

## THE IMPACT OF GLOBAL ECONOMIC POLICY UNCERTAINTY ON BANK STABILITY

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**Abstract:** This paper aims to determine the effect of global economic policy uncertainty on the banking system's stability in Asian countries. The dependent variable in the study is measured through the bank's payment risk Zscore. The primary explanatory factor is global economic policy uncertainty, and other control variables include the banking system's characteristics and the national economic environment. Asian banking systems' data are collected from World Bank between 2008 and 2020. Based on the System Generalized Method of Moments, the main results indicate that global economic policy uncertainty is seriously exacerbating the instability of the banking system of Asian countries. The study also shows that the ability to use mobilized capital and the degree of concentration of the system reduces the adverse impact of global economic policy uncertainty on the stability of the banking system in Asian countries.

**Keywords:** uncertainty, economic policy, banking system, stability, Asia

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### Introduction

Uncertainty, which includes Economic Policy Uncertainty (EPU), has become a fascinating subject of attraction to many researchers and decision-makers (Fountas et al., 2018). The more unpredictable the government's economic policy is, the more risks it takes in the decision-making process of entities, including banks. Uncertainty in economic policy management in the US was ascertained to be one of the causalities leading to the US financial crisis in 2008, which spread to many other countries' financial systems around the world (IMF, 2013). The boom in EPU is considered a shock factor that fosters instability in the domestic financial system besides economic conditions and bank characteristics (Phan et al., 2020; Nguyen, 2021; Shabir et al., 2021). In addition, a government's EPU, through policy transmission channels such as interest rates, exchange rates, and foreign trade activities, forces other governments to adjust accordingly, creating irregular fluctuations affecting financial institutions' operations in other countries. The spread of the EPU led to the formation of the GEPU (Global Economic Policy Uncertainty) index, commonly employed in studies on uncertainty. The higher the GEPU, the

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worse the banks' bad debt situation (Ozili, 2022; Botshekan et al., 2021) and erode their profitability (Athari and Bahreini, 2021; Athari, 2021). While substantial literature has emerged addressing this effect of GEPU on banking sectors, to our knowledge, there is currently no empirical proof of the consequence of GEPU on the banking systems' stability with country-level data.

Besides, another motivation to conduct this investigation is that the research problem has been inadequately covered for banking systems across the Asia region. Asia, including mainly low- and middle-income developing countries, has the fastest and most impressive growth rates globally, thanks to its expanded integrated economy. However, the downside of opening up for cooperation is to reduce the independence and autonomy in the macroeconomic policymaking of Asian governments. In other words, the policy implementation of these Asian countries leans mainly on international macro oscillations and the other countries' policy administration (Hill and Gochocobautista, 2013; Rana and Dowling, 2009). The banking sector plays a prominent role in facilitating capital flows and is the governance's extension component to control the economy in Asian countries (Habibulla and Eng, 2006). Therefore, the inconsistency in the global economic policy can heighten the instability of the Asian banking sectors. Although not falling into a spiral of crisis, many Asian countries, such as Vietnam, Thailand and Malaysia, had to restructure the system of financial institutions after the global crisis in 2008. From this practice, it is necessary to have an empirical examination to determine the direction and extent of the consequence of GEPU on the stability of the Asian banking system.

Against this backdrop, the present study dissects the impact of GEPU on the banking system stability of 31 Asian economies between 2008 and 2020. Moreover, it expands on previous empirical literature in several respects, including (1) assessing the simultaneous impact of national economic conditions with the GEPU; (2) finding out whether operational characteristics change how devastating GEPU is to bank stability. The research findings supplement empirical evidence to strengthen the theories of EPU consequences and have crucial policy implications for policymakers, bankers and analysts.

### **Literature Review and Hypothesis Development**

EPU reflects the inconsistent state of government and regulatory agencies, frequently modifying and reforming economic policies and other related regulations (Al-Thaqeb and Algharabali, 2019; Athari, 2021). Specifically, EPU is a risk associated with a difficultly forecast of future government policies. Keynes' theories (1963) have addressed EPU and its influence on the decisions of every subject in the economy. Minsky (1977) also proved that EPU explains the financial system crisis. The EPU index measures uncertainty based on information developed by Baker et al. (2016). The authors aggregated all news to create EPU — using the average of three parts: newspaper coverage of EPU, how many provisions in the federal tax code will expire soon, and disagreement among economic forecasters. The index

may cause delays or modifications in crucial decisions such as employment, investment, consumption and savings by enterprises and individuals (Botshekan et al., 2021), so EPU became a menace to banks.

