International Journal of Academic Management Science Research (IJAMSR)
ISSN: 2643-900X
Vol. 8 Issue 2 February - 2024, Pages: 1-10

Effect of the introduction of banking regulations on banking governance in WAEMU countries

ZINSONNI Fousséni

Institut Supérieur de la Technologie Appliquée et Management
Ouagadougou, BURKINA FASO
zinsonnifous@gmail.com

Abstract: *This article studies the impact of regulation on banking governance. The results obtained show that, overall, regulation affects banking governance in the zone, but specifically, hard equity has a negative and significant effect on governance. Thus, an increase in Tier 1 capital means that regulation forces system players (owners or shareholders) to get involved in any risk-taking by the bank, and in turn, these players are obliged to monitor and watch over management to prevent them from flinching, which will ultimately lead to good governance. On the other hand, complementary equity capital has a positive and significant effect. When equity increases, the quality of governance deteriorates. This is largely due to the presence of subordinated debt. Consequently, in order to strengthen bank governance, the authorities must monitor and control the evolution of the proportion of subordinated debt in overall bank debt.*

Keywords*: Banking regulation, hard equity and complementary capital and banking governance*

Introduction

After the 2008 financial crisis, regulatory bodies and the scientific research community focused a great deal of attention on how to significantly reduce banks' excessive risk-taking behavior (Srivastav et al 2016). This behavior by banks undermines the safety and soundness of individual institutions as well as the stability of the banking system as a whole through the contagion effect. Indeed, it is widely acknowledged that the vulnerability of the banking system observed during this crisis was caused, at least in part, by excessive risk-taking prior to the crisis (DeYoung et al 2013; Srivastav et al 2016).

This risk-taking is largely the responsibility of the bank's directors and managers. Poor risk management could therefore be the cause of bank failure.

The Basel Committee on Banking Supervision (BCBS) has drawn attention to the need to study, understand and improve banking governance, because for the BCBS, good governance enhances the effectiveness of supervision. Moreover, the Committee believes that system governance and regulation are complementary to ensure a sound financial system and, consequently, a country's economic development.

On a theoretical level, there are several opposing views on the effect of equity capital on bank governance. On the one hand, equity should reduce moral hazard between shareholders and creditors: higher equity should reduce excessive risk-taking incentives for shareholders. According to Pessarosi et al, (2015), this behavior is amplified by deposit guarantees, which can be explicit due to the public ownership of a large number of financial institutions. Equity should therefore exert a positive effect on bank governance. On the other hand, equity can reduce bank performance by increasing agency costs between management and shareholders. Indeed, equity reduces the discipline imposed by debt repayment on managers, as a higher level of equity implies less debt (Calomiris et al., 1991; Qi, 1998; Diamond et al., 2001).

On an empirical level, a few studies have analyzed this question without coming up with a consensual answer. Berger et al (2006) study the relationship between capital and efficiency in US banks and find a negative impact, while Fiordelisi, Marques-Ibanez et al (2011) analyze this relationship in European banks and find a positive influence. On the other hand, Benhalima et al (2021) have shown that, with the implementation of banking regulations, the Algerian bank needs to pay attention to the disadvantages of the deposit insurance system and the large size of public banks, which may accentuate the problem of moral hazard among bankers.

In the UEMOA region, during the 2016 financial year, the Commission Bancaire de l'UMOA took important decisions in terms of administrative measures and disciplinary sanctions, against several credit institutions. These included: the compulsory resignation of a Chairman

of the Board of Directors, in view of "grievances raised against him concerning the receipt of numerous benefits in the form of remuneration as well as daily interference in the management of the establishment in violation of the texts in force"; the compulsory resignation of a General Manager on the grounds of "irregular acts committed engaging his personal responsibility"; the issuance of 8 injunctions, up 60% on 2015. These administrative measures concerned credit and microfinance institutions based in Benin (1), Burkina (2), Niger (1), Senegal (3) and Togo (1). They were aimed, among other things, at "ensuring that risk management complies with current regulations", and "improving governance and strengthening the internal control system". These facts show that the introduction of prudential regulations has not left the zone's system of governance intact. So what effect has the introduction of prudential regulations had on banking governance? Few studies have analyzed the interactions between the two variables. We will attempt to fill this gap. Moreover, in the existing literature, authors have not included CRISE and human capital as variables that can explain governance variability.

