JOBED | JOURNAL OF BUSINESS AND ENTERPRISE DEVELOPMENT

Volume 13 Issue 2
ISSN NO: ISSN-L (online): 2026-500X **Journal Homepage:** https://journal.ucc.edu.gh/index.php/jobed

Assessing the Asymmetric and Nonlinear Effects of Economic Policy Uncertainty on Financial Soundness in Ghana

George Tweneboah
Department of Finance, School of Business, University of Cape Coast

DOI: https://doi.org/10.47963/jobed.v13i.1534
*Corresponding Author: g.tweneboah@ucc.edu.gh

To cite this Paper: Tweneboah, G. Assessing the asymmetric and nonlinear effects of economic policy uncertainty on financial soundness in Ghana. *Journal of Business and Enterprise Development (JOBED)*, 13(2). https://doi.org/10.47963/jobed.v13i.1534

Article Information

Keywords:
Economic policy uncertainty
financial soundness
asymmetric and nonlinear effects
Ghana
Quantile regression

Received: 6th October 2024
Accepted: 30th May 2025
Published: 5th August 2025
Editor: Anthony Adu-Asare Idun

Abstract

The study seeks to investigate the impact of economic policy uncertainty (EPU) on the financial soundness of the banking industry of Ghana. The study used time series data for economic policy uncertainty and financial soundness for a period covering from January 2006 to April 2023 for its analyses. The quantile regression method was employed for analysis. Results indicated that economic policy uncertainty hurts the financial soundness of the Ghanaian banking industry and is statistically significant at the 1% level across all quantiles. Furthermore, the results revealed a statistically positive effect of the interaction between EPU and monetary policy (MPR) on non-performing loans at the 1% level. The study recommends that policymakers should prioritize the cultivation of clear communication and policy formulation consistency to establish a more foreseeable economic milieu. It is also recommended that financial institutions operating in Ghana enhance their risk management practices and carefully evaluate the potential benefits of diversifying their portfolios and business models.

Introduction

The prevalence of global economic policy uncertainty (EPU) has significantly risen in recent decades, paralleling the growing interconnectedness of states in a constantly changing global environment. The intricacy of this idea is rooted in the unpredictability of government activities, which include fiscal and monetary policies, trade agreements, and regulatory frameworks (Choi et al., 2021). The aftermath of World War II brought about a significant change in economic policies due to the interdependence of countries and the complexities of the global economy. This led to the establishment of the United Nations, the International Monetary Fund (IMF), and the World Bank (WB) to promote economic stability and cooperation (Gutner, 2020). The Cold War brought about economic policy uncertainty as countries allied themselves with either the Western or Eastern blocs, which had a significant impact on global economic dynamics (Luo & Van Assche, 2023). The latter part of the twentieth century witnessed a significant increase

in global economic policy uncertainty as a result of heightened international trade, investment, and financial integration driven by globalisation (Lodge et al., 2021).

The Asian financial crisis of 1997–1998 and the global financial crisis of 2008 serve as prime examples of how the global economy is vulnerable to changes in economic policy (Younis et al., 2023). The increasing global economic policy instability is influenced by ongoing causes such as trade disputes, geopolitical crises, rapid technical advancements, and the current COVID-19 pandemic (Aiyar et al., 2023). The uncertainty has wide-ranging effects on public health, travel, economic assistance measures, tariffs, supply chains, and international relations. These effects impact investment, economic development, financial markets, global supply chains, policy coordination, and sovereign risk (Su et al., 2021).

The banking sector's health is crucial for sustaining global economic growth and stability. The importance of fiscal stability was highlighted by historical events such as banking panics and crises that took place in the 19th and 20th centuries (Taskinsoy, 2022). The contemporary banking sector, influenced by regulatory initiatives such as the Glass-Steagall Act and the establishment of the FDIC after the Great Depression, embodies the continuous pursuit of financial stability (Anderson et al., 2023). The increasing significance of banking stability is emphasised by globalisation and the interconnection of financial markets. Regulatory frameworks such as the Basel Accords provide worldwide benchmarks for capital adequacy and risk management (Chenguel & Mansour, 2022). The stability of the banking system has significant implications for national economies, society, and investor confidence, which are essential for accessing capital markets and funding growth (Onyshchuk et al., 2020; Abdusaidova, 2023; Chen et al., 2021).

Financial institutions worldwide are dealing with heightened risk aversion due to the widespread uncertainty around forthcoming economic measures (Qi et al.,2022). This phenomenon diminishes the accessibility of credit, presenting difficulties for both businesses and individuals who need loans, potentially impeding economic expansion and investment (Phan et al., 2021). The impact of economic policy uncertainty spreads to the quality of assets, since worries about nonperforming loans may undermine the profitability and financial stability of banks in the face of economic turbulence (Karadima & Louri, 2021). The increased market volatility, caused by uncertainties in global economic policies, presents significant difficulties for banks in maintaining their capital positions and earnings in the face of escalating market risk (Yuan et al., 2022). Banks are required to quickly react to regulatory changes resulting from economic policy uncertainty, in terms of compliance requirements and capital adequacy standards. This adaptation process incurs additional expenses related to compliance. The prevailing economic conditions may pose challenges for businesses and people seeking loans to finance their capital expenditures and expansion plans, as banks are becoming more cautious in light of policy uncertainty (Khojah et al., 2023).

The study is theoretically anchored in the Stimulus-Organism-Response (SOR) framework developed by Mehrabian and Russell (1974). According to this theory, external stimuli trigger internal emotional and cognitive responses in organisms, leading to specific outcomes. In the context of this study, economic policy uncertainty (EPU) serves as the external stimulus, influencing the internal decision-making and risk management practices of banks (organism), affecting their financial soundness (response). This theoretical lens provides a structured understanding of how external macroeconomic uncertainties can translate into observable changes in the stability of the banking sector.

Although the relationship between EPU and financial sector outcomes has received increasing scholarly attention (e.g., Phan et al., 2021; Ali et al., 2023; Nguyen, 2021), existing studies focus on developed economies or major emerging markets. They often overlook smaller, vulnerable economies such as Ghana, where banking systems are highly susceptible to external shocks due to institutional fragility. Moreover, most prior analyses rely on mean-based regression methods like OLS, potentially masking the differential effects of uncertainty across the stability distribution. This study fills these gaps by applying a quantile regression framework to uncover heterogeneous effects, incorporating a comprehensive financial

soundness index, and explicitly considering the interaction between EPU and monetary policy. Grounded in the SOR theory, the study is set against the backdrop of Ghana's recent financial sector reforms and increased exposure to global uncertainty, offering unique theoretical and practical insights into financial stability in emerging markets.

Specifically, this study examines the effect of EPU on Ghana's banking sector stability, by specifying two specific objectives. One, to analyze how EPU affects financial soundness of the country's banking industry. Two, to investigate the combined impact of monetary policy and economic policy uncertainty on non-performing loans in Ghana's banking sector. It intends to equip policymakers with crucial information to effectively minimize risks and maintain the stability of the financial system.

The subsequent sections of the study are organized into the following sections: Section 2 reviews the relevant theoretical and empirical literature, and Section 3 describes the data, sample, and research technique. We offer the empirical results in Section Four while the discussion is done in Section Five. The paper is eventually concluded in Section Five.

Literature Review

Theoretical review

The Stimulus-Organism-Response (SOR) Theory, developed by Mehrabian and Russell (1974), suggests that organizations, similar to live beings, have internal emotional and cognitive transformations in reaction to external stimuli. Within the realm of organizations, this theory posits that firms must adjust to their surroundings to survive. This adaptation is driven by cognitive decision-making processes that are influenced by external stimuli, resulting in changes to organizational values and conditions (Klein et al., 2021; Stephens et al., 2022). Economic policy uncertainty acts as a notable external stimulus, resulting in banks losing confidence in the market. This, in turn, leads to decreased competitiveness and affects their practices of sharing information. As a risk mitigation strategy, banks may potentially increase opacity (Desalegn & Zhu, 2021; Jin et al., 2019). The SOR theory offers a conceptual framework for comprehending organizational behavior by emphasizing the influence of environmental stimuli on an organism's behaviour (Mehrabian & Russell, 1974). The external stimulus (S) can elicit cognitive and affective processes in the organism, leading to a reaction (R).

