period t. It is formalized by:(t) = 1 - $F(t)$ = $P(T > t)$ (2)

The probability p failure of a bank in the time interval $(t,\ t + dt)$ Given that it has survived to the period t is defined by: $p = (t \leq T < t + dt \mid T \geq t)$

The survival analysis is more interested in the hazard function or the failure rate $h(t)$ Which represents the instantaneous probability that a bank is failing at a time t given that it has survived for all periods before t, is

$$h\ (t) = \lim_{dt \to 0} \frac{P(t \leq T < t+dt \mid T \geq t)}{dt} = = \frac{f(t)}{1 - F(t)} \frac{f(t)}{S(t)}$$

In the literature, three types of approaches are used in survival analysis: nonparametric approach, parametric and semi-parametric. The nonparametric approach to estimate and represent the survival function when no hypothesis is not admissible on the distribution of$T$. The estimator of the survival function as used in this context is the Kaplan-Meier (1958) also known as the estimator product-limit. This estimator is the estimator of the nonparametric maximum likelihood$S(t)$. It integrates information from all available evidence, both censored and non-censored, because survival to any point of time is seen as a series of steps defined by survival times and censored durations observed. Thus, at any particular point of time$t$The number of banks in operation is the number of at-risk banks. If we stand by, respectivelyNi and Di the number of banks at risk and the number of failed banks, the strictly empirical estimate of the survival function is given by:

$$\hat{S}\ (t) = \prod_{ti<t} \left[\frac{Ni - Di}{Ni}\right] \quad (5)$$

Parametric survival models require accurate assumptions about the distribution of the duration T. Assuming that the failure rate does not vary over time,$h(t)$ Is a constant h, Which is the characteristic of a memoryless process. In this case, the probability of failure in the next period does not depend on the bank's survival time. From the above definitions, we obtain a simple differential equation.

$$h\ (t) = \frac{f(t)}{S(t)} = = H\ (6) - \frac{d \ln S(t)}{dt}$$

Using the condition (0) = 1 or(0) = 0, the solution to the differential equation (6) is given by:

$S(t)$ = Exp (-ht) $\Longrightarrow$ $F(t)$ = 1 - exp (-ht) (7)

This solution corresponds to an exponential distribution of the variable T. In other words, if the variable$T$ an exponential law then the failure rate is constant over time.

A distribution whose risk rate is increasing slope (decreasing) is characterized by dependence on the positive duration (negative). The choice of an exponential distribution can be misleading if the failure rate depends on time. Faced with this problem, literature offers a plethora of distributions: Normal, Lognormal, Weibull, Weibull generalized, Gamma, logistics, Log-logistic, Gompertz etc. A limitation of previous specifications is that external factors do not play a role in the distribution of survival. The addition of regressors the duration models is simple. Considering a vector$X$ of k regressors that affect the survival of banks, the failure rate is interpreted as the instantaneous probability that a bank is failing at a time t given that it has survived for all periods before t conditional on $k$regressors. Formally, the failure rate can be rewritten as follows:

$$h(t \mid X) = \lim_{dt \to 0} \frac{P(t \leq T < t + dt \mid T \geq t, X)}{dt} = \frac{f(t|X)}{1 - F(t|X)} (8)$$

The third duration model category uses the semi-parametric model Cox proportional hazard (1972). The main advantage of the semi-parametric approach is that it makes no assumptions about the probability distribution of the variable$T$, Making the robust estimates. The failure rate or the hazard function of the proportional risk model of Cox (1972) is specified as follows:

$$h\ (t \mid X) = h_0(t)\ \text{Exp}\ [\sum_{i=1}^{k} \beta i Xi] \quad (9)$$

orβi are unknown parameters that represent the sensitivities to the variables of interest, $h_0(t)$ Is the common basis of risk function in all banks that are not supposed to follow any distribution. The variablesXiact multiplicatively on the failure rates. An estimated$\beta k > 0$ indicates an increase in the variable Xkcauses an increased risk of failure

and a reduction in the bank's survival time. Specifically, a one-unit increase in the explanatory variableXk leads to an increase in percentage of the failure rate of the order of 100 × [exp (βk) - 1] so that the coefficients βk represent semi-elasticities of the failure rate to a variation of the factor Xk.

In this study, we mobilize firstly nonparametric approach to estimate and describe the unconditional survival function of WAEMU banks by the Kaplan-Meier (1958). To prevent incorrect specification of the distribution of the variable$T$The model Cox proportional hazard (1972) will be used to estimate the effects of the explanatory variables on the risk of bank failure. The parametric models will be made to check the robustness of the estimates of the semi-parametric approach.

II. THE VARIABLES

In survival analysis, the dependent variable is the failure time, that is to say the length of time that a bank was or is active. For banks in operation, it is the difference between the current year and the year of establishment. For banks that have failed, it is the difference between the last year for which financial statements are available and year of establishment. The bank failure is captured by a dummy variable that is equal to 1 during the year when the failure occurred and 0 if it is 0 for surviving banks for all sampling years. A bank is considered failed when it files for bankruptcy or its authorization was withdrawn by the banking supervisor. The case of dissolution, liquidation, merger and acquisition / absorption is also considered bankruptcy (Heffernan, 2005). Also, banks under temporary administration to the sampling date are also supposed failed. Indeed, they are regarded as banks would have gone bankrupt without the intervention of the banking supervisor or state.

Literature is emerging consensus that the predictors of bank failure are the combination of external variables taking into account the economic environment in which banks operate and internal or micro banking variables. Thus, the variables used in this study can be divided into three categories: (i) micro banking variables reflected in the financial statements and those related to the banking market structure, (ii) the indicator variables related to the ownership structure of the bank and (iii) macro variables.

For bank variables, the choice is inspired by prudential CAMELS rating system (Capital, Asset quality, Management, Earnings, Liquidity and Sensitivity to market risk). The variable of interest in the study, the equity ratio is measured by three indicators percentage: funds own workforce on total assets (EPF), basic equity on total assets (T1) and hard own funds in the total assets (CET1). The first ratio is used in the basic estimated while the latter two are used in robustness. These ratios aim to impose on shareholders of banks to maintain a minimum capital to face the risks in case of bankruptcy (according to the old and the new standard).

In this study, the effective capitals are composed of core capital and supplementary capital. Basic own funds consist of core capital and own additional funds. The core capital is the better component of equity for the continuity of operations of the institution. The total assets are unweighted risk in the absence of detailed information on the various assets in the portfolio. The expected signs of the coefficients of these variables are negative following the idea that the risk of failure decreases when capital ratios improve.