The aim of this study is to measure the effect of the introduction of regulation on banking governance within the WAEMU. To answer our questions in advance: the introduction of regulation increases the effectiveness of banking governance.

The essay is organized as follows: i) we will present the literature review on banking governance and prudential regulations. Then ii) we will present the methodology iii) results and discussions iv) conclusion and implications.

1. Literature on prudential regulation and banking governance

According to the theory of incentives of capital owners, managers and bank regulators, bank risk can increase or decrease (Jeitschko et al. 2005). In addition, these authors sought to consider the roles of managerial agency problems and higher-risk, higher-return assets in influencing the effects of capital requirements on risk in a portfolio-managing bank. Jeitschko et al. 2005 examine a framework that classifies asset risks more broadly than mean-variance. They use this framework to assess bank risk responses to greater capitalization, the implications of capital regulation, depend on which agent - deposit insurer, shareholders or managers - dominates the bank's decision-making. So if the deposit insurer has the power, for example through regulation, its objective is to choose a risk factor that minimizes the option value of deposit insurance. If shareholders dominate, the objective is to choose a risk factor that maximizes the expected value of the bank's equity. The objective of bank managers is to choose a risk factor that maximizes the expected value of the private benefit of control. Finally, for these authors, the effects of capital regulation on portfolio decisions and therefore on the safety and soundness of the banking system ultimately depend on the perspective that dominates the relationship between agent-principal, shareholder-insurer and shareholdermanager. Bris and Cantale (2004) use an analytical framework in which there is both a conflict between the regulator and the bank, and an agency problem between the shareholders and the bank. between the regulator and the bank and an agency problem between the shareholders and the and find different results from those of Jeitschko et al. (2005). They analyze the effects of capital requirements on banks' risk-taking when managers and shareholders shareholders do not have the same information concerning the quality of the loan portfolio. Specifically, they consider a listed bank operating over two periods. The bank's managers choose the financing method based on the debt/equity ratio equity ratio (D/K) and determine the quality of the loan portfolio by selection and monitoring. These decisions affect the bank's the bank's insolvency risk. The analysis is first carried out taking into account only the conflict of interest between the regulator and the bank.

The results show, in this case, that capital requirements reduce the problem of excessive risktaking introduced by deposit insurance. The authors deduce the optimal capital regulation plan and the optimal level of effort exerted by the manager, and then introduce the conflicts f interest existing within the institution between shareholders and managers. Managerial effort is assumed to be unobservable. Shareholders can only induce the bank to work in their interests through an incentive contract. The results show that the separation of ownership and control in the banking industry can lead to the choice of lower levels of risk compared to the case where there is no conflict between managers and shareholders. This inefficiency stems from the fact that managers' vested interests lead them to choose only low-risk loans. Berger et al (2006) study this question for US banks, considering both cost and profit efficiency over the period 1990-1995. They use a parametric method of measuring efficiency,

the free-distribution approach, which is a variant of the stochastic frontier approach. They show that higher levels of capital negatively influence bank efficiency. They explain this result by the fact that higher capital levels increase agency costs between managers and shareholders by reducing the discipline imposed by debt repayment on managers. Fiordelisi et al (2011) examine this question from a more global perspective, considering the interrelationships between capital ratios, risk and bank efficiency. They use Granger causality tests with generalized methods of moments in dynamic panels to simultaneously consider three dimensions of efficiency (cost, revenue, profit), and examine reverse causality between these variables. They find that banks with higher levels of capital are more efficient. They interpret this result as meaning that higher capital levels reduce moral hazard between shareholders and creditors.

Pessarossi et al. (2015), over a study period of 2004-2008 with 298 observations of Chinese banks, using a stochastic frontier method and the result in agreement with that of Fiordelisi et al. (2011) on European banks, but at odds with that of Berger et al. (2006) on US banks. Pessarossi et al. (2015) showed that banks with higher levels of capital are more efficient. It is consistent with the hypothesis that higher capital requirements reduce shareholders' moral hazard by increasing their potential loss in the event of bankruptcy. Benhalima et al (2021), through a descriptive and analytical approach to the Algerian banking sector. They have shown that, on the whole, banking regulations have enshrined the principle of protecting the interests of the bank's stakeholders, in particular owners and depositors, by (1) determining the control process exercised by the deliberative body (*board of directors*), the executive body (*management*) and the audit committee, (2) the definition of the elements subject to control by these bodies, (3) the disclosure of compliant information, (4) risk management and control, (5) insurance of bank deposits and (6) the imperative of compliance with the capital adequacy ratio to limit risk-taking

2. Méthodology

2.1 Economic model

ur aim in this research is to analyze the effect of implementing prudential regulations on bank governance. Faced with the investment costs of implementing prudential policies and their consequences in terms of organizational change, one of the key questions facing investors and system decision-makers is how to assess the contribution of these new policies to improving governance.