Researchers have utilized this theory in the context of organizations, highlighting the impact of environmental influences on the cognitive decision-making processes of enterprises (Klein et al., 2021). Yang and Xie (2015) used the SOR framework to examine how intellectual property (IP) management objectives (O), external/internal factors (S), and IP management outcomes (R) are related. Furthermore, research has investigated the influence of sustainability commitment (S) on company business model innovation (R) through the modification of competitive attitude and strategic orientation (Klein et al., 2021). Opacity, which pertains to the challenge that external parties encounter in comprehending a bank's activities, is a significant aspect affected by economic policy uncertainty within the banking industry. In reaction to uncertainty, banks may opt to enhance opacity to minimize the adverse impact of disclosing unfavorable information on their performance and market reputation (Desalegn & Zhu, 2021). This approach enables banks to obscure declining performance, elude supervision, and sustain a competitive advantage. However, it also amplifies the imbalance of knowledge, which could result in ventures with elevated risks and diminished stability. The relationship between opacity (O) and bank stability (R) is influenced by economic policy uncertainty (S), which acts as a mediator. This demonstrates the intricate interaction of external factors, organizational reactions, and outcomes within the SOR framework in the banking industry.

Empirical review

The relationship between economic policy uncertainty (EPU) and financial soundness has attracted increasing attention in the literature. Several international studies have shown that heightened EPU tends to destabilize banking sectors and financial systems. Phan et al. (2021) examined 23 countries from 1996 to 2016 and found that rising economic policy uncertainty significantly undermines financial stability, with larger impacts observed during financial crises. Similarly, Ali et al. (2023) utilized Z-scores and non-performing loans (NPL) to measure financial stability across 23 countries and revealed that EPU negatively affects financial soundness, although the effect on banking stability in developed economies showed some variation. Shabir et al. (2021) analysed panel data on 1,481 banks across 24 countries and confirmed that EPU weakens bank stability, particularly under weak institutional environments and heightened market competition. Nguyen (2021) provided further evidence from Europe, demonstrating that economic policy uncertainty reduces bank stability even after controlling for regulatory and supervisory frameworks.

In the African context, a number of studies have emphasized the adverse effects of EPU on macroeconomic and financial indicators. Adeiza et al. (2023) assessed the macroeconomic impact of COVID-19-induced EPU in Nigeria and found that the EPU shock had an initially expansionary but eventually recessionary impact on the economy. Lesame (2021) used firm-level data to show that policy uncertainty discourages investment, especially among small and medium enterprises in South Africa. Hlatshwayo and Saxegaard (2016) observed that policy uncertainty weakens the responsiveness of South African exports to price changes, highlighting the broader macro-financial instability caused by uncertainty. Ozili (2022) noted that regulatory uncertainty hampers banking sector operations and increases systemic risks in developing economies, further reinforcing concerns about the destabilizing effects of policy unpredictability.

Studies focusing specifically on Ghana are fewer but offer important insights. Kyei et al. (2023) employed wavelet analysis to explore the relationship between global economic policy uncertainty, commodity prices, and financial indicators in Ghana's banking sector, finding that uncertainty influences financial performance across different time frequencies. Asafo-Adjei et al. (2020) investigated the relationship between global EPU shocks and stock returns across eight African countries, including Ghana, and showed that EPU adversely affects stock market performance, particularly over longer horizons. Frimpong et al. (2021) used wavelet coherence techniques to examine how EPU drives the co-movements of agricultural commodity prices, emphasizing that economic policy shocks can transmit to broader financial and commodity markets. Although these studies highlight the significance of economic policy uncertainty, there remains a gap in the literature regarding the direct, systematic investigation of how global economic policy uncertainty affects the financial soundness of Ghana's banking sector, which this study seeks to address.

Additional research on related areas reinforces the importance of studying EPU's effects. Karadima and Louri (2021) demonstrated that economic policy uncertainty increases non-performing loans, particularly when banking sector concentration is high. Caglayan and Xu (2019) similarly found that EPU adversely impacts credit and financial institution stability. Zeqiraj et al. (2024) reported that rising EPU during crises leads to higher NPLs and lower government debt sustainability. In Ghana, Asiama and Amoah (2019) found that monetary policy dynamics influence non-performing loans over the long run, while Kamasa et al. (2023) showed that monetary policy rate fluctuations significantly affect lending rates of commercial banks, thus impacting their financial soundness.

Taken together, the existing literature clearly points to the critical role of economic policy uncertainty in shaping financial stability outcomes. However, while international and African studies provide a solid foundation, there is a need for a country-specific analysis focusing on Ghana's banking

industry, particularly given the country's recent experiences with economic reforms, banking crises, and external shocks. The present study, therefore, seeks to contribute to filling this important gap.

Methods

The study employed monthly time series data on aggregate financial soundness indicators – used as proxies for financial stability – and economic policy uncertainty (EPU) in Ghana, spanning the period from January 2006 to April 2023, yielding a total of 208 observations. Each monthly observation links the financial soundness indicators with the corresponding EPU level. The primary indicators, obtained from the Bank of Ghana, include the Capital Adequacy Ratio (CAR), Core Liquid Assets to Short-Term Liabilities (CLAS_TL), Core Liquid Assets to Total Assets (CLA_TA), Credit to Deposits (C_D), Non-Performing Loans (NPL), Return on Assets (ROA), and Return on Equity (ROE). The study also controlled for macroeconomic conditions using inflation rates (INF) and interest rates (INT).

The study constructed a composite financial soundness index (FINDEX) to measure the overall financial stability of the Ghanaian banking industry. This index was developed as a weighted average of key financial soundness indicators, including the Capital Adequacy Ratio (CAR), Core Liquid Assets to Short-Term Liabilities (CLAS_TL), Core Liquid Assets to Total Assets (CLA_TA), Credit to Deposits (C_D), Non-Performing Loans (NPL), Return on Assets (ROA), and Return on Equity (ROE). The index was calculated using the formula:

$$FIN_i = \frac{\sum_{i=1}^{n}(W_i \times X_i)}{\sum_{i=1}^{n} W_i}$$

where X_i represents the standardised value of each financial indicator and W_i denotes the weight assigned to each indicator.

The weights were assigned based on the relative importance of each indicator in capturing the multidimensional aspects of banking sector soundness, as informed by existing empirical studies and central bank guidelines (e.g., IMF's Financial Soundness Indicators framework) (xxx). Indicators with more direct implications for solvency and liquidity, such as CAR and NPL, were given higher weights, while profitability indicators (ROA, ROE) were moderately weighted. A sensitivity analysis was conducted to ensure that the index remains robust to reasonable variations in the weighting scheme (Dobbie & Dail, 2013).

This weighted average method was preferred over statistical techniques such as Principal Component Analysis (PCA) for two main reasons. First, PCA derives weights based on statistical variance rather than theoretical or regulatory significance (Wu et al., 2022), which can obscure the interpretability of the resulting index (Mehrabinezhad et al., 2024). Second, the weighted average method allows for greater transparency and policy relevance, particularly when the objective is to track performance against regulatory benchmarks and standards (Lamichhane et al., 2021). Furthermore, the weighted average approach facilitates easier comparison over time and across policy contexts, which is essential for practical decision-making in financial oversight (Wu et al., 2022).

In addition to quantile regression framework, the Ordinary Least Squares (OLS) estimation was employed as a robustness check to assess the average effects of economic policy uncertainty on financial soundness. The OLS method provides a benchmark by estimating the conditional mean relationship between the independent and dependent variables, facilitating direct comparison with the conditional quantile effects estimated via quantile regression. Following the best practices of previous empirical studies (e.g., Bekiros et al., 2016; Jiang et al., 2022), incorporating OLS allows the study to validate the consistency and reliability of the findings. Moreover, the use of OLS accounts for potential biases arising from extreme values by complementing the distributional insights offered by the quantile approach. Table 1 presents the description of variables used for this study.