We consider the ratio of net loans in total assets (CTA). Budget allocation is the main activity of WAEMU banks. This is a risky activity that banks have some expertise in monitoring the risk associated with lending. Under the assumption of a careful selection of credit records, an increase of this ratio should have a positive impact on the survival of banks. Otherwise, an increase of this ratio increases the risk of deterioration of the bank's portfolio. This ratio also captures the degree of diversification of sources of income of the bank, a high ratio is indicative of a low level of diversification. The expected sign of the coefficient for this variable is ambiguous in theory.

We try to capture the credit risk effect by introducing into the model the bank portfolio deterioration rate (TDP). It is the ratio between gross nonperforming loans to total gross loans. Without individual data banks, we appreciate the banks' credit risk from data aggregated by country2. The expected sign of the coefficient of this variable is positive following the idea that rising NPLs reduced life expectancy banks (Gonzalez-Hermosillo et al., 1997, Caprio and Klingebiel, 2003).

We would also account from the general expenses in the total expenses (FRG). A low level from the overhead can mean good cost control which helps to increase the profitability of the bank and thereby ensure the sustainability of its activities.

On the other hand, banks with high overheads may be tempted to choose riskier assets by estimating be able to better monitor which contributes to a higher risk of failure. However, a high share of overhead expenses in can have a positive effect on the survival of banks to the extent that these costs can boost the productivity of banks and hence their profitability (Ben Naceur, 2003). Moreover, in the interest of profit maximization, banks tend to incur additional operating expenses, justifying the change in the same direction between the general bank charges and the return on assets (Bashir, 2000). The effect of this variable on the risk of failure is unknown in theory.

According to the literature, we also include in estimates profitability indicators (Powo, 2000 and Dabos and Escudero, 2004). Next microeconomic theory, a non-profitable company can permanently stay on the market. The ROE variable represents the return on equity. The share of banking market (PDM) is also taken into account (and Bikker Haaf (2000); Cihak and Hesse (2010)) in the next estimates the idea that the life of a bank is reduced as its market share is shrinking. A negative sign is expected for the coefficients of these variables. The market structure is taken into account through the CR5 ratio (the market share of the top five banks) or the concentration index Herfindahl-Hirschman Index (HHI). In the UEMOA zone, Ouedraogo (2012) showed that banking concentration is changing along with the profitability of banks. A positive sign is expected for the coefficient of this variable.

Under dummies, we introduce four variables (GRP PUB, ETRA, GRB) to control the ownership structure of banks. GRP variable is a dummy variable that takes the value of 1 if the bank belongs to a banking group and 0 otherwise. The PUB variable is a dummy variable that takes the value of 1 if the state holds more than 50% stake in the bank and 0 if it is a private bank. The ETRA variable is a dummy variable that takes the value of 1 if more than 50% of the bank's capital is held by foreigners and 0 otherwise. Referring to previous empirical studies, we expect that foreign shareholdings and are private bankruptcy risk reduction factors and public ownership a bankruptcy risk factor (Iannotta et al (2007). Nicolo and Loukoianova (2007); Laeven and Levine (2009); Tanimoune (2009)). The GRB is a dummy variable that takes the value of 1 if the bank is a major bank (total assets exceeding 100 billion) and 0 otherwise. As indicated by Beck et al. (2013) and Heid et al. (2004), the size of bank assets could influence the decisions of capitalization and the risk of failure. The big banks can benefit from an implicit insurance because they are perceived as too big to fail and thus increase the risk of their assets. The big banks could also benefit from economies of scale that promote their profitability. The sign of the coefficient of the GRB variable is ambiguous in theory. The GRB is a dummy variable that takes the value of 1 if the bank is a major bank (total assets exceeding 100 billion) and 0 otherwise. As indicated by Beck et al. (2013) and Heid et al. (2004), the size of bank assets could influence the decisions of capitalization and the risk of failure. The big banks can benefit from an implicit insurance because they are perceived as too big to fail and thus increase the risk of their assets. The big banks could also benefit from economies of scale that promote their profitability. The sign of the coefficient of the GRB variable is ambiguous in theory. The GRB is a dummy variable that takes the value of 1 if the bank is a major bank (total assets exceeding 100 billion) and 0 otherwise. As indicated by Beck et al. (2013) and Heid et al. (2004), the size of bank assets could influence the decisions of capitalization and the risk of failure. The big banks can benefit from an implicit insurance because they are perceived as too big to fail and thus increase the risk of their assets. The big banks could also benefit from economies of scale that promote their profitability. The sign of the coefficient of the GRB variable is ambiguous in theory. the size of bank assets could influence the decisions of capitalization and the risk of failure. The big banks can benefit from an implicit insurance because they are perceived as too big to fail and thus increase the risk of their assets. The big banks could also benefit from economies of scale that promote their profitability. The sign of the coefficient of the GRB variable is ambiguous in theory. the size of bank assets could influence the decisions of capitalization and the risk of failure. The big banks can benefit from an implicit insurance because they are perceived as too big to fail and thus increase the risk of their assets. The big banks could also benefit from economies of scale that promote their profitability. The sign of the coefficient of the GRB variable is ambiguous in theory. Demirgüç-Kunt and Detragiache (1998) have shown that economic downturns (low GDP growth and high inflation) negatively affect the stability of banks. Finally, we introduce the model in two macroeconomic variables to take into consideration the state of the economy: inflation (INF) and gross domestic product taken in logarithm (GDP). Indeed, price stability is in general one of the objectives sought by many central banks including the UEMOA. Although knowing the harmful effects of high inflation, the effects of a moderate level of inflation are mixed (Cordeiro,

2002; Athanasoglou et al 2008. Kamgna and al., 2009). Thus, the impact of inflation on the risk of bank failure is a function of the level of inflation.

An upward trend in GDP is expected to improve the survival of banks, as the increase in production increases business opportunities, revenues and the ability of economic agents to fulfill their commitments. However, in times of growth, banks may choose riskier assets and thus be exposed to a higher risk of failure. Nevertheless, we expect that GDP growth is a favorable factor for the survival of WAEMU banks.

III. STRATEGY AND VALUATION DATA

Survival analysis is faced with an unavoidable problem: censorship data. It takes many forms and occurs for many reasons. The most basic distinction is between censorship left and right censoring. An observation on life is right censored if it is known only that it exceeds a given duration. However, it may happen that the event occurred before the date of analysis it is not possible to know the exact date. In this case, observation is said censored left. That is to say that the real life of the entity is less than the duration of observation. Consider the case of bank survival analysis. By the time the data is collected financial statements, some banks are still in business. For these banks, the life is right censored, since the observation ends before the bank failure occurs. Since life is defined in this study as the actual number of years of activity of a bank, censorship left is naturally avoided. However, right censoring is real and has been explicitly supported by the partial maximum likelihood method for estimating mobilized model Cox proportional hazard (1972).

