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Economic Policy Uncertainty and Banking Stability in WAEMU Countries: The Role of Banking Specificities

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Abstract

This paper analyses the effect of economic policy uncertainty on banking stability, taking into account bank size, capital and liquidity. The study covers WAEMU countries with the exception of Guinea-Bissau, for which data were not available. The data used come mainly from GFDD (2024) and WDI (2024). Using Bruno's (2005) LSDVC estimator, the main results show that economic policy uncertainty has a negative effect on bank stability. However, when accounting for interactions between uncertainty and bank characteristics such as size, capital, and liquidity, these factors appear to mitigate this negative effect. Thus, larger, better capitalized banks with adequate liquidity are better prepared to withstand periods of economic uncertainty. These findings highlight the importance of enhanced supervision of banks to ensure their compliance with capital and liquidity standards.

Keywords: Economic policy uncertainty, Banking stability

JEL: G18, G21, G28

1. Introduction

The economies of sub-Saharan African countries, particularly those of the WAEMU, have recently recorded the highest economic growth rates in the world (IMF, 2023). However, despite this favorable context, these economies face several challenges including economic policy uncertainty (EPU). According to Sahinoz and Cosar (2018), economic policy uncertainty is characterized by the inability of agents to predict future economic policies (fiscal, budgetary, monetary, etc.) as well as the consequences of policies already adopted by the government. Indeed, the unpredictability of economic policy creates an unstable environment for economic agents, businesses and investors. This instability can also have negative repercussions on the stability of the banking sector, which plays a crucial role in financing the economy (Zhang and Wang, 2023).

In developing countries, the banking sector is the cornerstone of the financial system. However, due to the low level of financial development, this sector often exhibits relatively low stability (Beck and Cull, 2014). In this context, economic policy uncertainty can exacerbate banking instability. For example, Chau and Oanh (2023) showed that economic policy uncertainty contributes to banking instability in various Asian countries. Similarly, Zhang and Wang (2023) show that IPE decreases banking stability in China. Other studies, such as Bilgin et al. (2021), highlight an increase in default risk in conventional banks in the face of this uncertainty, while Islamic banks remain unaffected. Regarding the Indian banking sector, Syed et al. (2022) reveal that a 1% increase in uncertainty leads to an increase of about 1.12% in banking instability. Finally, Hamdi and Hassen (2022) conclude that economic policy uncertainty increases credit risk and has negative effects on credit granting and bank performance in Tunisia.

Although the majority of studies seem to confirm the existence of a negative relationship between economic policy uncertainty and banking stability, it is important to note that these studies often do not take into account certain specificities such as bank capital, size and liquidity. According to Danisman and Tarazi (2024), the banking sector’s response to economic policy uncertainty strongly depends on these characteristics. Thus, the effect of uncertainty on bank stability may vary depending on the bank’s size, liquidity level, and capitalization. For example, the literature indicates that large banks generally benefit from better diversification of their asset portfolios than small banks, which allows them to increase their resilience to shocks and reduce banking instability (Tao and Xu, 2019). Regarding bank capital, its main function is to protect the banking sector against instability by serving as a buffer to absorb shocks and losses related to banking and economic activities (Phan et al., 2021).

Finally, bank liquidity allows banks to meet their short-term obligations. In times of uncertainty, holding liquid assets allows banks to continue providing their services to customers, thereby reducing the risk of banking crises. In sum, the literature shows that these specificities play a stabilizing role by mitigating the negative effects of economic policy uncertainty on banking stability.

The issue of the link between economic policy uncertainty (EPU) and banking stability is particularly relevant in WAEMU countries. Indeed, these countries share a common currency, the CFA franc, pegged to the euro. In recent years, the aspirations of some countries for monetary sovereignty have created uncertainty about the coherence of monetary policy, posing a risk of fragmentation to the entire sub-region. On the budgetary level, fiscal policy as a second instrument of economic policy sometimes tends to lose its effectiveness due to significant structural specificities. First, the majority of countries face high debt levels (57%) and budget deficits of around 5.6% (IMF, 2023). On the trade front, a high dependence on export resources whose revenues are quite volatile makes the stance of fiscal policy unpredictable. Moreover, the Covid-19 pandemic and the recent Russo-Ukrainian war, considered as major exogenous shocks, have significantly disrupted the countries' economies. These events have led to a significant drop in growth, aggravating fiscal difficulties, complicating public debt management and increasing economic policy uncertainty. Consequently, economic policy uncertainty risks exacerbating banking sector instability, especially since EU banks hold a large number of government securities.

Thus, the central question of this study is : What is the effect of economic policy uncertainty on banking stability in WAEMU countries?

To clarify this question, the following specific questions should be answered:

- What is the effect of economic policy uncertainty on banking stability in the WAEMU zone?

- What role do banking specificities play in the relationship between economic policy uncertainty and banking stability in the WAEMU zone?