To assess the effect of implementing prudential regulations on bank governance, we will use the theoretical model proposed by Dietsch et al. (2000):

$$G_{it} = f(Y_{it}, P_{it}, Z_{it})$$

Where G is the vector of governance; Y is the vector of outputs; P is the vector of input prices; Z is the factor of country-specific variables. With i= 1, 2, ..., n the country index and t= 1, 2, ...T the year index.

We consider governance to be a reasonable proxy for agency costs due to managers pursuing their own objectives rather than maximizing shareholder value. The empirical model to be estimated is as follows:

$$G_{it} = b_0 + b_1 REG_{it} + b_2 BANC_{it} + b_3 Z_{it} + \mu_{it} + \epsilon_{it} \quad (1)$$

$$G_{it} = b_0 + b_1 REG_{it} + b_2 BANC_{it} + b_3 Z_{it} + b_4 CRISE_{it} + \mu_{it} + \epsilon_{it} \quad (2)$$

$$G_{it} = b_0 + b_1 REG_{it} + b_2 BANC_{it} + b_3 Z_{it} + b_4 KH_{it} + \mu_{it} + \epsilon_{it} \quad (3)$$

With G_{it} is the governance of the banking system in country i and year t, REG_{it} is the vector of regulatory variables, $BANC_{it}$ is the vector of variables specific to the banking system, $CRISE_{it}$ a binary variable to measure the crisis 0 for the period before 2008 and 1 otherwise, KH_{it} the human capital variable and, Z_{it} macroeconomic variables, μ_{it} is a specific individual effect and ϵ_{it} is the residual.

In the study of governance in the banking sector, three indicators are commonly used: profit, net income and cost. These indicators reflect a bank's managerial efficiency in controlling costs and maximizing profits. Barr *et al* (1994) and Wheelock et al (2000) have used two efficiency variables to measure the quality of governance, which are similar but not identical: technical inefficiency and cost inefficiency.

For a bank, the costs associated with losses can be of very different kinds: costs associated with the bankruptcy proceedings themselves, sale of assets below their value, reduction in the

scope of activity. For the bank's executives, the costs may include loss of income, monetary penalties, criminal sanctions where applicable, but more likely, reputational sanctions in terms of the executives' market reputation.

The literature uses a number of different measures of corporate performance to test agency cost hypotheses. These measures include 1) financial ratios derived from the balance sheet and income statement (e.g. Mehran 1995, Ang et al. 2000), 2) stock market returns and their volatility (e.g. Saunders et al. 1990, Cole et al. 1998), and 3) Tobin's q, which combines market values with book values (e.g. Hubbard et al. 1999, Zhou 2001).

We argue that measuring governance in terms of cost efficiency is a more appropriate way of testing governance theory, because it controls for the effects of internal factor management prices and other endogenous factors, and because it provides a reasonable benchmark for bank performance in each individual country if governance is maximized. To this end, we will look at governance in terms of cost efficiency, using the following indicator: the ratio of staff costs to overheads (Kablan 2009). We postulate that an institution that controls its staff remuneration will have good governance.

2.2 The estimation method

This research uses econometric approaches similar to the panel data analysis of Umaru et al (2018) because these models combine cross-sectional or time series data. Hsiao et al (2006) identify several advantages of panel data analysis over cross-sectional or time series analysis. Firstly, in these data there is less multicollinearity and more degrees of freedom than in time series or cross-sectional data, due to the large number of observations. Plus, they have the advantage of distinguishing fixed effects from random effects, which considerably reduces bias in econometric estimates.

Despite the virtues of panel data, the longer or shorter cross-sectional dimension can lead to a spurious regression problem, and the longer temporal dimension of these data could lead to the problem of non-stationarity, which deserves particular attention. Unit root tests are carried out beforehand, to check the stationarity of each variable and avoid spurious results. For the estimation of static panel data models, three types of estimation are possible : the homogeneous or no-effect model, the fixed-effect model and the random-effect model. To obtain adequate estimators, several tests will be carried out.