Micro-annual bank data comes from banks financial statements
UEMOA published on the BCEAO website. They cover all 141 commercial banks of the eight UEMOA countries observed over the period from 2003 to 2015. The data show the panel not cylindered structure. Macroeconomic data from two databases: the real GDP data are from the base World Development Indicators (WDI, 2016) of the World Bank and the data of the index of consumer prices (CPI) from the base of statistical data of the BCEAO.

IV. RESULTS

Before presenting the results of the econometric estimates, we make a descriptive analysis of the main variables and then describe the unconditional survival function of WAEMU banks.

1. Descriptive statistics

We calculate the average ratios of some banks survivors and those failed. We then test the equality of means in both samples under two assumptions: equal or unequal variances. In connection with paper targets, three indicators were used to assess bank capitalization: the core capital (T1) of total assets, shareholders' actual fund (EPF) on total assets and core capital (CET1) on total assets. The results of the statistical analysis are presented in Table 2 below. They suggest that failing banks can differentiate survivors from reading their characteristics ratios. The failing banks have negative capital ratios, on average -0.84% against 10, 64% for banks 'healthy' when the core capitals are considered. This difference is statistically significant at 1% regardless of the assumption on the variances of the two samples. This conclusion remains unchanged when basic capital (-1.38% against 10.68%) and own workforce funds (-1.39% against 10.94%) are considered. This result provides an initial illustration of the importance of the role of capital in the survival of WAEMU banks. The failing banks differ from surviving banks by their negative returns. Indeed, the statistics in Table 2 show that the return on assets (ROA) and return on equity (ROE) are negative on average for failing banks (-0.0650 and -0.3070 respectively). The differences are significant profitability to an error risk of 1%. The z-score indicator that measures the default risk is higher for the surviving banks reflecting average low default probability of surviving banks.

Tableau 1 : Evolution du paysage bancaire de 2000 à 2016 à travers quelques indicateurs

Indicateurs	2000	2006	2011	2016
Nombre de banques en activité	85	93	99	116
Poids des groupes bancaires (% de part de marché)	58%	51%	64%	77%
Respect de la norme de capital (% de banques)	59%	81%	79%	64%
Respect du ratio de solvabilité (% de banques)	48%	81%	83%	89%

Sources : Rapports annuels de la Commission Bancaire de l'UEMOA

Tableau 2 : statistiques descriptives et tests d'égalité de moyennes des variables bancaires (hypothèses de variances égales et inégales)

Variables	Définition	Moyenne		Différence	P-values	
		Banques Saines	Banques Défaillantes		Variances égales	Variances inégales
FPE	Fonds propres effectifs sur le total actif (en %)	10,9486	-1,3978	**12,3464*****	0,0000	0,0000
T1	Fonds propres de base sur le total actif (en %)	10,6828	-1,3856	**12,0685*****	0,0000	0,0000
CET1	Fonds propres durs sur le total actif (en %)	10,6446	-0,8409	**11,4856*****	0,0000	0,0000
ROA	Résultat net sur total actif	0,00138	-0,0650	**0,06549*****	0,0000	0,0000
ROE	Résultat net sur capitaux propres	0,25695	-0,3070	**0,56397*****	0,0000	0,0000
PDM	Part de marché de la banque à partir du total actif	9,63107	3,8371	**5,79395*****	0,0000	0,0000
FRG	Part des frais généraux dans des charges (en %)	41,0003	44,8572	**-3,8568*****	0,0030	0,0005
CTA	Crédits clientèle sur total actif	55,1738	52,8055	**2,36830****	0,1178	0,0471
z-score	Indicateur de défaillance z-score	8,42565	3,22255	**5,20310*****	0,0000	0,0000

Source : calculs de l'auteur à partir des états financiers des banques et établissements financiers publiés par la BCEAO.
**** p<0,01, ** p<0,05, * p<0,1*

In addition, Table 2 shows that failing banks are less efficient in the management of overheads that surviving banks. Moreover, they have on average three times more market share than the surviving banks. The employment structure shows that the share of loans to customers in total assets was 55.17% in the surviving banks against 52.80% in failing banks. This difference is significant at 5% under the assumption of unequal variances and meaningful to 11.78% under the assumption of equal variances.

We then describe the unconditional survival function of WAEMU banks by using the Kaplan-Meier (1958). We perform a graphical comparison of survival functions by bank category. The probabilities of econometric tests of equality of survival functions (Wilcoxon test) are plotted on the graphs. The results are shown in Figures 1 to 6. Figure 1 presents the bank survival function WAEMU surrounded by her confidence interval 95%. It shows that the banks' survival rate after five, ten and twenty years is 98%, respectively, 86% and 75%. Chart 2 shows that the survival of private banks is better than that of public banks from fifteen. However, this difference was not

significant (p = 0, 4323) when considering the whole life. The survival function of commercial banks dominates the financial institutions from the twelfth year (Chart 3). However, the assumption of equality of survival functions is dismissed with a critical probability of 0.2203.

Belonging to a banking group, does not seem to make a difference in survival of banks (Chart 4). At 16.7% error risk, foreign banks have a higher probability of survival than the national banks (Chart 5). On the Chart 6, the shape of the large banks survival curve is fundamentally different from that of small banks. This significant difference at 1% risk reflects the risk borne by the small banks that have less chance of survival than the major banks. This result is in line with that of the equal market share test of the following banks and those failing (Table 2).

2. Estimation Results

The results of empirical estimates of equation (9) from the maximum partial likelihood method are presented in Table 3 below3. The variables are introduced gradually into the model to assess the contribution of the different variables (columns [1] to [7]). Column [1] provides estimates when micro-banking variables are retained. From this baseline estimate, we add dummies (columns [2] to [5]). Macro conditions are then introduced into the estimates (columns [6] and [7]). Column [8] shows the coefficients of the full model estimates with all variables. The Wald test statistics show that the overall quality of the adjustment is higher when macroeconomic conditions are taken into account (column [7] and [8]). The coefficients of the variables of the study have expected signs. However, only a few are statistically significant at conventional levels.

Table 3 shows overall that the variable of the study of interest, the capitalization ratio (EPF), is significant with a risk of error of 1% in all regressions. The negative sign of the coefficient associated with this variable indicates that the ratio of capital positively influences the survival of WAEMU banks. In other words, the more a bank is capitalized over the default risk is contained. Indeed, the erosion of equity questions the liquidity and solvency of the bank. The latter will struggle to refinance on the interbank market and to meet its deadlines. Without regulatory intervention, repetitive cash tensions will result a banking panic because of the fear of depositors of the insolvency of the bank, which ultimately precipitate its collapse.