The objective of this study is therefore to analyze the effect of economic policy uncertainty on banking stability in WAEMU countries while considering the role of banking characteristics such as size, capital and liquidity. Specifically, this study will:

- Determine the effect of economic policy uncertainty on bank stability in the WAEMU zone.

- Identify the role of banking specificities in the relationship between economic policy uncertainty and banking stability in the WAEMU zone

The central hypothesis of this study is that economic policy uncertainty negatively affects banking stability. In relation to our specific objectives, we postulate the following secondary hypotheses: (i) economic policy uncertainty reduces banking stability and that (ii) banking specificities mitigate the negative effect of economic policy uncertainty on banking stability.

Using Bruno's (2005) LSDVC estimator, the main results indicate that economic policy uncertainty has a negative effect on bank stability. However, when considering the interactions between uncertainty and bank characteristics, such as size, capital, and liquidity, these factors appear to mitigate this negative effect. The remainder of the paper is organized as follows: the second portion contains a literature review, the third section contains the methodological approach, the fourth section comments on the results, and the paper closes with a conclusion.

2. Literature Review

This section discusses the literature review. It covers two points: the first is a theoretical review, and the second is an overview of empirical research.

2.1 Theoretical Review

In the literature, two main theoretical points of view diverge as to the effect of economic policy uncertainty (EPU) on banking stability. The first is based on the theory of real options, developed by McDonald and Siegel (1986) and Pindyck (1988). According to this approach, increased uncertainty due to a lack of complete information increases the likelihood of making erroneous decisions. As a result, banks adopt a conservative attitude towards their customers, increasing their interest rates and reducing the supply of credit until the uncertainty dissipates. Thus, banks respond flexibly to changing conditions in the economic environment by adjusting their portfolio to maximize the value of their investments. This approach has received widespread support in the literature, including Baum et al. (2021) and Bordo et al. (2016), who showed that uncertainty induces banks to adopt conservative behavior and reduce bank credit growth.

The second perspective examines the indirect effect of economic policy uncertainty (EPU) on banking stability through the behavior of firms and economic agents (Tao and Xu, 2019). According to this perspective, EPU leads to volatility in future income and reduces agents' ability to meet their commitments when due. This leads to an increase in defaults in banks' portfolios, which ultimately increases banking instability (Bernal et al., 2016). Moreover, EPI can exacerbate moral hazard problems, thereby increasing instability in the banking sector. In times of high uncertainty, banks, unable to distinguish good borrowers from bad ones, raise their interest rates. In response, economic agents and firms may decide to postpone their borrowing and investment decisions until a later date. This leads to a decrease in the demand for credit and, consequently, a decrease in interest income for banks. To compensate for this loss of income, banks may have an incentive to make riskier investments.

2.2 Empirical Review

On the empirical side, the link between EPU and banking activity has been widely explored in the literature. A study by Baum et al. (2021) investigated the effect of EPU on various aspects of banking activity in 89 countries between 1996 and 2015. Their findings highlight a reduction in credit to the private sector, a decrease in banking efficiency, and a negative influence on the stability of the financial system. Bordo et al. (2016) found a similar decline in bank loans during times of uncertainty in the United States, as did Tao and Xu (2019) in China. Studying the Tunisian banking sector, Hamdi and Hassen (2022) find that EPI amplifies credit risk, negatively affecting both credit granting and bank performance. Syed et al. (2022) focus on the case of India and establish a positive relationship between EPI and banking instability, highlighting that a 1% increase in uncertainty leads to a 1.12% increase in instability. Bilgin et al. (2021) compare the effect of EPI on the stability of conventional and Islamic banks. The results indicate that Islamic banks appear to be insensitive to uncertainty while conventional banks see their risk of failure increase during periods of uncertainty.

Ozili (2022) examines the effect of EPU on non-performing loans and loss provisions in Europe. He finds that the influence is negative in EU countries, but not for non-EU countries, suggesting variability in the effects across economic and institutional contexts. Bernal et al. (2016) analyze the transmission of sovereign risk in Europe in times of uncertainty and finds that an increase in uncertainty in countries such as Germany, France, Italy and Spain increases the propagation of risks within the euro area.

Lan et al. (2022) study the effect of EPU on systemic risk in China. Contrary to the majority of the literature, they find that EPU leads to a decrease in systemic risk and note that the effect is more pronounced for small and unprofitable banks. Further analysis subsequently allowed them to explain this result by the balance sheet structure of banks.

Despite the large body of research highlighting the negative effect of economic policy uncertainty (EPU) on bank stability, some of the literature suggests that this effect could be mitigated by various factors, including bank-specific specificities.

Danisman and Tarazi (2024) examine the effect of EPU on bank stability in the United States, highlighting the importance of bank size, capital, and liquidity in this relationship. They first find that increases in IPE are accompanied by decreases in bank stability. Moreover, this negative effect is more pronounced for large banks, but less pronounced for highly capitalized and more liquid banks.