2.3 The data

The scope of the research is the West African Economic and Monetary Union, comprising Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal and Togo. The identification of indicators of banking regulation and governance is based on several types of data. The statistical data used to conduct the quantitative analyses come from the annual reports of the World Bank (World, Development, Indicators), the International Monetary Fund (IMF) and the Central Bank of West African States (BCEAO). The sample comprises 08 countries with 120 banks belonging to the UEMOA zone over the period 2000-2017. Faced with the difficulty linked to the availability of micro data per bank, we used aggregated data from banks per country, and for certain indicators, due to a lack of data, we used proxy variables.

The table below shows that, on average, the regulatory variable (T1), i.e. hard equity in the WAEMU, is more than double that of complementary equity, implying that the Union has made a greater effort on stable equity, which in turn reflects the solidity of the zone. On the other hand, the standard deviation of hard equity is higher than that of complementary equity, indicating that in the event of a shock, hard equity will be more volatile than complementary equity. The table also shows that during the research period, the zone experienced periods of recession (-0.04666) and expansion (0 .4457741).

Table 1 Statistical summary of variables

Variables	Obs	Average	S&D	Minimum	Maximum
Personnel expenses(G)	144	46.83352	9.886697	24.08	97.36
$Tier\ 1\ capital\ (T1)$	144	0.214059	0.2343406	0.0833251	1.04569
$Tier\ 2\ capital\ (T2)$	144	0.1059012	0.0889431	0.0411514	0 .4457741
Real gdp growth rate (pib)	144	0.0426687	0.0289715	-0.04666	0 .15376
$Money\ supply$ (m2)	144	27.39909	9.71244	8.155779	57.00258
$Private\ sector\ credit$ (cpr)	144	7.912719	9.003141	-16.72865	42.79127

Public sector credit (cpu)	144	0.0496319	0.0335162	0	0.1613698
Capital humain (KH)	144	80.3535	25.83231	31.02327	132.4683

Source : Author

3. Results and discussions

3.1 Preliminary test results

To study the stationarity of our variables, we performed the Im-Pesaran-Shin (1997) test, which rejects the null hypothesis of non-stationarity of the variables at the 5% threshold except for the t2 variable, which is at 10%, so our variables are stationary at the 10% threshold.

Table 2 Results of stationarity tests

	Im-Pesaran-Shin		
Variables	**Statistique Z(t-bar)**	**P-value**	**Intégration**
Personnel expenses (G)	-4.5936	0.000	I(0)
Tier 1 *capital* (T1)	-1.982	0.024	I(0)
Tier 2 *capital* (*T*2)	-1.628	0.052	I(0)
Real gdp growth rate (pib)	-2.350	0.009	I(0)
Money supply(*m*2)	4.0691	1.0000	I(1)
Private sector credit (*cpr*)	-4.541	0.000	I(0)
Public sector credit(*cpu*)	-1.910	0.028	I(0)
Capital humain (kh)	-1.4899	0.0681	I(0)

Source : Author.

To obtain the well-specified model, several tests will be carried out with the three models. Individual-effect models are models whose only source of heterogeneity is the constants. This type of model therefore has identical coefficients for the explanatory variables and different individual constants.

Two different cases then arise, depending on the nature of the individual constants. If the constants are deterministic, the model is said to be fixed-effect. On the other hand, if the constants are realizations of a random variable of finite expectation and variance, the model is said to be random-effect. Before determining whether we are modeling individual effects by fixed or random effects, it is necessary to verify that we are indeed in the presence of individual effects. To do this, we add an intercept to the regression for each individual, and test the null hypothesis that these intercepts are zero. If the null hypothesis is rejected, we must take individual effects into account in our model.

From the results in the table below, it can be seen that the P-value of the three models are all below 5%, so the null hypothesis is rejected for all the models, which means that the fixedeffect model has to be estimated for all three models.