The full model (column [8]) suggests that a unit increase in the ratio of own funds causes a reduction of 2.40% (100 × [exp (-0.0243) - 1]) of the probability failure. This result corroborates the findings of tests comparing averages of capital ratios of surviving banks with those failing banks (Table 2). They are in line with the empirical results of Powo (2007) Dannon and Lobez (2014) found that for the WAEMU zone that regulatory capital ratios help to reduce the risk of bank failure respectively over the 1980-1995 period and 2000-2010.

Market share and banking concentration promote the survival of banks. Commercial banks are grabbing significant market share have a higher probability of survival. An increase of one point of market share increases the survival probability of 16.03%. On the most concentrated banking centers of the zone banks are more likely to survive. A one-point decrease of the concentration ratio reduces the likelihood of survival of 7.9%. Portfolio quality is a significant determinant of the survival of banks.

The coefficient for this variable is significantly positive in all regressions at conventional levels. This result suggests that the life expectancy of a bank depends on its ability to select credit records by adequate tools. Indeed, in the absence of real guarantees, downgrades in debt outstanding induce the formation of provisions that erode bank capital. The coefficient for this variable (0.0181) implies that a one point increase of this variable increases the average default probability of the order of 1.79%. The ratio of net credits in total assets (CTA) is significant at 10% with a negative sign. This result, as expected, in line with those of Powo (2000) Dannon and Lobez (2014). The higher the ratio, the greater the risk of failure is contained.

As regards the effects of macroeconomic variables, we observe that the increase GDP taken in logarithm is associated with a lower risk of failure. The coefficient for this variable is significantly negative 10%. This result, in line with our expectations and previous empirical studies [Demirgüç-Kunt and Detragiache (1998); Powo (2007); Dannon and Lobez (2014)], indicates not only that banks choose less risky assets during periods of economic growth, but that improved income increases the ability of economic agents to fulfill their commitments (Jokipii and Milne

(2008); Houston et al. (2010)). Inflation has proved detrimental to the banking business in the UEMOA. Its coefficient is positive and significant risk to an error of 10%. A one-point drop in the level of inflation increases the average survival probability of banks of around 12%.

We re-estimate equation (9) by delaying micro-banking vary from one, two and three times to identify variables that predict a maximum three-year horizon the probability of failure or survival of a bank. The results are presented in Table 4 below (column [3] to [8]). They show with statistical significances from 5% to 1% as capital levels explain the probability of survival or failure on a maximum time horizon of three years in advance. We test the robustness of our results avantde present their implications.

3. Tests of strength

We subject our results to three types of robustness tests. First, we use alternative micro banking variables. Regarding the variable of interest, we propose the use of core capital (T1) and core capital (CET1) instead of own staff fund (EPF). Then we use the Herfindahl-Hirschman Index (HHI) in lieu of the CR5 index to capture the banking market structure. We also introduce in estimates z-score variable which is a measure of the recognized banking fragility in the literature (Roy (1952), Blair and Heggestad (1978), Boyd and Graham (1986) Goyeau and Tarazi (1992) Cihak and Hesse (2010); Maechler et al (2007)).. Estimation results are shown in Table 4 (column [1] and [2]). They show that the use of alternative measures do not alter the main conclusions. The capital ratios, the market share of the bank and inflation are significant at a risk of error of at least 5%.

The second robustness test focuses on the variable of interest: the capital ratio. It builds on the analysis of end terminals (Extreme Bounds Analysis (EBA)). The main idea of the extreme analysis is simple terminals. This is estimating equation (9) retaining the vector of explanatory variables the variable of interest with all possible combinations of other control variables including gradually until the complete model.

When the variable interest shown statistically significant in a sizeable proportion of the estimated models, it is declared robust, otherwise it is described as fragile. If the upper and lower end terminals have the same sign, the variable is called robust in the sense of Learner (1985). The chosen decision rule in approaching Sala-i-Martin (1997) is defined as follows: the variable is declared robust if the cumulative density function evaluated at zero is greater than 95% (CDF (0)> 0, 95). Otherwise, it is fragile. The method of analysis of end terminals (EBA) is presented in detail in Appendix A.

In total 159 possible combinations was the basis of estimates. The results of these approaches are presented in Table 5 below. The results of this analysis show that, under Learner (1985), the equity ratio is a robust determinant of survival of commercial banks in the WAEMU since the two end terminals are of the same negative sign. Both approaches Sala-i-Martin (1997) confirm this result.

Tableau 3 : Résultat des estimations du modèle de survie semi-paramétrique de Cox

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Variables bancaires								
Ratio FPE	-0,0216***	-0,0230***	-0,0221***	-0,0217***	-0,0240***	-0,0247***	-0,0245***	-0,0243***
	(0,004)	(0,004)	(0,005)	(0,004)	(0,005)	(0,004)	(0,004)	(0,004)
Qualité du portefeuille	0,0243***	0,0267***	0,0251***	0,0256***	0,0288***	0,0201*	0,0303***	0,0181*
	(0,007)	(0,007)	(0,007)	(0,007)	(0,007)	(0,011)	(0,008)	(0,011)
CR5	0,0001	-0,0022	0,0011	-0,0138	-0,0016	-0,0808*	-0,0154	-0,0823*
	(0,023)	(0,022)	(0,023)	(0,027)	(0,021)	(0,047)	(0,025)	(0,046)
Part de marché	-0,2161***	-0,2171***	-0,2139***	-0,1456*	-0,2187***	-0,1692**	-0,1380*	-0,1747**
	(0,074)	(0,078)	(0,074)	(0,079)	(0,078)	(0,081)	(0,077)	(0,075)
Ratio Crédit/Actif	-0,0201	-0,0190	-0,0170	-0,0209	-0,0194	-0,0201	-0,0233*	-0,0227*
	(0,013)	(0,013)	(0,012)	(0,013)	(0,012)	(0,013)	(0,013)	(0,013)
ROE	-0,1449	-0,1042	-0,1237	-0,1133	-0,0839	0,0284	-0,0090	0,0513
	(0,150)	(0,149)	(0,149)	(0,148)	(0,150)	(0,150)	(0,146)	(0,154)
Frais généraux	0,0077	0,0126	0,0098	0,0064	0,0158	0,0160	0,0118	0,0109
	(0,014)	(0,014)	(0,014)	(0,014)	(0,015)	(0,015)	(0,014)	(0,014)
Variables indicatrices								
Appartenance à un groupe		-0,5314				-0,1307	-0,1806	-0,1616
		(0,389)				(0,508)	(0,466)	(0,513)
Banque publique			0,5341			0,0884	-0,0771	0,2283
			(0,457)			(0,498)	(0,506)	(0,496)
Grande banque				-1,1784		-1,2319	-1,3419	-1,2306
				(0,855)		(0,978)	(0,966)	(0,979)
Banque étrangère					-0,8634**	-0,7992	-0,8361	-0,6623
					(0,421)	(0,692)	(0,650)	(0,707)
Variables économiques								
Logarithme du PIB réel						-1,1554*		-1,2376*
						(0,657)		(0,695)
Inflation							0,1017*	0,1134*
							(0,059)	(0,062)
Statistique de Wald	110,72	117,39	115,94	112,06	113,02	110,02	147,19	134,87
Prob. Wald	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
Observations	1 190	1 190	1 190	1 190	1 190	1 190	1 190	1 190