Table 1. Description of variables

Variable	Definition	Source
FIN	Financial Soundness Index (weighted average of CAR, ROA, NPL, etc.)	Author's calculation based on Bank of Ghana data
EPU	Economic Policy Uncertainty Index	Baker, Bloom, and Davis (2016)
INF	Inflation rate (monthly, Ghana)	Bank of Ghana
INT	Interest Rate (average lending rate)	Bank of Ghana
MPR	Monetary Policy Rate	Bank of Ghana
NPL	Non-Performing Loans Ratio	Bank of Ghana
EPU_MPR	Interaction term between EPU and MPR	Computed by author

Source: Author's construct (2025)

The selection of variables for the empirical model was informed by theoretical reasoning and established findings in the financial stability literature. The Financial Soundness Index (FIN), constructed as the dependent variable, captures the overall health of the banking sector by aggregating key dimensions such as capital adequacy, liquidity, profitability, and asset quality, consistent with prior studies (e.g., Borio et al., 2017; Matousek et al., 2020). Economic Policy Uncertainty (EPU) is the primary explanatory variable, reflecting external macroeconomic risks that influence banking sector stability, in line with the works of Phan et al. (2021) and Ashraf and Shen (2019). Inflation (INF) is included to control for the macroeconomic environment, given its impact on banks' real returns, loan quality, and operating costs (Frimpong et al., 2021). Interest rates (INT) are incorporated to capture the effects of borrowing costs and credit conditions on financial soundness, following the approach of Dzeha et al. (2022) and Kumar et al. (2020). The monetary policy rate (MPR) represents central bank policy actions affecting liquidity and risk-taking behavior in the banking sector (Kamasa et al., 2023; Hoffman and Assifuah-Nunoo, 2023). In addition, Non-Performing Loans (NPL) are employed in the second stage of the analysis to measure credit risk and the deterioration of asset quality under heightened economic uncertainty, consistent with Karadima and Louri (2021). Finally, an interaction term between EPU and MPR is introduced to capture the combined effect of global uncertainty and domestic monetary policy dynamics on the stability of the banking sector, following methodologies proposed by Caglayan and Xu (2019). This careful selection of variables ensures a comprehensive examination of the relationships between macroeconomic uncertainty, policy interventions, and financial stability within the Ghanaian banking context.

Model specification

Quantile regression is employed in order to examine the proposed hypotheses. The present form is a comprehensive representation derived from conventional regression techniques, which serves to effectively illustrate a conditional distribution (Lee and Chen, 2021). Quantile regression is employed for the purpose of assessing the influence of economic policy uncertainty (EPU). This methodology is preferred due to its ability to incorporate a broader range of dependence structures in the analysis of stock returns across various market situations. This approach has been supported by previous studies conducted by Bekiros et al. (2016), Kannadhasan and Das (2020), and Jiang et al. (2022). Additionally, the estimates produced by this method exhibit greater resilience when confronted with outliers, heteroskedasticity, and skewness compared to ordinary least squares (OLS) models (Koenker & Hallock, 2001; Koenker, 2005). The quantile regression model that has been proposed is as follows:

$$FIN_t = \alpha_\gamma + \beta_{1,\gamma} EPU_t + \beta_{2,\gamma} INF_t + \beta_{3,\gamma} INT_t + \beta_{4,\gamma} MPR_t + \varepsilon_{t,\gamma} \quad (1)$$

Where the dependent variable of the model is denoted as FIN_t, which represents the financial soundness index i in month t. The constant term is represented by α, while the regression coefficient corresponding to

each explanatory variable k is denoted as βk. The quantile γ is a value between 0 and 1, with the study focusing on the quantiles 0.25, 0.5, and 0.75. The error term in month t is represented by ε_t.

To evaluate the role of the monetary policy in the influence of GEPU on non-performing loans in Ghana, the inclusion of interaction term between GEPU and MPR has been implemented. The study runs the following equation 2 with an interaction term given by:

$$NPL_t = \alpha_\gamma + \beta_{1,\gamma} EPU_t + \beta_{2,\gamma} EPU_t * MPR_t + \beta_{3,\gamma} INF_t + \beta_{4,\gamma} INT_t + \varepsilon_{t,\gamma} \quad (2)$$

Where FIN is the natural logarithm of the financial soundness index, INF is the natural logarithm of the inflation rates, EPU is the natural logarithm of global economic policy uncertainty, INT is the natural logarithm of interest rates and MPR is the natural logarithm of monetary policy rates.

Results

Table 2 presents the descriptive statistics of the variables in the study, providing valuable information on the distribution and properties of the data. The Financial Soundness Index (FIN) indicates a mean degree of financial soundness of around 1.62 throughout the stated time. The distribution of values is symmetric, as seen by the near proximity of the mean and median. The range of values observed (1.44 to 1.76) indicates a significant variation in financial stability, but the standard deviation (0.085804) indicates a steady distribution of data with little variations from the average. The Natural Logarithm of Economic Policy Uncertainty (EPU) exhibits an average level of economic policy uncertainty with a mean value of approximately 2.17. It demonstrates considerable variation, ranging from 1.70 to 2.63, and is characterized by instability as demonstrated by a high standard deviation of 0.203801. The Natural Logarithm of Inflation (INF) represents the average inflation levels (mean ≈ 1.11) with a range of values (0.88 to 1.73), indicating significant variability (standard deviation = 0.172183).

Table 2: Descriptive Statistics

	FIN	EPU	INF	EPU_MPR	INT	MPR	NPL
Mean	1.615875	2.165783	1.112317	3.393812	1.416044	1.228028	1.144669
Median	1.636270	2.165866	1.067628	3.396314	1.414973	1.204120	1.154880
Maximum	1.761921	2.629600	1.733197	3.963545	1.563955	1.469822	1.370143
Minimum	1.443063	1.699078	0.875061	2.795988	1.301898	1.096910	0.788168
Std. Dev.	0.085804	0.203801	0.172183	0.245985	0.054436	0.097902	0.133291
Observations	208	208	208	208	208	208	208

Source: Author's construct (2025)

The study also examines the relationship between the logarithm of inflation (INF) and the logarithm of monetary policy (EPU_MPR), revealing an average impact of around 3.39. The presence of symmetry between the mean and median values indicates a distribution that is evenly balanced. However, the significant range of values (2.80 to 3.96) and the noticeable standard deviation (0.245985) suggest a great amount of variability in the interaction effect. The variable INT_RATE represents the natural logarithm of the interest rate. It represents an average interest rate with a mean value of around 1.42. The distribution of INT_RATE is symmetrical. The measured range (1.30 to 1.56) suggests fluctuations in interest rates, whereas the standard deviation (0.054436) indicates a comparatively low level of variability around the mean. The Natural Logarithm of Monetary Policy (MPR) has an average magnitude of approximately 1.23 and has a symmetric distribution. It allows for flexibility in monetary policy settings, ranging from 1.10 to 1.47, and has a modest level of variability with a standard deviation of 0.097902. The Natural Logarithm of Non-Performing Loans (NPL) is a measure that represents the average size of non-performing loans, with a mean value of approximately 1.14. It has a symmetric distribution and shows some level of

unpredictability, ranging from 0.79 to 1.37. This unpredictability is backed by a moderate standard deviation of 0.133291.

Table 3: Correlation Matrix

	FIN	EPU	INF	EPU_MPR	INT	MPR	NPL
FIN	1.000000						
EPU	-0.720739	1.000000					
INF	0.161298	0.075069	1.000000				
EPU_MPR	-0.549324	0.922152	0.342550	1.000000			
INT	0.497747	-0.264139	0.557145	-0.004692	1.000000		
MPR	0.120138	0.235282	0.704409	0.592934	0.538063	1.000000	
NPL	-0.563698	0.524314	-0.154695	0.557118	0.035777	0.308336	1.000000

Source: Author's construct (2025)

Table 3 presents a correlation matrix that demonstrates the connections between the variables in the study. The Financial Soundness Index (FIN) has a significant negative correlation (-0.720739) with the Natural Logarithm of Economic Policy Uncertainty (EPU), suggesting a reverse relationship between the two variables. These findings indicate that an increase in economic policy uncertainty may lead to a decrease in financial stability. The correlation coefficient between FIN and the Natural Logarithm of Inflation (INF) is 0.161298, indicating a moderately positive relationship. This suggests that there is a limited association between fluctuations in financial stability and inflation. The coefficient for the interaction between the natural logarithm of inflation (INF) and the natural logarithm of monetary policy (EPU*MPR) indicates a moderate negative association (-0.549324). This suggests that both economic policy uncertainty and monetary policy have a joint influence on financial soundness. The FIN exhibits a moderate positive association (0.497747) with the INT, suggesting that enhanced financial stability may be associated with increased interest rates. In addition, there is a small positive correlation (0.120138) between FIN and the Natural Logarithm of Monetary Policy (MPR), suggesting a minor connection between stronger financial soundness and larger levels of monetary policy. There is a significant negative correlation (-0.563698) between FIN and the Natural Logarithm of Non-Performing Loans (NPL), indicating an inverse link. This highlights the risk factor in economic scenarios where financial stability is compromised.