Chi and Li (2017) study the effect of EPU on Chinese commercial banks. They observe an increase in non-performing loans, credit risk, and a decrease in loan size during periods of uncertainty. However, they point out that financial depth and the level of marketization can moderate these negative effects, suggesting that more developed financial systems and more efficient markets can mitigate the impact of uncertainty on banks.

Phan et al. (2021) analyze this same relationship in 23 countries between 1996 and 2016, focusing on the role of competition, bank capital, and financial system size. Their results confirm the existence of a negative relationship between EPU and banking stability, with a decrease in stability ranging from 2.66% to 7.26%. The negative effect is stronger in countries with increased competition, lower regulatory capital, and smaller financial systems. Chau and Oanh (2023) find in the case of Indonesia that bank capital and banking system concentration reduce the negative influence of EPU on banking stability.

Based on a sample of 900 commercial banks in eight major European countries, Nguyen (2021) examines the role of banking regulation and supervision in the relationship between EPUs and banking stability. The results show that increasing uncertainty is associated with a decrease in banking stability. However, strengthening the regulatory framework and banking supervision tends to mitigate this negative effect.

Using a panel of 32 Chinese commercial banks, Zhang and Wang (2023) examine the effect of EPU on bank stability by considering the mediating role of banking opacity. Although the results confirm the existence of a negative relationship between EPU and bank stability, they show that banking opacity plays a partial role in this relationship. Indeed, EPU indirectly affects bank stability by incentivizing banks to reduce their market exposure and improve their revenue opacity.

Finally, Ali et al. (2023) study the effect of governance on the relationship between EPI and financial stability in 23 countries between 2005 and 2019. They demonstrate that economic policy uncertainty reduces financial stability as measured by the Z-score, but has a positive effect on non-performing loans. Furthermore, they note that governance can be used to mitigate this negative effect of economic policy uncertainty.

This research demonstrates that, although the negative effect of EPU on banking stability is generally recognized, its magnitude varies depending on various factors specific to the banking sector. This highlights the importance of our study in the context of WAEMU countries.

3. Methodology of the Study

This section is dedicated to the specification of the study model, the description of the variables, the data source as well as the presentation of the estimation method.

3.1 Specification of the Study Model

The objective of this study is to analyze the influence of economic policy uncertainty on banking stability, taking into account the specific characteristics of banks such as their size, capital and liquidity. To determine the specification of the relationship to be estimated, we adopt a dynamic approach to capture the persistence of risk over time. The equations to be estimated are as follows:

$$\begin{aligned} Zscore_{it} = {} & \alpha + \beta_1 Zscore_{it-1} + \beta_2 Epu_{it} + \beta_3 Roe_{it} + \beta_4 Conc_{it} + \beta_5 Private\_credit_{it} + \\ & \beta_6 Operating\_cost_{it} + \beta_7 Trade_{it} + \beta_8 Qreg_{it} + \beta_9 Gdp_{it} + \varepsilon_{it} \end{aligned} \tag{1}$$

$$\begin{aligned} Zscore_{it} = {} & \alpha + \beta_1 Zscore_{it-1} + \beta_2 Epu_{it} * Size_{it} + \beta_3 Roe_{it} + \beta_4 Conc_{it} + \beta_5 Private\_credit_{it} + \\ & \beta_6 Operating\_cost_{it} + \beta_7 Trade_{it} + \beta_8 Qreg_{it} + \beta_9 Gdp_{it} + \varepsilon_{it} \end{aligned} \tag{2}$$

$$\begin{aligned} Zscore_{it} = {} & \alpha + \beta_1 Zscore_{it-1} + \beta_2 Epu_{it} * Car_{it} + \beta_3 Roe_{it} + \beta_4 Conc_{it} + \beta_5 Private\_credit_{it} + \\ & \beta_6 Operating\_cost_{it} + \beta_7 Trade_{it} + \beta_8 Qreg_{it} + \beta_9 Gdp_{it} + \varepsilon_{it} \end{aligned} \tag{3}$$

$$\begin{aligned} Zscore_{it} = {} & \alpha + \beta_1 Zscore_{it-1} + \beta_2 Epu_{it} * Liq_{it} + \beta_3 Roe_{it} + \beta_4 Conc_{it} + \beta_5 Private\_credit_{it} + \\ & \beta_6 Operating\_cost_{it} + \beta_7 Trade_{it} + \beta_8 Qreg_{it} + \beta_9 Gdp_{it} + \varepsilon_{it} \end{aligned} \tag{4}$$

Through equation (1), we capture the direct influence of economic policy uncertainty on banking stability. As for equations (2), (3) and (4), they will allow us to understand the influence of banking specificities in the existing relationship between economic policy uncertainty and banking stability. Our objective is to determine whether these specificities act as an amplification or attenuation factor.