Source : Estimation de l'auteur sous le logiciel Stata, Ecarts-types robustes entre parenthèses, *** p<0,01, ** p<0,05, * p<0,1

Tableau 4 : Résultat des estimations du modèle de survie semi-paramétrique de Cox

Variables	[1] Utilisation de variables bancaires alternatives	[2] Utilisation de variables bancaires alternatives	[3] Variables bancaires retardées d'une période	[4] Variables bancaires retardées d'une période	[5] Variables bancaires retardées de deux périodes	[6] Variables bancaires retardées de deux périodes	[7] Variables bancaires retardées de trois périodes	[8] Variables bancaires retardées de trois périodes
Variables bancaires								
Ratio FPE			-0,0249***	-0,0273***	-0,0238***	-0,0258***	-0,0248***	-0,0232**
			(0,005)	(0,005)	(0,006)	(0,005)	(0,009)	(0,010)
Ratio T1	-0,0236***							
	(0,004)							
Ratio CET1		-0,0235***						
		(0,004)						
Qualité du portefeuille	0,0156	0,0159	0,0084	-0,0022	0,0056	-0,0041	0,0134	0,0047
	(0,012)	(0,012)	(0,009)	(0,011)	(0,010)	(0,013)	(0,011)	(0,013)
IHH	-0,1671	-0,1643						
	(0,153)	(0,151)						
CR5			0,0075	-0,0620	0,0091	-0,0511	-0,0046	-0,0495
			(0,026)	(0,055)	(0,025)	(0,050)	(0,029)	(0,047)
Part de marché	-0,1950**	-0,1944**	-0,1338*	-0,1748*	-0,1207	-0,1576	-0,0943	-0,1150
	(0,085)	(0,086)	(0,081)	(0,092)	(0,100)	(0,101)	(0,094)	(0,101)
Ratio Crédit/Actif	-0,0214	-0,0214	-0,0463***	-0,0431***	-0,0308**	-0,0267*	-0,0190	-0,0150
	(0,014)	(0,014)	(0,013)	(0,014)	(0,014)	(0,015)	(0,014)	(0,014)
z-score	0,0141	0,0138						
	(0,014)	(0,014)						
ROE			-0,0976	-0,0893	-0,2269	-0,2148	-0,2834*	-0,2988**
			(0,136)	(0,151)	(0,200)	(0,174)	(0,161)	(0,146)
Frais Généraux	0,0052	0,0044	-0,0082	-0,0061	0,0026	0,0025	0,0143	0,0143
	(0,015)	(0,015)	(0,013)	(0,012)	(0,014)	(0,014)	(0,014)	(0,014)
Variables indicatrices								
Appartenance à un groupe	-0,1289	-0,1368	-0,4767	-0,4768	-0,4594	-0,4948	-0,2140	-0,1979
	(0,491)	(0,488)	(0,394)	(0,457)	(0,533)	(0,583)	(0,473)	(0,488)
Banque publique	0,2420	0,2683	0,0874	0,1988	-0,1655	-0,0096	-0,5414	-0,3767
	(0,561)	(0,561)	(0,466)	(0,451)	(0,518)	(0,470)	(0,652)	(0,676)
Grande banque	-0,8915	-0,8914	-2,2021*	-2,0146	-1,9993*	-1,7391	-1,9858**	-1,7716**
	(0,873)	(0,871)	(1,269)	(1,399)	(1,142)	(1,191)	(0,885)	(0,876)
Banque étrangère	-0,6068	-0,5607	-1,3295**	-1,2362*	-1,0754*	-0,9273	-0,8676	-0,7529
	(0,638)	(0,631)	(0,603)	(0,646)	(0,653)	(0,693)	(0,571)	(0,597)
Variables économiques								
Logarithme du PIB réel	-1,0342	-1,0165		-1,1996*		-1,0098		-0,7812
	(0,708)	(0,705)		(0,703)		(0,682)		(0,659)
Inflation	0,1307**	0,1313**		-0,0044		0,0388		0,0192
	(0,065)	(0,063)		(0,084)		(0,072)		(0,069)
Statistique de Wald	165,05	162,69	65,77	58,77	51,22	52,47	28,53	40,49
Prob. Wald	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0027	0,0001
Observations	1 180	1 180	1 049	1 049	924	924	799	799

*Source : Estimation de l'auteur sous le logiciel Stata, Ecarts-types robustes entre parenthèses, *** p<0,01, ** p<0,05, * p<0,1*

Tableau 5 : Analyse des bornes extrêmes (EBA) du coefficient du ratio des fonds propres

Approche	B. Inf	B. Sup	CDF(0)	Conclusion
Leamer (1985)	-0,0245	-0,0196	-	Robuste
Sala-i-Martin (1997) (1)	-0,0245	-0,0196	0,9999	Robuste
Sala-i-Martin (1997) (2)	-0,0245	-0,0196	0,9999	Robuste

Source : calculs de l'auteur sous le logiciel Stata. B. Inf = borne inférieure, B. Sup= borne supérieure. (1) représente l'approche de Sala-i-Martin (1997) avec l'hypothèse que les coefficients suivent une distribution normale. (2) représente l'approche de Sala-i-Martin (1997) avec l'hypothèse que les coefficients ne suivent aucune distribution particulière.

Third, we test the robustness of our results to the survival analysis approach. Indeed, the results derived thus far are based on the proportional risk model of Cox (1972) in a semi-parametric approach. The findings of our econometric analysis are they valid when the parametric approach is used? To answer this question, we take the estimates on the assumption that the banks lifetime follows a specific distribution. Three distributions are tested in this paper: the exponential distribution, Weibull and Gompertz. The failure function and the associated survival function

These distributions are presented in Table 6 below.