The Economic Policy Uncertainty (EPU) and Inflation (INF) exhibit a modest positive relationship (0.075069), however, the interaction between EPU and Monetary Policy (EPU*MPR) has a strong and dependable positive correlation (0.922152), suggesting a significant economic influence. The correlation coefficient between Economic Policy Uncertainty (EPU) and Interest Rates (INT) is -0.264139, indicating a moderate negative relationship. This means that as economic policy uncertainty increases, interest rates tend to decrease. The variables Economic Policy Uncertainty (EPU) and Monetary Policy (MPR) exhibit a little positive association (0.235282), suggesting that there is a small increase in monetary policy when there is higher economic policy uncertainty. A moderate positive correlation (0.524314) exists between Economic Policy Uncertainty (EPU) and Non-Performing Loans (NPL), highlighting the presence of risk. The variables of inflation (INF) and interest rates (INT) have a significant positive correlation (0.557145), suggesting a robust connection. This implies that interest rates increase as inflation rises. The correlation coefficient between Inflation (INF) and Monetary Policy (MPR) is 0.704409, indicating a strong positive relationship and highlighting the interdependence of inflation and monetary policy choices. The presence of a negative correlation (-0.154695) between Inflation (INF) and Non-Performing Loans (NPL) indicates a modest inverse relationship. The correlation between EPU*MPR and NPL is moderately positive (0.557118), suggesting that as the influence of this interaction increases, non-performing loans rise. Finally, the analysis examines the correlation between interest rates (INT) and monetary policy, uncovering a

robust positive connection (0.538063), suggesting that tighter monetary policy is linked to elevated interest rates. The weak positive correlation (0.035777) between Interest Rates (INT) and Non-Performing Loans (NPL) indicates a limited relationship, while the correlation (0.308336) between MPR and NPLs suggests a moderate positive association—higher levels of monetary policy are associated with an increase in non-performing loans.

Table 2 presents the descriptive statistics of the variables in the study, providing valuable information on the distribution and properties of the data. The Financial Soundness Index (FIN) indicates a mean degree of financial soundness of around 1.62 throughout the stated time. The distribution of values is symmetric, as seen by the near proximity of the mean and median. The range of values observed (1.44 to 1.76) indicates a significant variation in financial stability, but the standard deviation (0.085804) indicates a steady distribution of data with little variation from the average. The Natural Logarithm of Economic Policy Uncertainty (EPU) exhibits an average level of economic policy uncertainty with a mean value of approximately 2.17. It demonstrates considerable variation, ranging from 1.70 to 2.63, and is characterized by instability as demonstrated by a high standard deviation of 0.203801. The Natural Logarithm of Inflation (INF) represents the average inflation levels (mean ≈ 1.11) with a range of values (0.88 to 1.73), indicating significant variability (standard deviation = 0.172183). Economic policy uncertainty negatively affects financial soundness, although the coefficients range from -0.1496 to -0.3078, demonstrating that it varies across the distribution. The quantile regression model fits well, as shown by the quasi-LR statistic of 258.6431 and p-value less than 0.001.

Likewise, the analysis of inflation (INF) in conjunction with financial soundness produced intriguing results. The coefficient for the natural logarithm of inflation (INF) in the ordinary least squares (OLS) model was calculated to be -0.0234. However, it was found to lack statistical significance, as indicated by a p-value of 0.6915. The Quantile Regression results revealed a complex representation, as it demonstrated coefficients spanning from -0.1904 to 0.4091 across several quantiles. The observed effect demonstrates statistical significance within the quantiles ranging from 0.10 to 0.30. While the impact observed in the quantiles ranging from 0.40 to 0.70 cannot be verified, it is noteworthy that the effect transitions from negative to positive and attains statistical significance at the 0.80 and 0.90 quantiles. The observed variation in outcomes across different percentiles highlights the significance of comprehending the diversity within the association. The statistical significance of the quasi-LR statistic (p-value < 0.001) confirms the reliability of the quantile regression model in accurately capturing the various effects of inflation on financial stability.

The results for interest rates revealed by the OLS regression showed a positive relationship between interest rates and the financial soundness of the banking industry of Ghana with a coefficient of 0.4717 and statistically significant at the 1% level (p-value = 0.0005). this positive effect is exhibited in the quantile regression results with a declining trend and is statistically significant at all quantiles except for the 0.80 and 0.90 quantiles. For monetary policy, the results of both OLS and quantile regression showed a positive effect and were statistically significant at the 1% level for all quantiles except for the 0.80 quantile which was significant at the 5% level. However, the quantile regression result was not statistically significant at the 60%, 70% and 80% percentiles. The quasi-LR statistic remains significant (p-value < 0.001), affirming the model's overall explanatory power.

Table 4: Economic Policy Uncertainty and Financial Soundness

	OLS	Quantile Regression								
VARIABLE		0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90
EPU	-0.2682***	-0.3078***	-0.2565***	-0.2818***	-0.2757***	-0.2682***	-0.2332***	-0.2295***	-0.2094***	-0.1496**
	(0.0331)	(0.0304	(0.0223)	(0.0213)	(0.0287)	(0.0331)	(0.0477)	(0.0479)	(0.0623)	(0.059)
INF	-0.0234	-0.1898***	-0.1904***	-0.1548***	-0.0731	-0.0234	0.0608	0.1517	0.2733***	0.4091***
	(0.059)	(0.0434)	(0.035)	(0.0367)	(0.0497)	(0.059)	(0.1327)	(0.1103)	(0.1047)	(0.0827)
INT	0.4717***	0.392***	0.5917***	0.5156***	0.5099***	0.4717***	0.4459***	0.4007***	0.2194	0.0763
	(0.1338)	(0.1392)	(0.0919)	(0.0987)	(0.1308)	(0.1338)	(0.1518)	(0.1694)	(0.1544)	(0.2392)
MPR	0.1936***	0.4158***	0.3569***	0.3157***	0.2399***	0.1936***	0.1046	0.0092	-0.0957	-0.2036**
	(0.071)	(0.0782)	(0.0582)	(0.057)	(0.0636)	(0.071)	(0.1139)	(0.0943)	(0.0936)	(0.085)
Quasi-LR statistic	258.6431 ($p < 0.001$)									
Adjusted R-squared	0.4526									

Note: *** indicates statistically significant at 1% level while ** indicates significance at 5% level. Standard errors are in parentheses.
Source: Author's construct (2025)

Economic Policy Uncertainty (EPU) and Financial Soundness (FIN) were examined using Ordinary Least Squares (OLS) regression and Quantile Regression to gain a deeper understanding, as can be seen in Table 4. The OLS coefficient for EPU was -0.2682 with a p-value less than 0.001, indicating a statistically significant negative association between economic policy uncertainty and financial soundness. Calculating the link across distribution percentiles with Quantile Regression expanded this investigation.

Table 5 presents the OLS and Quantile regression results for the impact of EPU*MPR on NPL. From the table, both OLS and quantile regression results show that EPU and MPR interact to positively affect non-performing loans in Ghana. These suggest that higher economic policy uncertainty and monetary policy rates are associated with increased non-performing loans. The Quantile Regression results further corroborate this positive relationship across different quantiles. Notably, at all quantiles from 0.10 to 0.90, the coefficients remain consistently positive and statistically significant, ranging from 0.338 to 0.4699. This implies a robust positive impact of economic policy uncertainty on non-performing loans across various segments of the distribution. Looking at the relationship with inflation (INF), the coefficient obtained by ordinary least squares (OLS) regression is -0.498, suggesting a negative correlation with non-performing loans.