In these equations, the dependent variable is bank stability, measured by the (Zscore). The Zscore is the most commonly used indicator of bank stability in the literature. Researchers such as Phan et al. (2021) and Danisman and Tarazi (2024) have employed the Zscore to assess bank stability in their respective studies. The Zscore is calculated using the following formula:

$$Zscore_{it} = \frac{Roa + Car}{\sigma(Roa)} \tag{5}$$

In this formula, i and t refer to the country and year, respectively. Roa represents the return on assets, Car is the ratio of equity to total assets, while $\sigma(Roa)$ is the standard deviation of the return on assets. The Zscore is interpreted as the inverse of the probability of default. Therefore, a high value indicates increased bank stability, while a low value indicates relatively weak bank stability.

The variable of interest is economic policy uncertainty (EPU). Measuring this uncertainty is complex due to its unobservable nature. Baker et al. (2016) developed an index based on three components: (1) the frequency of media coverage of policy uncertainty, (2) the number of fiscal provisions expiring in the coming years, and (3) a measure of disagreement among economic forecasters. However, in the absence of area-specific data, we use the variance of the unpredictable part of a stochastic process. This method is flexible and imposes no restrictions on the length of the data. Aizenman and Marion (1993), Lensink et al. (1999), and, most recently, Korley and Giouvris (2023) employed it in their study of ECOWAS countries. Thus, economic policy uncertainty is calculated by fitting a first-order autoregressive process, defined as follows:

$$P_{it} = \alpha_0 + \alpha_1 P_{it-1} + \varepsilon_{it} \tag{6}$$

Where P is inflation; P_{it-1} is its lagged value; α_i is the autoregressive parameter, α_0 is the constant, and ε_{it} is the error term. We use the standard deviation of the residuals from the regression as a measure of economic policy uncertainty. According to the literature, economic policy uncertainty can cause unpredictable economic fluctuations, thereby increasing the risk of defaults and reducing banking stability (Sahinoz and Erdogan, 2018). Therefore, the expected effect of this variable is negative.

The bank-specific variables used as interaction variables are size (Size), capital (Car), and liquidity (Liq). Size is measured by the logarithm of total bank assets, while capital is calculated by dividing equity by total assets. Liquidity is defined as the proportion of liquid assets to total bank assets. According to Phan et al. (2021) and Danisman and Tarazi (2024), bank size, capital, and liquidity increase bank resilience, which is particularly useful in times of economic uncertainty. Indeed, large size allows banks to diversify their risks, while strong capital provides better capacity to absorb financial shocks. Moreover, sufficient liquidity ensures that banks can respond to massive withdrawals and maintain their current operations without interruption. These specificities ensure the continuity of banking activities, thereby strengthening the stability of the financial system.

Therefore, large, well-capitalized, and liquid banks are better prepared to weather periods of economic uncertainty. These characteristics are therefore expected to mitigate the negative effect of economic policy uncertainty on bank stability.

Bank performance is assessed using return on equity (RoE). Unlike return on assets, ROE measures the return on capital invested by shareholders. Hamdi and Hassen (2022) used ROE as a proxy for bank performance in their study. Since performance ensures the continuity and sustainability of banking activities, we hypothesize a positive effect of bank performance on bank stability.

To account for the influence of the banking market structure, we introduce bank concentration (Conc), measured by the market share of the three largest banks, into the model. Indeed, concentration allows banks to increase their interest rates due to their market power, which can push good borrowers to leave the market, making way for riskier borrowers and thus increasing banks' exposure to risk. Moreover, high rates can encourage borrowers to invest in risky projects to repay their loans (Boyd and De Nicolo, 2005; Brei et al. 2020). Contrary to these authors, Petersen and Rajan (1995) argue that concentration encourages banks to establish long-term relationships with their customers, which can significantly reduce their exposure to risk and, consequently, instability. Thus, the expected effect for this variable is undetermined.

Private credit (Private credit) is measured by the total credit granted by banks to the private sector, expressed as a percentage of gross domestic product. In WAEMU countries, where financial development is relatively low, banks mainly focus on financing activities. Indeed, credit to the private sector constitutes the main source of income for these institutions. Thus, an increase in bank credit not only strengthens the stability of banks by improving their profitability, but also contributes to economic development by facilitating access to financing for businesses and individuals (Phan et al. 2021). We therefore postulate the positive effect of credit on bank stability.

Operating costs (Operating cost), also known as bank operating costs, include all the expenses necessary to maintain day-to-day operations, ensure regulatory compliance, and provide quality services to customers. An increase in operating costs can have a negative effect on the bank's profitability. High expenses can limit the bank's ability to invest in growth initiatives or provide competitive services to its customers (Ralshit, 2021). It can also reduce the bank's ability to absorb financial shocks, thereby compromising its stability. Therefore, we expect the effect of operating costs on bank stability to be negative, as higher costs can harm the bank's profitability and overall resilience.

Among the macroeconomic variables, regulatory quality (Qreg) provides insight into the institutional environment. It reflects the government's ability to formulate and implement sound policies and regulations that promote development. Regulatory quality is measured on a scale ranging from -2.5 to 2.5. A value close to the lower bound indicates deficiencies, while a value close to the upper bound suggests quality regulations. A quality institutional environment acts as a catalyst for the banking sector, while an environment characterized by poor regulation constitutes a risk and vulnerability factor for this sector (Syed et al., 2022; Nguyen, 2021). Thus, the expected effect of this variable on banking stability can be positive or negative.