Tableau 6 : Distributions de survie retenues dans les tests de robustesse

Distribution	Taux de défaillance	Fonction de survie
Exponentielle	$h(t) = \lambda$	$S(t) = e^{-\lambda t}$
Weibull	$h(t) = p\lambda t^{p-1}$	$S(t) = e^{-\lambda t^p}$
Gompertz	$h(t) = \lambda e^{\lambda t}$	$S(t) = e^{[-\lambda\gamma^{-1}(e^{\gamma t}-1)]}$

Source : l'auteur

The estimation results following the parametric approach are presented in Appendix B
Tables 7, 8 and 9. They are in line with those obtained with the Cox model (1972): the equity ratio, market share and GDP positively influence the survival of banks, while the deterioration of the credit portfolio increases the risk of bank failure. The coefficient associated with the CR5 variable is significantly negative (Tables 7, 8 and 9; column [8]) suggesting that more banking activity is concentrated in a small number of banks, the risk of failure is reduced. The different sensitivity tests show overall that our main results are immunized against the use of alternative variables and the choice of the approach of analysis. The analysis of end terminals (EBA) validates the Robust character of the variable of interest in the study.

Tableau 7 : Résultat des estimations du modèle de survie paramétrique avec une distribution exponentielle

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Variables bancaires								
Ratio FPE	-0,0188***	-0,0182***	-0,0180***	-0,0192***	-0,0187***	-0,0236***	-0,0196***	-0,0234***
	(0,002)	(0,002)	(0,002)	(0,002)	(0,003)	(0,004)	(0,002)	(0,004)
Qualité du portefeuille	0,0171***	0,0182***	0,0188***	0,0194***	0,0211***	0,0340***	0,0230***	0,0338***
	(0,005)	(0,005)	(0,005)	(0,005)	(0,006)	(0,007)	(0,006)	(0,007)
CRS	-0,0487***	-0,0620***	-0,0615***	-0,0640***	-0,0633***	-0,0225	-0,0609***	-0,0204
	(0,009)	(0,010)	(0,010)	(0,010)	(0,010)	(0,016)	(0,011)	(0,017)
Part de marché	-0,1940***	-0,1916***	-0,1878***	-0,1143*	-0,1959***	-0,1821**	-0,1079	-0,1633**
	(0,067)	(0,069)	(0,070)	(0,069)	(0,070)	(0,080)	(0,071)	(0,081)
Ratio Crédit/Actif	-0,0278***	-0,0250***	-0,0245***	-0,0281***	-0,0258***	-0,0113	-0,0258***	-0,0123
	(0,008)	(0,009)	(0,008)	(0,008)	(0,008)	(0,009)	(0,008)	(0,009)
ROE	-0,2404**	-0,2261**	-0,2113*	-0,2224*	-0,2327**	-0,2082*	-0,1722	-0,1932
	(0,113)	(0,114)	(0,117)	(0,117)	(0,114)	(0,119)	(0,122)	(0,123)
Frais généraux	-0,0092	-0,0063	-0,0090	-0,0074	-0,0065	0,0142	-0,0052	0,0120
	(0,008)	(0,009)	(0,009)	(0,009)	(0,009)	(0,013)	(0,009)	(0,013)
Variables indicatrices								
Appartenance à un groupe		-0,4745				-0,2680	-0,3154	-0,3309
		(0,333)				(0,367)	(0,351)	(0,386)
Banque publique			0,7088*			0,7187	0,4184	0,7861
			(0,373)			(0,505)	(0,433)	(0,492)
Grande banque				-1,1662		-0,6635	-1,2888*	-0,6544
				(0,754)		(0,747)	(0,745)	(0,750)
Banque étrangère					-0,8664*	-0,3805	-0,3783	-0,2872
					(0,362)	(0,525)	(0,431)	(0,516)
Variables économiques								
Logarithme du PIB réel						-0,2451***		-0,2521***
						(0,082)		(0,081)
Inflation							0,0693	0,0837
							(0,086)	(0,073)
Statistique de Wald	451,26	448,52	475,19	478,11	434,34	539,09	498,16	559,23
Prob. Wald	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
Observations	1 190	1 190	1 190	1 190	1 190	1 190	1 190	1 190

*Source: Estimation de l'auteur sous le logiciel Stata, Ecarts-types robustes entre parenthèses, *** p<0,01, ** p<0,05, * p<0,1*

Tableau 8 : Résultat des estimations du modèle de survie paramétrique avec une distribution de Weibull

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Variables bancaires								
Ratio FPE	-0,0196***	-0,0201***	-0,0201***	-0,0211***	-0,0210***	-0,0252***	-0,0210***	-0,0249***
	(0,003)	(0,003)	(0,003)	(0,002)	(0,003)	(0,004)	(0,003)	(0,004)
Qualité du portefeuille	0,0144***	0,0162***	0,0159***	0,0189***	0,0214***	0,0321***	0,0210***	0,0315***
	(0,006)	(0,005)	(0,006)	(0,006)	(0,007)	(0,008)	(0,007)	(0,008)
CR5	-0,0628***	-0,0661***	-0,0667***	-0,0770***	-0,0782***	-0,0371*	-0,0779***	-0,0348*
	(0,012)	(0,013)	(0,013)	(0,014)	(0,014)	(0,021)	(0,014)	(0,021)
Part de marché	-0,2658***	-0,2634***	-0,2626***	-0,1448*	-0,1432*	-0,1945**	-0,1438*	-0,1985**
	(0,082)	(0,084)	(0,084)	(0,084)	(0,086)	(0,093)	(0,084)	(0,093)
Ratio Crédit/Actif	-0,0363***	-0,0336***	-0,0320***	-0,0323***	-0,0336***	-0,0154	-0,0356***	-0,0163
	(0,009)	(0,009)	(0,009)	(0,009)	(0,009)	(0,012)	(0,010)	(0,013)
ROE	-0,2083*	-0,2006*	-0,1892	-0,1529	-0,1597	-0,1742	-0,1396	-0,1627
	(0,117)	(0,117)	(0,121)	(0,118)	(0,122)	(0,120)	(0,128)	(0,124)
Frais généraux	-0,0107	-0,0076	-0,0080	-0,0056	-0,0040	0,0150	-0,0057	0,0117
	(0,010)	(0,010)	(0,010)	(0,010)	(0,010)	(0,014)	(0,010)	(0,013)
Variables indicatrices								
Appartenance à un groupe		-0,4281	-0,3785	-0,4744	-0,3591	-0,2069	-0,3894	-0,2530
		(0,356)	(0,365)	(0,365)	(0,365)	(0,422)	(0,372)	(0,428)
Banque publique			0,2449	0,1675	-0,1008	0,1311	-0,0446	0,1805
			(0,413)	(0,411)	(0,519)	(0,565)	(0,509)	(0,559)
Grande banque				-1,6242**	-1,6419**	-1,0900	-1,6361**	-1,0531
				(0,785)	(0,804)	(0,785)	(0,800)	(0,778)
Banque étrangère					-0,4492	-0,5894	-0,3789	-0,4893
					(0,488)	(0,584)	(0,480)	(0,577)
Variables économiques								
Logarithme du PIB réel						-0,2722***		-0,2777***
						(0,092)		(0,091)
Inflation							0,0785	0,0873
							(0,087)	(0,069)
Statistique de Wald	203,90	198,93	224,43	265,57	256,76	308,77	266,95	329,60
Prob. Wald	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
Observations	1 190	1 190	1 190	1 190	1 190	1 190	1 190	1 190