The correlation in question exhibits statistical significance at the 1% level (p-value = 0.000), indicating a negative relationship between inflation and non-performing loans. The findings of the Quantile Regression analysis highlight the consistent presence of a negative connection across all quantiles. The coefficients obtained range from -0.3933 to -0.6535. The coefficients exhibit statistical significance at the 1% level, indicating a persistent negative relationship between inflation and non-performing loans throughout various percentiles of the distribution. The coefficient for the variable "Interest Rate (INT)" in the Ordinary Least Squares (OLS) regression model is estimated to be 0.9742, suggesting a positive relationship with the occurrence of non-performing loans. The coefficient in question exhibits statistical significance at the 1% level (p-value = 0.000), indicating a positive relationship between higher interest rates and the occurrence of non-performing loans. The results obtained from the Quantile Regression analysis provide further support for the existence of a positive link between the variables under investigation across various quantiles. The coefficients observed in this analysis range from 0.6929 to 1.6426. The coefficients exhibit statistical significance at the 1% level, except for the 0.10 quantile, where the effect is not observed. This finding underscores the consistent and beneficial influence of interest rates on non-performing loans throughout different percentiles of the distribution. The Quasi-LR statistic with a p-value of 0.000 suggests the overall significance of the quantile regression model, and the adjusted R-squared of 0.5413 indicates that the model explains a substantial portion of the variance in non-performing loans.

Table 5: EPU, MPR, and Non-Performing Loans

	OLS	Quantile Regression								
Variable		0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90
EPU*MPR	0.4223***	0.4699***	0.4456***	0.4392***	0.4213***	0.3833***	0.3534***	0.338**	0.3737***	0.4183***
	(0.028)	(0.0523)	(0.0267)	(0.0297)	(0.0382)	(0.0547)	(0.0483)	(0.0458)	(0.0505)	(0.0456)
INF	-0.498***	-0.6535**	-0.5058***	-0.4152***	-0.3933***	-0.4348***	-0.4164***	-0.446***	-0.476***	-0.563***
	(0.0482)	(0.2319)	(0.0882)	(0.0677)	(0.0666)	(0.0754)	(0.0664)	(0.0633)	(0.0644)	(0.0622)
INT	0.9742***	1.6426	1.1075***	0.7755***	0.7889***	0.9192***	0.6929***	0.7469***	0.8238***	0.9158***
	(0.1434)	(0.846)	(0.3349)	(0.2625)	(0.2476)	(0.2517)	(0.1728)	(0.1446)	(0.1298)	(0.1152)
Quasi-LR statistic	97.1134									
Prob (Quasi-LR stat)	0.000									
Adjusted R-squared	0.5413									

Note: *** indicates statistically significant at 1% level while ** indicates significance at 5% level. Standard errors are in parentheses

Source: Author's construct (2025)

Table 6: Post Estimation Tests

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Slope Equality Test			
Wald Test	106.9142	32	0.0000
Symmetric Quantiles Test			
Wald Test	15.43679	20	0.7509
Ramsey RESET Test	Value	df	Probability
QLR L-statistic	1.569650	1	0.2103
QLR Lambda-statistic	1.565791	1	0.2108

Source: Author's construct (2025)

Table 6 shows the post-estimation tests, such as the Quantile Slope Equality Test, examining the coefficients of specified variables at different quantiles to evaluate their consistency. The estimated equation was analysed using the median quantile (tau = 0.5) and 10 test quantiles. The Wald Test statistic was calculated to be 106.9142, with 32 degrees of freedom. The resulting p-value was found to be highly significant, with a value of 0.0000. The low p-value provides compelling evidence against the null hypothesis, indicating that the coefficients of FIN, EPU, INF, INT, MPR, and the intercept C exhibit considerable variation across various quantiles. The results emphasise the significant differences in the impact of these factors on the outcome variable (FIN) at different points in the distribution, emphasising the lack of consistency in the relationships between economic variables and financial stability across percentiles.

In addition, the Symmetric Quantiles Test is used to assess the consistency of coefficients across symmetric quantiles. The Wald Test statistic was calculated at the median quantile (tau = 0.5) using 10 test quantiles. The resulting statistic is 15.43679, based on a sample size of 20. The related p-value is 0.7509, which suggests that there is no statistical significance. This indicates that there is insufficient empirical evidence to reject the null hypothesis, indicating that the coefficients stay stable over quantiles that are distributed symmetrically. This inconsequential result indicates that the impact of the specified variables on the dependent variable (FIN) remains consistent across symmetrical sections of the distribution. This suggests that there is no significant imbalance observed in the correlations between economic variables and financial stability. In addition, the Ramsey RESET Test, which evaluates the effectiveness of the regression

model, shows that incorporating squared values of the fitted variables does not enhance the model's accuracy to a significant extent. The p-values, which are above the conventional significance level of 0.05, do not provide convincing evidence to reject the null hypothesis. Therefore, the study's conclusion is that the model is accurately specified, and there is not enough evidence to prove the existence of omitted variables or model misspecification according to the Ramsey RESET Test.

Discussion

Seeking to assess the effect of EPU on the financial soundness of the Ghanaian banking industry, this study finds that economic policy uncertainty negatively affects the financial soundness of the Ghanaian banking industry at all quantiles. This finding is confirmed by Phan et al. (2021) as they analyzed the effects of economic policy uncertainty on financial stability in 23 nations between 1996 and 2016 and showed that monetary stability is negatively affected by policy uncertainty in the economy. According to their findings, when economic policy uncertainty rises by one standard deviation, it decreases financial stability by 2.66 percentage points to 7.26 percentage points above the sample mean. The finding of the current study is also in line with the results shown by Ali et al. (2023) who used Z-scores and non-performing loans (NPL) as measurements of the relationship between EPU and Financial Soundness and realized that EPU had a negative effect on overall financial stability but a good effect on banking stability in developed economies (measured by NPL)

Similarly, Shabir et al. (2021) used the Bank scope database from Bureau van Dijk to collect panel data on 1481 banks across 24 countries to analyze the effect of EPU on banking sector soundness. They found similar result as the current study that EPU weakens the stability and financial soundness of the banking industries of selected countries. The findings of this study is also confirmed in Europe by Nguyen (2021) who studied the impact of bank regulation and supervision on the relationship between economic policy uncertainty and bank stability and concluded that economic policy uncertainty significantly reduces bank stability. Several studies in Africa such as Adeiza et al. (2023) in Nigeria, Lesame (2021) and Kotze (2017) in South Africa show that policy uncertainty has a number of negative repercussions on banking sectors as was found in this study. Several other studies such as Hlatshwayo and Saxegaard (2016) and Ozili (2022) outside Ghana and Kyei et al. (2023), Asafo-Adjei et al. (2020) and Frimpong et al. (2021) in Ghana focusing on the impact of EPU on the economy as a whole have hounded a negative impact. This suggests that the current study makes a major contribution into the literature from the Ghanaian perspective by finding and drawing conclusion on the fact that global economic policy uncertainty negatively affects the financial soundness of Ghana's banking sector.

The second objective of the study was to investigate the interaction effect of monetary policy and global economic policy uncertainty on non-performing loans in Ghana. For this objective, the study found strong evidence of the existence of a positive effect of EPU and monetary policy on non-performing loans in Ghana. This is in line with the conclusions made by Karadima and Louri (2021) and Caglayan and Xu (2019) as they posit that economic policy uncertainty exerts a positive impact on ΔNPL, which can be moderated by another legacy of the crisis, namely higher bank concentration. Also, several studies such as Bordo et al., (2016); Buch et al., (2015); Hu and Gong, (2019) have noticed the fact that uncertainty has a negative effect on bank lending leading to poor performance of loans.