Trade openness (Trade) measures the importance of foreign trade in a country's economy. It can enhance banking stability by facilitating technology diffusion, capital mobility, and improved governance and compliance. However, it also carries the risk of increasing instability in the banking system if it promotes contagion and transmission of financial crises (Nguyen et al, 2023). For example, deeper trade integration could amplify the effects of external economic shocks, thereby increasing banks' vulnerability to global financial crises. Thus, the sign of this variable is undetermined.

Finally, the gross domestic product (GDP) growth rate aims to measure the impact of economic conditions on banking stability. In general, periods of strong economic growth favor the development of banking activity. During these periods, borrowers encounter fewer difficulties in repaying their loans, which improves the profitability and stability of banks. On the other hand, during a recession, there is an increase in payment defaults, which can negatively affect banking stability. We expect that an increase in the economic growth rate will translate into a strengthening of banking stability.

3.2 Data Source

The study covers all WAEMU countries except Guinea Bissau due to lack of data. It covers the period from 2000 to 2020. The data used mainly come from the Global Financial Development Database (GFDD, 2024) and World Development Indicator (WDI, 2024).

3.3 Estimation Technique

From a methodological perspective, adopting a dynamic specification raises an endogeneity problem. This problem is typical of dynamic panel models that are generally estimated by the generalized method of moments (GMM). However, using this method requires micropanel data, i.e. data with an individual dimension greater than the time dimension (N>T). In our study, our data are macropanel data, i.e. the time dimension is greater than the individual dimension (T=21 > N=7). Under these conditions, we cannot use the GMM estimator. Taking this into account, we opted for the Least Squares Dummy Variable Corrected (LSDVC) method of Bruno (2005), commonly used in the presence of macropanels. The LSDVC estimator is first estimated by the dynamic panel method and then uses a recursive bias correction of the fixed effects estimator.

The LSDVC method can be estimated using three different approaches: (1) the Anderson and Hsiao (1982) method; (2) the Arellano and Bond (1991) method; and (3) the Blundell and Bond (1998) method.

Anderson and Hsiao (1982) proposed simple instrumental variable estimators, consisting of transforming the model using the first difference to eliminate unobserved individual heterogeneity, and then using the second-order lags of the dependent variable as instruments for the one-period lagged dependent variable. Arellano and Bond (1991) improved this method by proposing a GMM estimator for the first-difference model, generating a larger number of internal instruments and offering higher efficiency. However, Blundell and Bond (1998) demonstrated that, for very persistent data, the Anderson and Hsiao (1982) and Arellano and Bond (1991) estimators can be biased in the case of small samples, due to the weakness of the instruments. They therefore proposed a system GMM estimator, using first-difference instruments for the level equation and level instruments for the first-difference equation. In this study, we use the LSDVC estimator following the approach of Blundell and Bond (1998), which also controls for endogeneity bias. Then we use the recursive bias correction for the fixed-effect estimator determined by the following approximation $O(1/NT^2)$ (Bruno, 2005).

4. Preliminary Analyses and Interpretations of the Results

In this section, we perform the preliminary analysis of the data in a first part, then we conclude with the commentary of the results in a second part.

4.1 Preliminary Analyses of the Data

We begin the preliminary analysis by examining the descriptive statistics and the correlation matrix.

Table 1. Descriptive statistics of the variables

Variable	Obs	Mean	Std. dev.	Min	Max
Zscore	147	14.009	3.466	5.265	23.082
Epu	147	98.686	11.311	77.508	114.113
Size	147	4.291	0.395	3.403	5.077
Car	147	9.251	2.310	3.433	16.628
Liq	147	26.155	8.036	12.052	52.748
Roe	147	14.403	8.655	-18.072	57.970
Conc	147	72.203	16.474	41.943	100
Private credit	147	17.178	7.325	3.859	40.163
Operating cost	147	4.853	1.431	1.554	10.929
Trade	147	55.890	15.381	30.368	112.761
Qreg	147	-0.530	0.238	-1.032	-0.073
Gdp	147	4.365	3.008	-5.370	15.376

Source: Authors based on data from GFDD (2024); WDI (2024)

Table 1 presents the descriptive statistics of the variables over the study period. The Z-score indicator of banking stability shows a mean of 14.009% with a standard deviation of 3.466 revealing a notable variation among the countries studied. The economic policy uncertainty index (EPU) shows a high mean of 98.686% and a standard deviation of 11.311 suggesting a relatively high uncertainty.