*Source: Estimation de l'auteur sous le logiciel Stata, Ecarts-types robustes entre parenthèses, *** p<0,01, ** p<0,05, * p<0,1*

Tableau 9 : Résultat des estimations du modèle de survie paramétrique avec une distribution de Gompertz

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Variables bancaires								
Ratio FPE	-0,0206***	-0,0210***	-0,0211***	-0,0222***	-0,0220***	-0,0249***	-0,0220***	-0,0247***
	(0,003)	(0,003)	(0,003)	(0,003)	(0,003)	(0,004)	(0,003)	(0,004)
Qualité du portefeuille	0,0168***	0,0185***	0,0181***	0,0212***	0,0240***	0,0321***	0,0237***	0,0318***
	(0,006)	(0,006)	(0,006)	(0,006)	(0,007)	(0,007)	(0,007)	(0,007)
CR5	-0,0546***	-0,0575***	-0,0588***	-0,0678***	-0,0694***	-0,0342*	-0,0691***	-0,0322
	(0,011)	(0,012)	(0,012)	(0,013)	(0,014)	(0,020)	(0,014)	(0,021)
Part de marché	-0,2722***	-0,2703***	-0,2686***	-0,1531*	-0,1542*	-0,1820**	-0,1551*	-0,1844**
	(0,087)	(0,089)	(0,089)	(0,089)	(0,091)	(0,090)	(0,090)	(0,091)
Ratio Crédit/Actif	-0,0282***	-0,0258***	-0,0242**	-0,0234**	-0,0244**	-0,0109	-0,0258***	-0,0115
	(0,009)	(0,010)	(0,010)	(0,010)	(0,010)	(0,011)	(0,010)	(0,012)
ROE	-0,2284**	-0,2176*	-0,2032*	-0,1810	-0,1892	-0,1999*	-0,1745	-0,1894
	(0,112)	(0,112)	(0,116)	(0,114)	(0,117)	(0,117)	(0,120)	(0,119)
Frais généraux	-0,0098	-0,0071	-0,0071	-0,0042	-0,0027	0,0128	-0,0044	0,0101
	(0,009)	(0,009)	(0,009)	(0,009)	(0,009)	(0,013)	(0,009)	(0,013)
Variables Indicatrices								
Appartenance à un groupe		-0,3939	-0,3378	-0,4532	-0,3262	-0,2111	-0,3525	-0,2528
		(0,351)	(0,358)	(0,357)	(0,347)	(0,395)	(0,354)	(0,403)
Banque publique			0,3235	0,2715	-0,0292	0,2490	0,0161	0,2966
			(0,402)	(0,391)	(0,503)	(0,560)	(0,495)	(0,564)
Grande banque				-1,6191**	-1,6277**	-1,1080	-1,6079**	-1,0695
				(0,806)	(0,819)	(0,809)	(0,809)	(0,799)
Banque étrangère					-0,4964	-0,5189	-0,4311	-0,4297
					(0,498)	(0,566)	(0,491)	(0,561)
Variables économiques								
Logarithme du PIB réel						-0,2137**		-0,2193**
						(0,092)		(0,092)
Inflation							0,0697	0,0780
							(0,080)	(0,079)
Statistique de Wald	229,36	226,17	245,76	286,80	272,53	336,63	285,13	367,13
Prob. Wald	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
Observations	1 190	1 190	1 190	1 190	1 190	1 190	1 190	1 190

*Source: Estimation de l'auteur sous le logiciel Stata, Ecarts-types robustes entre parenthèses, *** p<0,01, ** p<0,05, * p<0,1*

4. Implications of results

What are the main implications of the results of this research? Are the new capital standards relevant? The results of our various estimates show the relevance of the new standards on several points. First, our results showed the crucial role played by equity in the survival of WAEMU banks and the need of their frames by regulators. To the extent that the capital ratios of banks predict survival probability over a period of one to three years, they are leading indicators in monitoring banks, in setting up warning systems and early in the implementation of stress tests. In this direction, An important innovation of new clean resides capital standards in the development of a battery of ratios depending on the quality of the components of equity (CET1, T1 and PEF) and different cushions (conservation, countercyclical, systemic and leverage ratio). The extension of the risks covered the operational and market risks are likely to preserve the survival of banks in case of occurrence of these risks. The gradual evolution of thresholds for different capital ratios by the year 2022 is an additional lever of the soundness of the banking system. The implementation of the new capital standards coupled with the raising of the minimum capital of banks in the area should eventually have a positive effect on the survival of banks in the area.

Secondly, estimates have shown that the portfolio deterioration rate also plays a major role in the survival of banks. This result implies that particular attention should be paid to portfolio quality under the supervision of banks. To this end, the new prudential framework, unlike the old was revealed relevant in terms of its flexibility vis-à-vis the differential treatment of banks depending on the quality of their portfolios. Indeed, in the context of risk weighting, the BCEAO reserves the application of higher risk weights to when the rate of deterioration of the bank's portfolio exceeds two consecutive quarters to set a threshold (BCEAO, 2017) . This statement aims to encourage banks to strictly monitor the quality of their portfolios to minimize défaillance4. The significance of the market share also suggests that regulators WAEMU will also pay more attention to small or newly established banks with limited market shares.

Third, the strong relationship between economic activity (GDP) and survival of banks suggests enhanced supervision of banks during the economic cycle since in a recession the decline in income and repayment difficulties can shake the banks. Similarly, in times of overheating of activity, banks may take excessive risks. The new standards prove once again relevant insofar conservation cushions are meant to absorb the economic shocks. Also, during booms, pillows countercyclical can be activated by regulators to limit excessive risk accumulation by banks. Finally, the significant and negative effect of inflation on banks' survival in the baseline estimates implies that the objective of price stability pursued by the BCEAO is in line with the objectives of stability of the banking system and prevents financial crises. The low level of inflation in the UEMOA zone has significantly contributed to the survival of banks on the study period by creating a favorable macroeconomic environment in the decision making of economic agents.