Moreover, the finding coincides with the conclusions of Kostis (2020) who concluded that when uncertainty in the economy increases, total gross loans (to residents and non-residents) decrease. Conversely, the number of NPLs increases. using panel data for 194 banks during the 2001-2021 period, Zeqiraj et al. (2024) find that rising EPU during the crises is associated with higher NPLs and lower government debt. This agrees with the positive effect of EPU on NPL found in the current study. the finding further agrees with the results of Olorogun (2020) in Türkiye. In Ghana, a study by Asiama and Amoah

(2019) find evidence of no statistically significant effect of monetary policy on the percentage growth of NPLs. However, eventually, the authors find a statistically significant effect of monetary policy on the percentage growth of NPLs. While their short run results are not confirmed by the current study, the long-run result agrees with the findings of this study. This is in line with the finding of Asemota et al. (2023) in the Sub-Saharan region of Africa who reveals that restricting the money supply is detrimental as it would lead to an increased incidence of loan default.

Conclusion and Policy Implications

In conclusion, we identified two crucial discoveries that have profound implications for Ghana's banking sector. The study demonstrates that economic policy uncertainty has a large and adverse effect on the financial stability of banks in Ghana. This stresses the pressing need for policymakers to act and reduce such uncertainty in order to protect the stability of the banking sector. The analysis also uncovers a positive relationship between the interaction of monetary policy and the economic policy uncertainty index and non-performing loans. We therefore recommend that policymakers should prioritize implementing clear and uniform economic policies, aligning the development of monetary and economic policies, and executing initiative-taking risk management procedures like stress testing. Financial practitioners are recommended to improve risk management methods, diversify portfolios, and engage in meaningful discussions with policymakers in order to promote resilience in the face of economic policy uncertainty.

While this study employed a composite financial soundness index to capture the overall stability of the banking sector, future research could disaggregate the index to examine how individual financial soundness indicators, such as capital adequacy, liquidity, asset quality, and profitability, respond to economic policy uncertainty or other macroeconomic shocks. Additionally, comparative studies across countries or financial systems could offer deeper insights into the contextual relevance and robustness of such composite indices. Incorporating non-linear models or regime-switching frameworks may also uncover dynamic relationships that are not captured under linear assumptions. It is also suggested that future studies evaluate the effectiveness of risk management strategies and explore the consequences of technological advancements and innovation on the ability of financial institutions to adapt in uncertain economic situations.

Funding

This study receives no specific funding

Declaration of Interest

The author discloses no conflict of interest

Data availability

Data are available upon reasonable requests.

ORCID

George Tweneboah: https://orcid.org/0000-0001-7992-7340

References

Abdusaidova, G. (2023). Agreements on banking deposits and banking schemes in the framework of civil law in the republic of Uzbekistan. *International Bulletin of Applied Science and Technology*, *3*(7), 92-98.

Adeiza, A., Oye, Q. E., & Alege, P. O. (2023). The macroeconomic effect of COVID-induced economic policy uncertainty in Nigeria: a DSGE approach. *African Journal of Economic and Management Studies*, *14*(1), 106-120.

Aiyar, M. S., Chen, M. J., Ebeke, M. C. H., Garcia-Saltos, M. R., Gudmundsson, T., Ilyina, M. A., ... & Trevino, M. J. P. (2023). *Geo-economic fragmentation and the future of multilateralism*. International Monetary Fund.

Ali, K., Hongbing, H., Liew, C. Y., & Jianguo, D. (2023). Governance perspective and the effect of economic policy uncertainty on financial stability: Evidence from developed and developing economies. *Economic Change and Restructuring*, *56*(3), 1971-2002.

Anderson, H., Richardson, G., & Yang, B. (2023). Deposit Insurance and Depositor Monitoring: Quasi-Experimental Evidence from the Creation of the Federal Deposit Insurance Corporation. *Journal of Money, Credit and Banking*, *55*(2-3), 441-464.

Asafo-Adjei, E., Agyapong, D., Agyei, S. K., Frimpong, S., Djimatey, R., & Adam, A. M. (2020). Economic policy uncertainty and stock returns of Africa: a wavelet coherence analysis. *Discrete Dynamics in Nature and Society*, *2020*, 1-8.

Asemota, G., Erhi, M., & Ihensekhien, O. (2023). Do Commercial Banks' Non-Performing Loans Respond to Environmental Financial and Economic Influences in the Sub-Saharan Region of Africa. *Acta Universitatis Danubius. Œconomica*, *19*(2), 269-288.

Asiama, R. K., & Amoah, A. (2019). Non-performing loans and monetary policy dynamics in Ghana. *African Journal of Economic and Management Studies*, *10*(2), 169-184.

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The quarterly journal of economics*, *131*(4), 1593-1636.

Bank of Ghana. (n.d.). *Financial soundness.* Retrieved, 12th August, 2024, from https://www.bog.gov.gh/economic-data/financial-soundness/

Bekiros, S., Gupta, R., & Majumdar, A. (2016). Incorporating economic policy uncertainty in US equity premium models: A nonlinear predictability analysis. *Finance Research Letters*, *18*, 291-296.

Bordo, M. D., Duca, J. V., & Koch, C. (2016). Economic policy uncertainty and the credit channel: Aggregate and bank level US evidence over several decades. *Journal of Financial Stability*, *26*, 90-106.

Buch, C. M., Buchholz, M., & Tonzer, L. (2015). Uncertainty, bank lending, and bank-level heterogeneity. *IMF Economic Review*, *63*(4), 919-954.

Caglayan, M., & Xu, B. (2019). Economic policy uncertainty effects on credit and stability of financial institutions. *Bulletin of Economic Research*, *71*(3), 342-347.

Chen, Y., Kumara, E. K., & Sivakumar, V. (2021). Investigation of finance industry on risk awareness model and digital economic growth. *Annals of Operations Research*, 1-22.

Chenguel, M. B., & Mansour, N. (2022). The evolution of prudential rules on credit risk management: From Basel agreements to IFRS 9. In *Finance, Law, and the Crisis of COVID-19: An Interdisciplinary Perspective* (pp. 89-106). Cham: Springer International Publishing.

Choi, S., Furceri, D., & Yoon, C. (2021). Policy uncertainty and foreign direct investment. *Review of International Economics*, *29*(2), 195-227.

Desalegn, T. A., & Zhu, H. (2021). Does economic policy uncertainty affect bank earnings opacity? Evidence from China. *Journal of Policy Modeling*, *43*(5), 1000-1015.

Dobbie, M. J., & Dail, D. (2013). Robustness and sensitivity of weighting and aggregation in constructing composite indices. *Ecological Indicators*, *29*, 270-277.

Frimpong, S., Gyamfi, E. N., Ishaq, Z., Kwaku Agyei, S., Agyapong, D., & Adam, A. M. (2021). Can global economic policy uncertainty drive the interdependence of agricultural commodity prices? Evidence from partial wavelet coherence analysis. *Complexity*, *2021*, 1-13.

Gutner, T. (2020). *Approaches to IMF-World Bank collaboration: A historical perspective* (IEO Background Paper No. BP/20-01/02). The International Monetary Fund.

Hlatshwayo, S., & Saxegaard, M. M. (2016). *The consequences of policy uncertainty: Disconnects and dilutions in the South African real effective exchange rate-export relationship*. International Monetary Fund.

Hu, S., & Gong, D. (2019). Economic policy uncertainty, prudential regulation and bank lending. *Finance Research Letters*, *29*, 373-378.

Jiang, Y., Tian, G., Wu, Y., & Mo, B. (2022). Impacts of geopolitical risks and economic policy uncertainty on Chinese tourism-listed company stock. *International Journal of Finance & Economics*, *27*(1), 320-333.

Jin, J. Y., Kanagaretnam, K., Liu, Y., & Lobo, G. J. (2019). Economic policy uncertainty and bank earnings opacity. *Journal of Accounting and Public Policy*, *38*(3), 199-218.

Kamasa, K., Afful, S. L., & Bentum-Ennin, I. (2023). Impact of monetary policy rate on commercial banks' lending rate: empirical evidence from Ghana. *Journal of Economic and Administrative Sciences* (ahead of print). https://doi.org/10.1108/JEAS-07-2021-0141

Kannadhasan, M., & Das, D. (2020). Do Asian emerging stock markets react to international economic policy uncertainty and geopolitical risk alike? A quantile regression approach. *Finance Research Letters*, *34*, article 101276.

Karadima, M., & Louri, H. (2021). Economic policy uncertainty and non-performing loans: The moderating role of bank concentration. *Finance Research Letters*, *38*, article 101458.