The banking system is essential to the financial sector thanks to the number, size and variety of services (Rose and Hudgins, 2012). A stable banking system is a banking system that operates steadily, effectively mobilizes and distributes capital, and has no crisis, mass failure, or insolvency (Ngalawa et al., 2016; Brunnermeier et al., 2009). The banking system's stability will contribute to the development and stability of the financial sector, promoting economic development (Athari, 2021; Ozili, 2018).

Some empirical studies have demonstrated the adverse effect of EPU on a country's banking strength through multiple transmission mechanisms. Chi and Li (2017), Gissler et al. (2016) and Danisman et al. (2021) indicate that the EPU can be seriously detrimental to the granting of credit. Policy uncertainty affects the relationship between capital market credit supply and demand (Chi and Li, 2017; Nguyen et al., 2020; Gissler et al., 2016). Because government policy decisions are difficult to predict, market participants tend to reduce spending and investment, reducing the need for loans. Due to asymmetric information created by inconsistent macroeconomic management, credit institutions face adverse selection and the borrowers' moral hazard. Banks tend to be more cautious in granting credit. In addition, increasing NPLs (non performing loans) and EPU volatility forced banks to increase provisioning costs (Danisman et al., 2021; Ng et al., 2020), resulting in a declining income, possibly even causing bankruptcy (Killins et al., 2019; Yung and Root, 2019).

EPU enhances the instability of each bank in particular and the banking system of each country in general. Phan et al. (2020) collected data on macroeconomics, market structure and banking-related variables for 23 countries from 1996-2016. They used EPU and other variables, including market characteristics, macroeconomic conditions, and banking characteristics, to explain the dependent variable Zscore. Using different panel data regression methods, the authors show that the more inconsistent the government conducts economic policies, the more unstable the banking system becomes. In particular, they find that smaller, more competitive, and less capital-intensive banking systems are more severely affected by EPU volatility. With data sets from the bank level for 2005 - 2019 and fixed effects and random effects models, Shabir et al. (2021) confirm that bank characteristics and industry structure make a difference in the impact of EPU on bank stability. Their other finding was that the financial crisis exacerbated the harmful impact of the EPU. Nguyen (2021), based on data from banks from 8 European countries for 2005 - 2020 and the GMM, confirmed that EPU is associated with a sharp decline in bank stability. He also emphasized the vital function of strengthening banking regulation and supervision, especially regarding operational restrictions and capital constraints, in narrowing the adverse outcomes of non-compliance sure about the policy for the bank's stability. Using data from 18

countries and GMM, Caglayan and Xu (2019) revealed that the increase in EPU significantly reduced credit availability and led to an expansion of bad debts and risk provisions for bank loans, reducing the stability of the industry.

EPU affects banking activities not only in the host country but also in other countries worldwide. Using the GEPU index, the researches of Botshekan et al. (2021) and Athari (2021) show that GEPU affects other countries' banking activities. Botshekan et al. (2021) reveal that even a developing country with less economic openness, such as Iran, still suffers from GEPU's unfavorable effect on asset quality as reflected in its bad debt. The authors also emphasize that the effect of GEPU on asset quality is more severe in economies with higher openness. Athari (2021) indicates that the volatility of the GEPU index reduces the profitability of the Ukrainian banking system.

Previous studies also show that the domestic economic situation and the banking system's characteristics influence the banking system's stability. First, regarding the national macro situation, according to Ozili (2018) and Phan et al. (2020), low real economic growth and high inflation objectively caused the banking crisis in both industrial and emerging market economies. Second, whether a banking system is stable depends heavily on its operating characteristics. The two core activities of a bank, namely mobilizing capital and providing credit, are both inherently risky, causing the bank's failure. Banks face many types of risks, such as credit, market and operational risks, so banks use their capital to hedge risk. Central banks regulate capital adequacy ratios to limit instability in the system. Ozil (2018) indicated that the higher the risk-adjusted capital to total assets ratio, the more positive the impact on the banking system's stability. Deposit activities create capital for banks to supply loans and gain profit. The more significant the amount of deposits at the bank, the greater the pressure on capital efficiency and the challenge in ensuring liquidity when there are volatile factors. Therefore, the ability to exploit capital and the balance between lending and mobilization influences the sustainable development of this system. In addition, the operational efficiency expressed in non-interest income and net profit margin is also decisive factors that positively affect the bank's stability (Ozili, 2018; Nguyen et al., 2021). The size and concentration of the banking system are also factors affecting its stability. Too large a banking system will lead to high competition, causing banks to accept excessive risks, leading to instability of the banking system. Kakes and Nijskens (2018) and Pawlowska (2016) illustrate that total banking system asset as a percentage of GDP harms bank stability. The degree of concentration is reflected in how influential the ratio of assets of the three largest banks in the system is. However, the influence dimension is not consistent in the studies of Phan et al. (2020), Ozil (2018) and Uhde and Heimeshoff (2009).