Table 3: Summary of F-test results for selecting the appropriate model

Variables	F-statistics	Degree of freedom	P-value	Hypothesis testing	Décision
Model (1)	4.22	(7, 129)	0.0003	H0 rejected	Fixed-effect model to be estimated
Model (2)	4.49	(7, 128)	0.0002	H0 rejected	Fixed-effect model to be estimated
Model (3)	4.27	(7, 128)	0.0003	H0 rejected	Fixed-effect model to be estimated

Source : Author

The Hausman specification test compares two types of estimator (fixed-effect and randomeffect in this case) for the model under study. It compares the variance-covariance matrix of the two estimators. The null hypothesis of the test is the independence of the errors with the explanatory variables. If the null hypothesis is rejected (*p-value* ≤ *5%*), the fixed-effect model is used.

After presenting the econometric tests (F-test and Hausman test) to determine the most appropriate model for this research, it emerges that the fixed-effect model is appropriate for models (2) and (3), and the two tests are not unanimous on the choice of the appropriate model for model (1)

Table 4: Summary of Hausman model selection test results

Variables	Chi-square statistics	P-value	Hypothesis testing	Décision
Model (1)	10.33	0.1116	H0 non rejected	Random effect model to be estimated
Model (2)	30.28	0.0001	H0 rejected	Fixed-effect model to be estimated
Model (3)	16.53	0.0207	H0 rejected	Fixed-effect model to be estimated

Source : Author

In order to obtain adequate models, we need to test the homoscedasticity and correlation hypotheses. To do this, we'll perform four tests. The next two tests check for possible correlation of errors between individuals, as well as for autocorrelation of errors for each individual.
The last two test the existence of the homoscedasticity of the error term, i.e. that the error variance of each individual is constant over time, but also that it is the same for all individuals.

As shown in the table below, without exception, the errors of all three models show interindividual autocorrelations (H0 hypothesis rejected) and no intra-individual autocorrelations (H0 hypothesis not rejected). Furthermore, the errors of all models show both forms of heterocorrelation (intra- and inter-individual), with all H0 hypotheses rejected. Ultimately, Hausman (1978) and Fischer tests are used to select the appropriate estimate and, given the presence of serial correlation and hetero-correlation in all three models, the feasible generalized least squares method is adopted for the estimation of all three models to correct for autocorrelation and heteroscedasticity of country variables and obtain robust results. This methodology makes it possible to correct the covariance matrix in order to generate robust, uncorrelated standard errors.

Table 5: Summary of heteroscedasticity and autocorrelation test results

Variables	Inter-individual autocorrelation (H0: No autocorrelation)	Intra-individual autocorrelation (H0: No autocorrelation)	Intra-individual heteroscedascity (H0: Homo-codedascity)	Inter-individual hetero scedascity (H0: Homo scedascity)
Model (1)	LR chi2(28) = 150.696 Prob> chi2 = 0,0000	F (1,7) = 0,675 Prob > F = 0.4384	F (6, 136) = 10963.50 Prob > F = 0.0000	LR chi2 (8) = 167.35 Prob> chi2 = 0,0000
Model (2)	LR chi2(28) = 134.151 Prob> chi2 = 0,0000	F (1,7) = 2.654 Prob> chi2 = 0.1473	F (7, 135) = 11057.81 Prob > F = 0.0000	LR chi2(8) =164.49 Prob> chi2 = 0,0000
Model (3)	LR chi2(28) = 148.362 Prob> chi2 = 0,0000	F (1,7) = 0.688 Prob > F = 0.4341	F (7, 135) = 9546.25 Prob > F = 0.0000	LR chi2(8) = 208.72 Prob> chi2 = 0,0000

Source : Author

3.2 Econometric results

From table 1.6, we note that the results of model estimation (1) on the effects of explanatory variables on the dependent variable show that all coefficients are significant, with the exception of loans to the private sector (CPR) and prudential regulation variables, which have controversial effects. Indeed, the regulatory variables (T1 and T2) have significant negative and positive effects on bank governance respectively. This means that when hard equity (T1) increases, the cost of staff remuneration decreases, thus reducing the cost control of the banking system ; a sign of poor governance. This can be explained by the fact that, as the banking system redoubles its efforts to make the sector more resilient by increasing Tier 1 capital, this situation is seen as an increase in the contribution made by shareholders to bank risk-taking, forcing them to control the actions of bank executives, which in turn strengthens governance. In other words, when hard equity (made up largely of shareholders' wealth) increases, regulation forces owners to invest their personal wealth in risk-taking in the banking system Kim et al. (1994). On the one hand, this forces owners to be more watchful of management's actions. And on the other hand, this increase could dissuade managers from taking more risk, and make them respect their commitment to the company. For if the company runs into difficulties, the reputation and career of the executives could suffer. What's more, their personal assets could be much more adversely affected than those of a shareholder. Consequently, managers and owners will embrace good governance to take fewer risks, particularly at a time when their actions and performance are under scrutiny by the public and regulators (Parrino et al., 2005, Saunders et al., 2006). In this way, owners' control will be strengthened and managers' deviations in management will be reduced; in fine, there will be cost-efficiency, which is why costs will fall. Berger et al, (2014) support this by