Bank size is relatively homogeneous with an average of 4.291% and a standard deviation of 0.395. Banks are relatively well capitalized with an average capital adequacy ratio of 9.251%. Liquid assets represent an average of 26.155% of assets. Return on equity varies considerably from -18.072% to 57.970% with an average of 14.403% and a standard deviation of 8.655 indicating a wide diversity of financial performance. Bank concentration is also varied with an average of 72.203% and a standard deviation of 16.474. Credit to the private sector represents an average of 17.178% of GDP. Operating costs show moderate variation with an average of 4.853%. The share of trade in GDP is an average of 55.890%. The regulatory environment is unfavorable with an average index of -0.530 and a low standard deviation indicating similarities across EU countries. The GDP growth rate, which averaged 4.365% over the time investigated, demonstrates that banks have profited from excellent economic conditions.

In summary, these descriptive statistics reveal a great diversity in the different dimensions of banking activity and economic conditions, with significant variations between the economies studied. The next step is to analyze the degree of linkage between our variables in order to determine any potential multicollinearity problem. For this, we present the correlation matrix as well as the variance inflation test (VIF) in the following tables:

Table 2. Correlation matrix of variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Zscore	1											
(2) Epu	-0.282*	1										
(3) Size	0.104	0.656*	1									
(4) Car	0.284*	-0.422*	-0.565*	1								
(5) Liq	0.186*	-0.577*	-0.580*	0.312*	1							
(6) Roe	0.096	0.216*	0.198*	-0.186*	-0.235*	1						
(7) Conc	0.007	-0.408*	-0.620*	0.335*	0.500*	-0.082	1					
(8) Private credit	-0.293*	0.642*	0.639*	-0.566*	-0.465*	0.144	-0.373*	1				
(9) Operating cost	0.232*	-0.580*	-0.515*	0.614*	0.421*	-0.250*	0.229*	0.389*	1			
(10) Trade	-0.042	0.180*	0.225*	-0.238*	0.061	0.095	0.222*	0.625*	-0.030	1		
(11) Qreg	-0.200*	0.072	0.136	-0.232*	-0.327*	0.016	-0.399*	0.002	-0.292*	-0.435*	1	
(12) Gdp	-0.233*	0.228*	0.054	-0.097	-0.247*	0.178*	-0.169*	0.089	-0.254*	-0.070	0.154	1

Source: Authors based on data from GFDD (2024); WDI (2024)

Note: * indicates significance at the 5% level

Table 2 presents the correlation matrix of the variables. Overall, all correlation coefficients are below 0.8, indicating the absence of multicollinearity. Economic policy uncertainty and bank stability are moderately and negatively correlated with a coefficient of -0.282, meaning that an increase in economic policy uncertainty tends to reduce bank stability. Performance is positively correlated with bank stability (coefficient of 0.096), indicating that better performance is associated with greater stability. On the other hand, operational costs are negatively correlated with bank stability (coefficient of -0.293), suggesting that an increase in costs reduces bank stability. As for bank specificities, such as size, capital adequacy and liquidity, they are all positively correlated with the Zscore, with coefficients of 0.104; 0.284 and 0.186 respectively. These coefficients indicate that larger, better capitalized banks with sufficient liquid assets benefit from increased stability. This increased stability could mitigate the negative effect of economic policy uncertainty. Following the analysis of the correlation matrix, we perform a VIF test to confirm the absence of multicollinearity. The results of the test are reported in Table 3.

Table 3. VIF test

Variables	**VIF**	**1/VIF**
Epu	3.11	0.321
Size	3.71	0.269
Car	2.28	0.438
Liq	2.23	0.449
Roe	1.14	0.878
Conc	3.00	0.332
Private credit	5.82	0.171
Operating cost	2.53	0.396
Trade	4.20	0.238
Qreg	1.73	0.578
Gdp	1.24	0.809
Mean VIF	2.82	

Source: Authors based on data from GFDD (2024); WDI (2024)

Table 3 indicates that the average VIF test value (2.82) is less than 5. This suggests that there is no significant multicollinearity problem among the explanatory variables in the analysis. A VIF score less than 5 is generally deemed acceptable, indicating that the independent variables are not overly correlated, which is critical for reliable and accurate statistical studies.

4.2 Results of Stationarity Tests

The first step in the estimation procedure is to test for the presence of unit roots in order to limit the risk of spurious regression. The stationarity analysis aims to determine whether the statistical properties of our variables have changed over time or have remained constant. The literature proposes several tests for panel data, including the Levin et al. (2002) test and the Im et al. (2003) test. The null hypothesis of these two tests postulates the presence of unit roots, while the alternative hypothesis indicates their absence. The main difference between these tests is that the Levin et al. (2002) test imposes the homogeneity of the autoregressive root, while the Im et al. (2003) test allows for heterogeneity of the autoregressive root as well as heterogeneity in the presence of unit roots in the panel (Hurlin and Mignon, 2005). The results of these two tests are presented in the following Table 4:

Table 4. Analysis of stationarity

Variables	**Level**		**Difference**		**Decision**
	LLC	**IPS**	**LLC**	**IPS**	
Zscore	-1.059	-0.469	-3.282***	-3.833***	I(1)
	(0.144)	(0.319)	(0.000)	(0.000)	
Epu	-3.082	0.278	-5.173***	-3.993***	I(1)
	(0.990)	(0.609)	(0.000)	(0.000)	
Size	-0.126	3.641	-6.147***	-3.405***	I(1)
	(0.449)	(0.999)	(0.000)	(0.000)	
Car	2.540	2.844	-4.134***	-4.063***	I(1)
	(0.994)	(0.997)	(0.000)	(0.000)	
Liq	-1.761**	-1.662**	-	-	I(0)
	(0.039)	(0.048)			
Roe	-1.571*	-4.825***	-	-	I(0)
	(0.058)	(0.000)			
Conc	0.995	0.926	-2.146**	-8.128***	I(1)
	(0.840)	(0.822)	(0.015)	(0.000)	
Private credit	3.208	1.507	-4.027***	-4.301***	I(1)
	(0.999)	(0.934)	(0.000)	(0.000)	
Operating cost	-1.139	1.961	-4.909***	-6.911***	I(1)
	(0.872)	(0.975)	(0.000)	(0.000)	
Trade	0.566	0.180	-1.946**	-3.804***	I(1)
	(0.714)	(0.571)	(0.025)	(0.000)	
Qreg	-1.307*	-1.937**	-	-	I(0)
	(0.095)	(0.026)			
Gdp	-2.855***	-2.040**	-	-	I(0)
	(0.002)	(0.020)			

Source: Authors based on data from GFDD (2024); WDI (2024)

Note: Numbers in parentheses are p-values while those outside are t-statistics. *, **, *** represent the respective significance levels of 10%, 5% and 1%.

From this Table 4, the level stationary variables are liquidity (Liq), return on equity (Roe) and gross domestic product (Gdp). The first difference stationary variables include bank stability (Zscore), economic policy uncertainty (Epu), bank size (Size), capital adequacy (Car), bank concentration (Conc), private credit (Private credit), operating costs (Operating cost), trade openness (Trade) and quality of regulation (Qreg). Therefore, our variables are integrated of order 1. We can now move on to the interpretation of our different results.

4.3 Interpretation of the Estimation Results

The results of the LSDVC estimation are presented in Tables 5 and 6. Table 5 presents the results of the model without interaction, allowing to assess the direct influence of economic policy uncertainty on banking stability. Three equations were estimated in this framework. In column (1), only economic policy uncertainty is integrated as an explanatory variable. In column (2), we integrate banking control variables, while in the model in column (3), we add macroeconomic control variables. By examining the results closely, we find that our lagged banking stability variable is significant in all models, which confirms the dynamic nature of the model and the validity of the estimations made.

Our variable of interest, namely economic policy uncertainty, is significant and negatively influences banking stability in all models. These results indicate that increasing economic policy uncertainty significantly reduces banking stability. This finding is consistent with our predictions and with the results obtained by Hamdi and Hassen (2022) and Syed et al. (2022) in their respective works on Tunisia and India. Indeed, when economic policies are unpredictable, banks and other financial actors have difficulty anticipating future market conditions. This increased uncertainty makes strategic decision-making and optimal resource allocation more difficult.

Table 5. Result of the model without interaction

	(1)	**(2)**	**(3)**
L1.zscore	0.679***	0.655***	0.635***
	(0.000)	(0.000)	(0.000)
Epu	-0.054***	-0.070**	-0.070**
	(0.003)	(0.013)	(0.017)
Roe		0.888***	0.091***
		(0.000)	(0.000)
Conc		0.012	0.005
		(0.327)	(0.715)
Private credit		0.035	0.026
		(0.486)	(0.664)
Operating cost		0.049	0.026
		(0.744)	(0.868)
Trade			0.006
			(0.748)
Qreg			0.143
			(0.898)

Gdp			-0.090*
			(0.056)
Observations	140	140	140
No. of countries	7	7	7

Source: Author based on data from GFDD (2024); WDI (2024)

Note: Numbers in parentheses are p_value. *, ** and *** represent the respective significance levels of 10%, 5% and 1%.

As a result, banks may become more vulnerable to economic and financial shocks, which compromises their stability. In addition, investors may become reluctant to commit to long-term projects, thus exacerbating the instability of the banking system. Finally, uncertainty may also affect depositors' confidence, leading to massive withdrawals and liquidity crises for financial institutions. Our results thus confirm the real options theory developed by McDonald and Siegel (1986), and Pyndick (1988).

If economic policy uncertainty negatively influences bank stability, it is crucial to understand how bank specificities such as size, capital and liquidity influence this relationship. To answer this question, we performed estimations by introducing interactions between economic policy uncertainty and these different bank specificities. The results obtained are reported in Table 6.