Khojah, M., Ahmed, M., Khan, M. A., Haddad, H., Al-Ramahi, N. M., & Khan, M. A. (2023). Economic policy uncertainty and stock market in G7 Countries: A panel threshold effect perspective. *Plos one*, *18*(7), e0288883.

Klein, S. P., Spieth, P., & Heidenreich, S. (2021). Facilitating business model innovation: The influence of sustainability and the mediating role of strategic orientations. *Journal of Product Innovation Management*, *38*(2), 271-288.

Koenker, R. (2005). *Quantile regression* (Econometric Society Monograph Series 38). Cambridge University Press, Cambridge.

Koenker, R., & Hallock, K. F. (2001). Quantile regression. *Journal of Economic Perspectives*, *15*(4), 143-156.

Kostis, P. C. (2020). Increased Uncertainty, Credit Supply, and Non-Performing Loans in the Eurozone. *JBAFP*, *2*(1), 0-0.

Kotze, K. (2017). *Fiscal policy uncertainty and economic activity in South Africa* (Discussion Paper Series 2). School of Economics, University of Cape Town

Kumar, V., Acharya, S., & Ho, L. T. (2020). Does monetary policy influence the profitability of banks in New Zealand? *International Journal of Financial Studies, 8*(2), article 35. https://www.mdpi.com/2227-7072/8/2/35#

Kyei, C. B., Asafo-Adjei, E., Owusu Junior, P., Adam, A. M., Idun, A. A. A., & Boateng, J. K. A. (2023). Nexus between commodities and banking sector financial soundness: The role of general macroeconomic setting in Ghana. *Cogent Economics & Finance*, *11*(1), article 2173871.

Lamichhane, S., Eğilmez, G., Gedik, R., Bhutta, M. K. S., & Erenay, B. (2021). Benchmarking OECD countries' sustainable development performance: A goal-specific principal component analysis approach. *Journal of Cleaner Production*, *287*, article 125040.

Lee, C. C., Lee, C. C., Zeng, J. H., & Hsu, Y. L. (2017). Peer bank behavior, economic policy uncertainty, and leverage decision of financial institutions. *Journal of Financial Stability*, *30*, 79-91.

Lesame, K. (2021). *The asymmetric impact of economic policy uncertainty on firm-level investment in South Africa* (Working Paper 2021/52). WIDER.

Lodge, D., Everett, M., Bandt, O. D., Georgiadis, G., Ca'Zorzi, M., Lastauskas, P., ... & Siena, D. (2021). The implications of globalisation for the ECB monetary policy strategy. *ECB Occasional Paper No. 2021263*. https://dx.doi.org/10.2139/ssrn.3928284

Luo, Y., & Van Assche, A. (2023). The rise of techno-geopolitical uncertainty: Implications of the United States CHIPS and Science Act. *Journal of international business studies*, 1-18.

Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology*. The MIT Press.

Mehrabinezhad, A., Teshnehlab, M., & Sharifi, A. (2024). A comparative study to examine principal component analysis and kernel principal component analysis-based weighting layer for convolutional neural networks. *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*, *12*(1), article 2379526.

Nguyen, T. C. (2021). Economic policy uncertainty and bank stability: Does bank regulation and supervision matter in major European economies? *Journal of International Financial Markets, Institutions and Money*, *74*, article 101387.

Olorogun, L. A. (2020). Spillover effects of Covid-19 uncertainty on non-performing loans of the Turkish agricultural sector on bank performance. *Journal for Global Business Advancement*, *13*(4), 514-532.

Onyshchuk, S. V., Onyshchuk, I. I., Petroye, O., & Chernysh, R. (2020). Financial stability and its impact on national security state: Organizational and legal aspects. *International Journal of Economics and Business Administration*, *8*(1), 353-365.

Ozili, P. K. (2022). Sources of economic policy uncertainty in Nigeria: implications for Africa. In *Managing Risk and Decision Making in Times of Economic Distress, Part A* (Vol. 108, pp. 37-50). Emerald Publishing Limited.

Ozili, P. K., & Arun, T. G. (2022). Does economic policy uncertainty affect bank profitability? *International Journal of Managerial Finance*, *19*(4), 803-830.

Phan, D. H. B., Iyke, B. N., Sharma, S. S., & Affandi, Y. (2021). Economic policy uncertainty and financial stability–Is there a relation? *Economic Modelling*, *94*, 1018-1029.

Qi, X. Z., Ning, Z., & Qin, M. (2022). Economic policy uncertainty, investor sentiment and financial stability—an empirical study based on the time varying parameter-vector autoregression model. *Journal of Economic Interaction and Coordination*, 1-21.

Shabir, M., Jiang, P., Bakhsh, S., & Zhao, Z. (2021). Economic policy uncertainty and bank stability: Threshold effect of institutional quality and competition. *Pacific-Basin Finance Journal*, *68*, article 101610.

Stephens, A. R., Kang, M., & Robb, C. A. (2022). Linking supply chain disruption orientation to supply chain resilience and market performance with the stimulus–organism–response model. *Journal of Risk and Financial Management*, *15*(5), article 227.

Su, C. W., Huang, S. W., Qin, M., & Umar, M. (2021). Does crude oil price stimulate economic policy uncertainty in BRICS? *Pacific-Basin Finance Journal*, *66*, article 101519.

Taskinsoy, J. (2022). Stress testing financial systems: Macro and micro stress tests, Basel standards and value-at-risk as financial stability measures. *Available at SSRN*. https://dx.doi.org/10.2139/ssrn.4032869

Wu, R. M., Zhang, Z., Yan, W., Fan, J., Gou, J., Liu, B., ... & Wang, Y. (2022). A comparative analysis of the principal component analysis and entropy weight methods to establish the indexing measurement. *PloS one, 17*(1), article e0262261.

Yang, C., & Xie, Y.L. (2015). Analysis of high-tech enterprises intellectual property management model in the perspective of SOR. *Sci. Sci. Manag. S. T. 36*, 30–37

Younis, I., Yousaf, I., Shah, W. U., & Longsheng, C. (2023). Risk transmission between equity market of China and its trading partners: new evidence from various financial crises. *International Journal of Emerging Markets* (ahead of print). https://doi.org/10.1108/IJOEM-11-2022-1763

Yuan, M., Zhang, L., & Lian, Y. (2022). Economic policy uncertainty and stock price crash risk of commercial banks: Evidence from China. *Economic Analysis and Policy*, *74*, 587-605.

Zeqiraj, V., Gurdgiev, C., Sohag, K., & Hammoudeh, S. (2024). Economic uncertainty, public debt and non-performing loans in the Eurozone: Three systemic crises. *International Review of Financial Analysis*, *93*, article 103208.

Appendices

Historical Trends in the Study's Variables

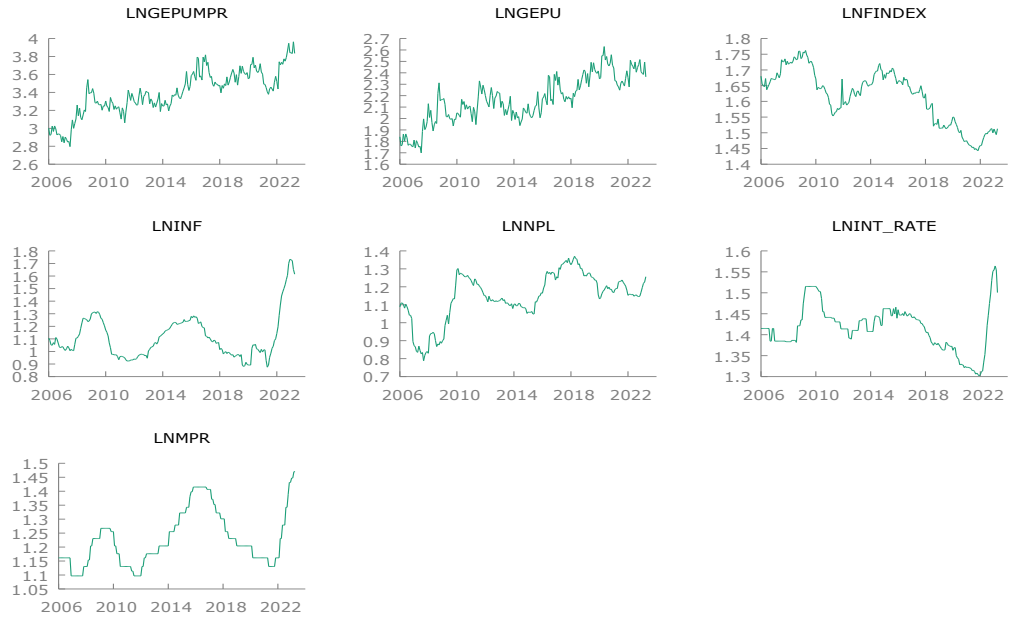

Figure 2: Line Plot of Variables
Source: EViews estimates (2023)