pointing out that a large shareholder base encourages non-active managers to become more involved in the bank's governance.

On the other hand, for the other regulatory variable (T2) in model 1, the effect is positive and significant, reflecting the fact that as this regulatory variable increases, so does the weight of personnel costs in overheads. In fact, when supplementary capital (made up of subordinated debt) increases, management costs rise, indicating poor governance of the banking system. In other words, since subordinated debt is debt that banks have the option of repaying in the last position, shareholders encourage management to raise more of this debt and lend it out at relatively high rates, leading to the coexistence of two phenomena: agency conflict and moral hazard. Since shareholders know that the loan portfolio is one of the bank's main profitgenerating assets (Greuning et al 2004), they can encourage management to take on risky loans. As a result, the risks associated with both phenomena will grow to reach the same level, leading to a decline in governance. Then, managers can take risks that exceed an optimal level in line with shareholders' interests, by hiring new high-quality staff in return for higher remuneration, which in turn increases staff costs. In this way, remuneration is no longer linked to management's marginal income, but rather to shareholders' strong control over management, which will perpetuate the problem of moral hazard, opening the door to noncautious behaviour in the bank's risk management. In addition, when the banking sector sees an increase in hard equity, this leads them to increase risk-taking by raising staff costs, either by employing the same number of staff and raising the wage rate, or both the rate and the number, as they consider themselves in a position to counter any bankruptcies due to their high level of equity. Furthermore, the risk of failure may increase if the agency problem between shareholders and managers leads to excessive risk-taking, or if regulators force the riskiest banks to build up a higher capital ratio (Acharya *et al.*, 2012). This result confirms that of Dannon et al (2014) when studying UEMOA banks with a linear model.

Model 2 analyzes the effect of the introduction of prudential regulation on bank governance, by integrating the CRISE variable into Model 1. The interest of this approach is to see whether the results will not be influenced by this variable, which is why regulatory authorities are obliged to introduce prudential measures. The results are presented in Table 6. These results do not call into question the conclusions of the first analysis in terms of the significance of the parameters and/or the direction of the effect, but rather it is the amplitude of the effects that have undergone variation. Indeed, the regulatory variable hard equity still has a positive effect on bank governance, but in periods of absence this effect is smaller. This result can be explained, on the one hand, by the fact that in times of crisis, the magnitude of the agency cost increases, i.e. each contracting party will tend not to respect the clauses of the contract and will seek to maximize its own utility, in line with the concept of agency cost theory. On the other hand, according to Jeitschko et al (2005), shareholders can only induce the bank to work in their interests through an incentive contract. The results show that the separation of ownership and control in the banking industry can lead to the choice of lower risk levels compared to the case where there are no conflicts between managers and shareholders.

In addition, the complementary equity variable has a negative and significant impact on banking governance in times of crisis, but this deterioration is relatively less in non-crisis periods. This could be explained by the fact that, because this capital is largely made up of unstable capital, in a crisis period it will increase relatively in order to preserve the viability of the banking institution, and this increase will be accompanied by a reduction in the discipline imposed on managers, which could encourage managers to adopt opportunistic behaviour. In this way, bank performance is reduced, while the agency costs between management and shareholders increase. As noted by authors such as (ANTHONY, ELIZABETH, & NICKOLAOS, June 1990) (Barr, Lawrence, & Thomas, 17 August 2016)equity reduces the discipline imposed by debt repayment on managers, just as a higher level of equity implies less debt repayment. As a result, bank governance will be negatively affected, but as happens in times of crisis, managers aware of the close link between their private interests and the viability of the institution will use the reduction in discipline imposed by debt repayment wisely. The other players in the system, such as shareholders and regulators, will then be on the alert to monitor the actions of management, thereby minimizing the deterioration in bank governance.