Table 6. Result of the estimation with interaction

	(1)	(2)	(3)
L1.Zscore	0.640***	0.582***	0.621***
	(0.000)	(0.000)	(0.000)
Epu	-0.237*	-0.100***	-0.073**
	(0.070)	(0.004)	(0.012)
Epu x Size	0.030		
	(0.195)		
Epu x Car		0.002**	
		(0.015)	
Epu x Liq			0.0005**
			(0.033)
Roe	0.095***	0.097***	0.096***
	(0.000)	(0.000)	(0.000)
Conc	0.014	0.004	0.009
	(0.390)	(0.776)	(0.527)
Private credit	-0.003	0.598	0.059
	(0.961)	(0.366)	(0.347)
Operating cost	0.157	-0.100	0.043
	(0.432)	(0.541)	(0.784)
Trade	0.006	0.001	0.0002
	(0.760)	(0.950)	(0.991)

Qreg	0.075	0.446	0.001
	(0.946)	(0.689)	(0.999)
Gdp	-0.081*	-0.106**	-0.076
	(0.089)	(0.020)	(0.103)
Observations	140	140	140
No. of countries	7	7	7

Source: Authors based on data from GFDD (2024); WDI (2024)

Note: Numbers in parentheses are p_value. *, ** and *** represent the respective significance levels of 10%, 5% and 1%.

In Table 6, three models are estimated. Column (1) examines the interaction between policy uncertainty and size, column (2) with capital, and column (3) with bank liquidity. The results reveal that the lagged variable of bank stability is significant in all equations. Moreover, policy uncertainty negatively influences bank stability, which reinforces the robustness of the results obtained previously. When we analyze the interaction terms, we find that they are all significant and show a positive correlation with bank stability, except for the interaction term between uncertainty and size, which although positive, is not significant. These results suggest that size, capital, and liquidity mitigate the negative effect of policy uncertainty on bank stability. Thus, larger, better capitalized, and liquidity-rich banks are better able to withstand periods of economic uncertainty.

From a theoretical perspective, size promotes better diversification of banking services, while capital enhances resilience by providing banks with reserves to absorb potential losses in times of uncertainty (Tao and Xu, 2019). Liquidity, on the other hand, plays a crucial role in the sustainability of banking by enabling institutions to meet their immediate obligations. In times of uncertainty, banks with sufficient levels of liquid assets are better prepared to cope with unexpected market fluctuations and massive deposit withdrawals (Phan et al., 2021). This ability to manage liquidity crises strengthens their resilience and overall stability, while improving investor and depositor confidence, thereby reducing the risk of bank runs. In conclusion, size, capital and liquidity appear as key factors in maintaining bank stability particularly in times of economic uncertainty. In terms of the empirical literature, our results are contrary to those obtained by Danisman and Tarazi (2024) in the United States. Although they find a negative link between policy uncertainty and bank stability, they observe that the negative effect is more pronounced for large banks, but less pronounced for highly capitalized and more liquid banks. Phan et al. (2021) show that the negative effect of uncertainty is greater in countries with increased bank competition, lower regulatory capital, and smaller financial systems. Contrary to these authors, Chau and Oanh (2023) show that bank capital and concentration help mitigate the negative effect of policy uncertainty.

Regarding the control variables, only bank performance is significant and positively related to bank stability in all equations. This result suggests that an improvement in performance contributes to strengthening bank stability. Indeed, bank performance strengthens the ability of banks to absorb economic shocks. It allows banks to accumulate reserves and protect themselves against potential losses. Finally, sustainable performance promotes resilience in the face of economic turbulence, thus consolidating the overall stability of the banking sector.

5. Conclusion

The aim of this article is to analyze the effect of economic policy uncertainty on banking stability, taking into account bank size, capital and liquidity. The study covers UEMOA countries, with the exception of Guinea-Bissau, for which data were not available. The data used come mainly from GFDD (2024) and WDI (2024). Applying Bruno's (2005) LSDVC estimator, we find that economic policy uncertainty exerts a negative influence on banking stability. However, taking into account the interactions between uncertainty and bank size, capital and liquidity, it appears that these factors mitigate this negative effect.

In terms of economic policy implications, this study provides some insights. Larger banks, with more assets, are better able to manage uncertainties than smaller banks. Larger banks have experience of diversifying their lending, which enables them to better understand economic sectors and anticipate future economic trends. Highly capitalized banks are better able to withstand exogenous shocks to the banking sector. Highly liquid banks are also better able to manage the consequences of crises. They can, for example, withstand financial losses and allay depositors' concerns in the event of a banking panic. Thus, larger, better-capitalized banks with adequate liquidity are better equipped to withstand periods of economic uncertainty.

In view of these results, we strongly recommend that prudential and supervisory arrangements be strengthened to ensure that banks comply with capital and liquidity standards. It is essential that regulators strengthen supervision to prevent risks and maintain financial stability. By ensuring compliance with capital requirements and adequate liquidity management, regulators can reduce the banking system's vulnerability to economic and financial shocks. Monetary authorities must create the conditions to encourage the creation of large, highly capitalized banks. They must also help banks to manage their liquidity more effectively. The central bank can, for example, reduce its reserve requirements, which could lead to excess reserves in the banking sector. This proactive approach is crucial to support sustainable economic growth and to protect both banks and economic agents.

In terms of perspectives, this study could be extended to include real crises such as financial and health crises, as factors of uncertainty.

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