CONCLUSION

The WAEMU monetary authorities initiated the consolidation of the prudential rules applicable to banks in the area to converge to the new Basel II and III are effective as of 1st January 2018. The aim is to promote the sector resilience, encourage banks to return to fundamentals, strengthen good governance of banks and limit systemic risk carried by fragile banks and banking groups. In this context, the new minimum capital requirements are a cornerstone of the architecture of the new device. Although WAEMU banks have been more or less spared by the 2007 financial crisis,

At the dawn of this convergence to international standards, this paper objectively questioned the relevance of these new capital standards through the empirical analysis of the survival of the banks in the area. The new capital requirements can they promote the resilience of the banking industry in the area and the survival of banks that compose it? What roles do the regulatory capital in the survival of WAEMU banks? These questions prove important not only to avoid the replication of banking crises in the WAEMU, but considering the substantial costs of these crises in a context where the banking system of the region drains most of the savings funds.

From bank failures observed in the 2003 to 2015 area, the paper tried to provide answers to these questions by analyzing the main determinants of survival of WAEMU banks to isolate the role of the variables micro banking specifically regulatory capital. By using non-parametric duration models, semi-parametric and parametric estimated by the partial maximum likelihood method, the study found that banking variables and macroeconomic conditions

are the main determinants of survival of WAEMU banks. The equity play an essential role in the survival of banks by reducing their so significant probability of bankruptcy. Estimates have revealed that they have an ability to predict banking difficulties over a time horizon of one to three years. The structure of the banking market, the market share of the portfolio deterioration rate, inflation and economic conditions are the other significant variables revealed in explaining the survival of WAEMU banks. The robustness of the results was tested through the use of alternative approaches and indicators and analysis of end terminals (EBA).

The results highlight the need for a framework more effective bank capital. In this context, the new capital standards are relevant to more than one: (i) the introduction of a series of capital ratios depending on the quality of the components, (ii) the establishment of various additional cushions (conservation, counter-cyclical and systemic), (iii) the coverage of operational and market risks in addition to credit risk and (iv) the possible application of differentiated weightings according to the bank's portfolio deterioration rate. The results call for better management of banking institutions with respect to the management of capital and risk-taking.

Also, in phase of recession, the banks' failure probability is higher. These results suggest the one hand the pursuit of the goal of price stability by the BCEAO and also increased surveillance of the banks in the different phases of the economic cycle in order to enable appropriate time the constitution of different pillows provided by the new supervisory device. In addition, estimates have shown that the weakness of the market share is a bank indicator of vulnerability. In this regard, the study recommends the special supervision of small and newly established banks with limited market shares. Finally, the structure of the banking market of the UEMOA influences the survival of banks. The study recommends the inclusion of this parameter in the granting of new licenses to avoid a highly competitive banking sector that does not promote the stability and survival of banks. The study paves the way for future research may explore the role of institutions or governance in the survival of WAEMU banks.

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ANNEX A: The extreme terminals Analysis (EBA)

The basic idea of the analysis of end terminals is to test the robustness of a variable in the including in the estimates with all possible combinations of control variables.

Following the K estimates, the coefficients β the variable of interest and the associated standard deviations $\hat{\sigma}k$are collected. The quality indicators of adjustment such as$R$ square fit ($\bar{R}k$
2) or the likelihood (Lk) Are also collected for robustness analysis. In this study, Distributive Wald test (Wk) Was used to assess the quality of the fit.

There are two extreme bounds analysis versions: a version called binding proposed Learner (1985), which focuses on the upper and lower bounds of the estimated coefficients and a more flexible version developed by Sala-i-Martin (1997). Learner's approach is considered binding because of its strict criteria in the choice of variables. Indeed, a variable is declared weak even though it appears robust in all regressions except one. For any given explanatory variable, the upper and lower extreme limits are defined as the minimum and maximum values of$\beta \pm \eta\hat{\sigma}k$ in the K estimated models where ηis the critical value for a given confidence level. For conventional confidence level of 95%ηwill be equal to about 1.96. If the upper and lower end terminals have the same sign, the variable is called robust. Conversely, if the terminals are of opposite signs, the variable is declared fragile.
The probability of getting a robust variable following the approach of Learner is low, as shown by several studies (Levine and Renelt, 1992; Levine and Zervos, 1993 Sala-i-Martin, 1997).

The Sala-i-Martin's approach (1997) properly responds to the perceived rigor of approach
Learner. The author proposes an alternative method for the analysis of end terminals that focuses on the entire distribution of the estimated coefficients, not just its extreme limits. It assigns a confidence level - the value of the CDF (0) - in the robustness of each variable which corresponds to the fraction of the cumulative distribution of the variable that is located on either side of zero. Then, a variable is considered robust if a greater proportion of its estimated coefficients is the same side of zero. The author proposes two alternatives for its analysis of end terminals: a normal pattern, in which the estimated regression coefficients are assumed to follow a normal distribution and a generic model, which implies no particular distribution coefficients. To estimate the normal model,β k and variances $\hat{\sigma}k$.

$\bar{\beta}$ =; With = = (10)$\sum_{k=1}^{K} \omega_k \hat{\beta}_k \overline{\sigma^2} \sum_{k=1}^{K} \omega_k \sigma_k^2 \omega_k \frac{W_k}{\sum_{k=1}^{K} W_k}$

where represents the weights applied to the results of each estimated model. As soon asω_k
the weighted average coefficients and standard errors are known, we calculate function
Cumulative density measured at zero denoted CDF (0) on the basis of the assumed normal distribution
Regression coefficients such thatβ $\rightsquigarrow \mathcal{N}(\bar{\beta}, \sigma 2)$.
Regarding the generic model, Sala-i-Martin (1997) proposes to separately estimate
Cumulative density functions of each model and group them into a density function
aggregated and evaluated at zero cumulative, CDF (0) which then serve as an indication of the robustness of the Variable. It proposes to use the sampling distribution of the estimated coefficients for 44 No. 24 - December 2018 a CDF (0) Individual written (0 |,) $\theta_k \hat{\beta}_k \hat{\sigma}^2$
2) for each estimated model. Then it calculates the
CDF (0) for the overall coefficient β as the weighted average of all the CDF (0) Individual:
θ(0) = (0 |,)$\sum_{k=1}^{K} \omega_k \theta_k \hat{\beta}_k \hat{\sigma}^2$