Furthermore, the crisis variable has a significant negative effect on bank governance. Indeed, when the crisis persists, two phenomena combine to reduce management costs and thus improve governance. On the one hand, if the crisis persists, the agency cost is reduced by the increased vigilance of bank owners (shareholders) over the management of bank managers

and/or employees, which reduces the possibility of managers and/or employees taking a shot to avoid liquidating the bank and losing their entire investment, hence improving governance. On the other hand, in times of crisis, the high cost of finding a new job when managers and/or employees are made redundant or the bank closes discourages them from working against the bank's interests, thus improving governance.

In Model 3, the effect of the introduction of prudential regulation on bank governance is analyzed, by integrating the human capital variable into Model 1. It emerges that the parameters have retained their direction of effect and their significance. Indeed, the hard equity variable contributes to improving bank governance even when human capital increases, but this improvement is relatively less in the absence of an increase in human capital. This result could be explained, in line with the organizational approach, by the fact that regulatory provisions require banking institutions to transfer financial information to supervisory bodies. This implies an imposition in terms of governance, as these transfers imply permanent, highquality reporting, and therefore the recruitment of specific skills by banking institutions. Ultimately, this contributes to an improvement in banking governance, but this improvement will be undermined by the persistent pursuit of private profit by the banking system's managers Finally, the human capital variable has a negative and significant effect on bank governance. Indeed, when human capital improves, management costs rise and governance falls, which is contrary to theory. On the one hand, this could be explained by the fact that, given our research area, human capital improvement may not be in the specific area that can be capitalized in banking. On the other hand, the increase in human capital may be accompanied simultaneously by an increase in the value of labour, which could lead to higher costs for the system, resulting in lower governance.

Table 6: Results of GCM model estimation

VARIABLES	(Modèle 1)	(Modèle 2)	(Modèle 3)
Tier 1 *capital* (T1)	-8.691***	-7.882***	-7.599***
	(2.057)	(2.108)	(2.221)
Tier 2 *capital* (T2)	9.350*	8.769*	6.408
	(4.993)	(5.082)	(5.274)
Money supply (m2)	-0.184***	-0.158***	-0.241***
	(0.0331)	(0.0348)	(0.0358)
Real gdp growth rate (pib)	11.08**	11.41**	8.677*
	(4.608)	(4.891)	(4.820)
Private sector credit (cpr)	0.000736	0.00525	0.00137
	(0.0129)	(0.0134)	(0.0139)
Public sector credit (cpu)	22.56***	31.44***	21.74***
	(7.734)	(7.816)	(6.977)
Crisis (Crise)		-2.934**	
		(1.146)	
Capital humain (kh)			0.0248**
			(0.0107)
Constant	53.48***	53.97***	53.53***
	(1.170)	(1.123)	(1.099)
Comments	144	144	144
Number of countries	8	8	8

Source : Author Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Conclusion

The aim of this article is to analyze the effect of the implementation of prudential regulations on banking governance in the WAEMU, at the dawn of the zone's drive towards these Basel measures known as international standards, and based on bank failures observed in the zone from 2003 to 2015. Using a feasible generalized least squares model, this research shows that the introduction of regulatory variables has explanatory power for the quality of banking governance.

Equity capital appears to be a key factor in explaining banking governance in the zone, as most of the variables linked to regulation are significant, showing that the more these variables vary, the more governance is affected. Indeed, on the one hand, hard equity has a negative and significant effect on governance. Thus, an increase in hard equity means that the regulations force the players in the system (owners or shareholders) to get involved in any risk-taking by the bank. In turn, these players are obliged to monitor and watch over management to prevent them from taking risks, which will ultimately lead to good governance. On the other hand, complementary equity capital has a positive and significant effect. When equity increases, the quality of governance deteriorates. In fact, this situation is largely due to the presence of subordinated debt in this variable, which through its characteristics, i.e. the ease and laxity it confers on banks in terms of management compared with other types of debt, reduces governance. The estimation of the models then revealed the stable nature of the effect of the introduction of prudential regulations on bank governance, since whatever the model (i.e. in the presence of the variable CRISIS or human capital) the direction of the effect remains constant and significant, except for the last model 3, where additional capital retained its sign but not its significance.