Quantile Process for the Coefficients of the First Model

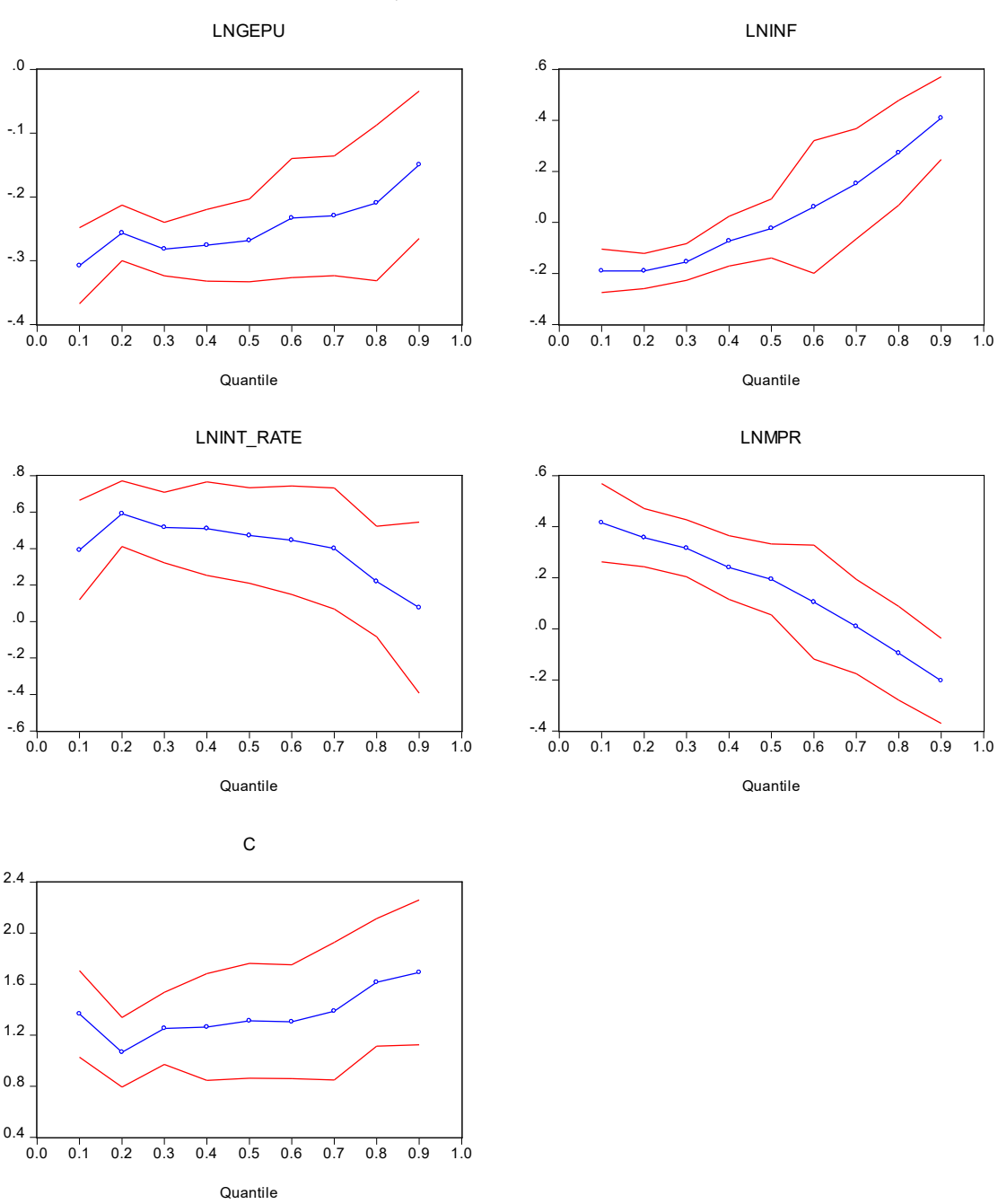

Figure 3: Quantile Process Estimates for Model 1
Source: EViews estimates (2023)

Quantile Process for the Coefficients of the Second Model

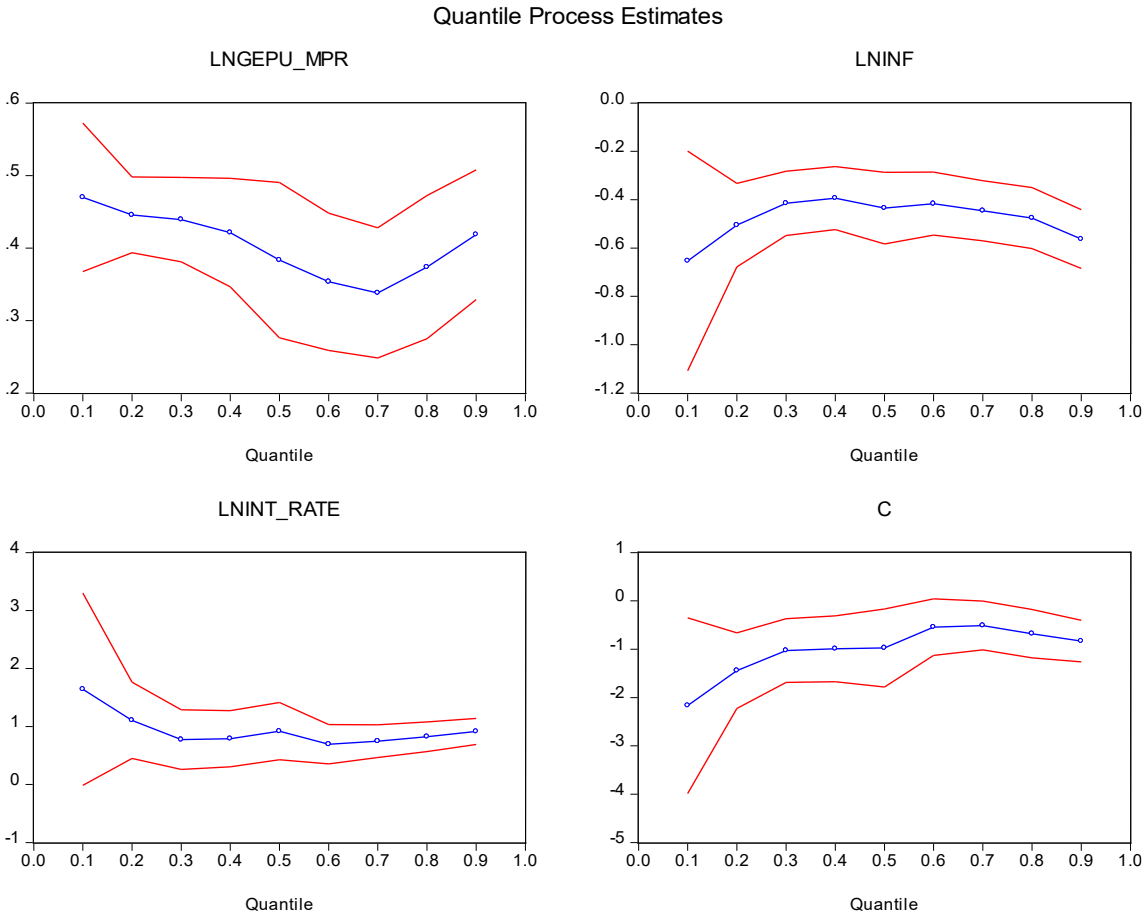

Figure 4: Quantile Process Estimates for Model 2
Source: EViews estimates (2023)