These results demonstrate the need for regulatory authorities to create a framework for the management and steering of capital, by establishing capital buffers according to the composition of boards of directors, the composition of bank portfolios, and the level of agency costs and information asymmetries between system players, in order to enhance risk control. Then, given the heterogeneity of EU countries in terms of financial development, and therefore a disproportionate level of governance quality, the results argue for the applicability of regulations according to the specificity of each economy in terms of governance.

Bibliographies

Abhishek, S., & Jens, H. (2015, August 29). Corporate Governance and Bank Risk-taking. doi:https://doi.org/10.1111/corg.12133

Allen, N. B., & Gregory, F. U. (2006,, November). A more complete conceptual framework for SME finance. *Journal of Banking & Finance, 30,*, 2945-2966. doi:https://doi.org/10.1016/j.jbankfin.2006.05.008

Ang, R. A. (31 March 2007). Agency Costs and Ownership Structure James S. *Journal of finance*. doi:https://doi.org/10.1111/0022-1082.00201

ANTHONY, S., ELIZABETH, S., & NICKOLAOS, G. T. (June 1990). Ownership Structure, Deregulation, and Bank Risk Taking. *Journal of finance*. doi:https://doi.org/10.1111/j.1540-6261.1990.tb03709.x

Arturo, B., & Salvatore, C. (2004, February). Bank capital requirements and managerial self-interest . *The Quarterly Review of Economics and Finance, 44*, 77-101. doi:https://doi.org/10.1016/j.qref.2003.06.001

BENHALIMA, A. A., AIBOUD, K., & BOUHEZAM, S. A. (2021). *Règlementation et Gouvernance Bancaire en Algérie : Eléments d'analyse des Mécanismes Internes de gouvernance.* Journal d'études e économie et Management.

Charles, W. C., & Gary, G. (1991 , January). The Origins of Banking Panics: Models, Facts, and Bank Regulation. *University of Chicago Press*, 109 - 174. doi:https://www.nber.org/system/files/chapters/c11484/c11484.pdf

Chunsheng, Z. (2001, November). The term structure of credit spreads with jump risk. *Journal of Banking & Finance, 25*(11), 2015-2040. doi:https://doi.org/10.1016/S0378-4266(00)00168-0

David C. Wheelock, P. W. (2000). Why do Banks Disappear? The Determinants of U.S. Bank Failures and Acquisitions. *The Review of Economics and Statistics* , 127–138. doi:https://doi.org/10.1162/003465300558560

DOUGLAS W. Diamon, R. G. (2001). Banks, short-term debt and financial crises: theory, policy implications and applications . *NBER WORKING PAPER SERIES*. doi:https://www.nber.org/system/files/working_papers/w7764/w7764

Franco Fiordelisi, D. M.-I. (2011, May). Efficiency and risk in European banking. *Journal of Banking & Finance , 35*, 1315-1326. doi:https://doi.org/10.1016/j.jbankfin.2010.10.005

Hussaini, U., Aguda, N. A., & N. O. (2018, October). The Effects of Exchange Rate Volatility on Economic Growth of West African English-Speaking Countries. *International Journal of Academic Research in Accounting, 8*(4), 131–143.

Hamid, M. (June 1995). Executive compensation structure, ownership, and firm performance . *Journal of Financial Economics , 38*, Pages 163-184. doi:https://doi.org/10.1016/0304-405X(94)00809-FG

Pierre Pessarossi Laurent Weill Volume, ,. P. (2015, August). Do capital requirements affect cost efficiency? Evidence from China . *Journal of Financial Stability*, 119-127. doi:https://doi.org/10.1016/j.jfs.2014.11.002

Robert, D., & Gökhan, T. (July 2013). Nontraditional banking activities and bank failures during the financial crisis. *22*, 397-421. doi:https://doi.org/10.1016/j.jfi.2013.01.001

Sandrine, K. (2009). *Mesure de l'Efficacite des Banques dans les Pays en Voie de Developpement: Le Cas de l'Union Economique et Monetaire Ouest Africaine (UEMOA).* Published by Blackwell Publishing Ltd, 9600 Garsington Road, Oxford OX4 2DQ, UK and 350 Main Street, Malden, MA 02148, USA.

Thomas D. Jeitschko, S. D. (2005, March). Incentives for risk-taking in banking – A unified approach. *Journal of Banking & Finance, 29*, 759-777. doi:https://doi.org/10.1016/j.jbankfin.2004.05.028