From the theoretical basis and related empirical research results, the researchers have developed research hypotheses about the influence of GEPU on the stability of the Asian banking system, as well as the role of the state of the macro environment and banking system characteristics in changing the impact of GEPU on banking system stability. Specifically:

- Research Hypothesis H1: Increased global economic policy uncertainty reduces the banking system's stability in Asian countries.
- Research Hypothesis H2: The simultaneous impact of GEPU and the country's economic growth positively affects the stability of the banking system in Asian countries.
- Research Hypothesis H3: The simultaneous impact of the country's inflation combined with the GEPU increases the influence of the GEPU on the stability of the Asian banking system.
- Research Hypothesis H4: Factors that reflect the industry characteristics of banks reduce the damaging impact of GEPU on the stability of financial systems in Asian countries.

### Research Data

Asian countries' data on the characteristics of the banking system and national macro factors are collected from the Global Financial Development Database of the World Bank from 2008 to 2020. However, there are some countries where  $Z\_score$  are unavailable, so the countries that lack information about the dependent variable are omitted, and our data sample has 31 Asian countries. Some of the independent variables in our sample were not provided fully, so the study's panel data are unbalanced. GEPU is collected from the website <https://www.policyuncertainty.com/> for the period 2008 - 2020.

### Research Methodology

To measure the impact of GEPU on the stability of the banking system, based on previous research by Ozili (2018) and Phan et al. (2020), the research model is as follows:

$$Z\_score_{i,t} = a_0 + \beta_0 BS_{i,t-1} + \beta_1 GEPU_t + \beta_2 Nation_{i,t} + \beta_3 Bank_{i,t} + \varepsilon_{i,t} \quad (1)$$

Research model 02, to test hypothesis 02 and hypothesis 03, is developed from the original model, based on the studies of Phan et al. (2020), Nguyen (2021) and Hsieh et al. (2013). The interaction variables between GPU and macro variables, including GDP and INF, are used to calculate the combined effects on  $Z\_Score$ .

$$Z\_score_{i,t} = a_0 + \beta_0 BS_{i,t-1} + \beta_1 Bank_{i,t} + \beta_2 Nation_{i,t} + \beta_3 GEPU_t + \beta_4 GEPU_t * Nation_{i,t} + \varepsilon_{i,t} \quad (2)$$

The interaction variables between GEPU and bank-specific variables in model 03 are added in model 3 to test hypothesis 03, specifically:

$$Z\_score_{i,t} = a_0 + \beta_0 BS_{i,t-1} + \beta_1 Bank_{i,t} + \beta_2 Nation_{i,t} + \beta_3 GEPU_t + \beta_4 GEPU_t * Bank_{i,t} + \varepsilon_{i,t} \quad (3)$$

Specifically:

- *Dependent variable: Z\_score*: The stability of the banking industry is a dependent variable measured by the Zscore index of the nation  $i$  at year  $t$ , as in the studies of Ozili (2018), Nguyen (2021), and Albaity et al. (2019). The formula determines this index  $Z\_score = (ROA + E/TA)/\sigma ROA$ . In which, ROA is the ratio of net profit on TTS. E/TA (Equity/Total Asset) is the equity ratio to the bank's total assets.  $\sigma ROA$  is the standard deviation of the net return on total assets. The higher the  $Z\_score$  of the banking system, the more stable the banking system is.
- *Main explained variable: GEPU* \_ Global Economic Policy Uncertainty is the primary defining variable in the research. This element is determined based on information related to economic policy management in 21 globally influential countries, with a total GDP estimated at 60% of world production. GEPU is computed using natural logarithms of the 12-month average of the monthly GEPU index published on the website. Previous studies in the second section revealed that the GEPU seriously aggravates the instability of the banking system.
- *Control variables*: Besides the primary explanatory variable, the research model also includes the following control variables:
  - (1)  $Nation_{i,t}$  is a vector containing variables reflecting the economic environment of country  $i$  at time  $t$ . Based on the research of Ozili (2018), Nguyen (2021), and Nguyen et al. (2020), the national macroeconomic environment is measured through economic growth, GDP and inflation INF. Stable economic growth will raise the ability to collect debts and increase bank profits. Conversely, when inflation increases, it will be detrimental to the sector's stability.
  - (2)  $Bank_{i,t}$  is a vector containing variables reflecting the characteristics of the banking industry related to the capital on assets (CAP), bank loan-to-deposit ratio (LDR), size (SIZE), ratio of non-interest income (NII), interest margin (NIM) and system centralization (CON). The capital-to-asset ratio (CAP) is considered an essential pillar for hedging; therefore, the higher the banks' capital, the more stable the banking system will be (Ozili, 2018; Saha and Dutta, 2021; Yakubu and Bunyaminu, 2021). The ratio of total assets of the banking system to GDP measures the size of the banking system. The larger the system size, the higher the instability of the banking system, according to the study of Ozili (2018), Phan et al., 2020, and Kombo et al. (2021). Banks that can generate high-interest income will have better stability (Ozili and Uadiale, 2017; Athanasoglou et al., 2008). Banks diversify their activities and are more stable because they are less risky (Williams, 2016; Ozili, 2018). Assets of the three largest banks in the system are expected to increase the banking system's stability based on large-scale banks (Phan et al., 2020; Kombo et al., 2021).

The details of the effects of the control variables are presented in Table 1.

**Table 1. Summaries of dependent and independent variables**

No	Variable	Variable concept	Previous research
1	Zscore	The probability of default of a country's banking system	Phan et al. (2020), Ozili (2018), Dwumfour (2017), Albaity et al. (2019)
2	GEPU	<b>Natural logarithms of the 12-month average of the monthly GEPU index</b>	Phan et al. (2020), Athari (2021)
3	GDP	GDP Growth	Phan et al. (2020), Ozili (2018)
4	INF	Inflation	Phan et al. (2020), Ozili (2018)
5	CAR	Banking system regulatory capital to risk-weighted assets	Athanasoglou et al., 2008; Ozili, (2018)
6	LDR	Natural logarithms of bank loan-to-deposit ratio	Acosta - Smith và cộng sự (2020), Ahmed and Mallick (2019)
7	SIZE	Bank assets percent of GDP	Kakes and Nijskens (2018), Pawlowska (2016)
8	NII	Bank non-interest income to total income (%)	Ozili (2018)
9	NIM	Net interest income over interest-bearing assets	Athanasoglou et al., 2008; Ozili, (2018)
10	CON	The assets of the three largest commercial banks to total banking assets in a country	Phan et al. (2020), Ozili (2018), Uhde and Heimeshoff (2009)

**Source:** Analyzed by the authors

The present study research data has many banking systems, while the period is finite (2008-2020), so the Generalized Method of Moments (GMM) method is more efficient in handling dynamic panel data (Arellano and Bover, 1995). Two-step systematic GMM approach is utilized because it is necessary to be more efficient than one-step GMM and to improve the efficiency of diagnostic tests for GMM. The advantage of this method is that it can deal with endogeneity and variable variance or autocorrelation. Because the research model has lagged variables, the first year's lagged variable is used as a control variable, and the instrumental variable used in model processing is GEPU, as in Nguyen's study (2021). The remaining options are two steps to perform two-step GMM regression. The authors perform Arellano-Bond and Hansen tests to check whether the model has second-order autocorrelation and verify the validity of the instrumental variables in the model.

### Result Analysis

The results of descriptive statistics of the research data are presented in Table 2. Statistical results show that the Z\_score index of the countries in Asia in the sample has an average value of 17.92, with a deviation of 11.31, showing a considerable variation in Asian banking systems during the study period. The minimum value of Z\_score was only 0.91 for Azerbaijan in 2015, while the maximum value was 67.11

for Jordan in 2008. The GEPU variable, after calculating in natural logarithms, has a mean value of 5.044, with a standard deviation of 0.319. The minimum value of GEPU was 4.66 in 2014, and the maximum value was 5.77 in 2020.

**Correlation matrix**

The correlation matrix shows that the Z\_score has a statistically significant positive correlation at the 5% level with SIZE and CON; negatively correlated with CAR, NIM, NII and INF. For the pairs of independent variables in the model, there is a correlation coefficient of less than 50% and almost no statistical significance at the 5% level, showing that the correlation between the pairs of independent variables in the model is low. The multicollinearity test through the VIF criterion shows no coefficient greater than 5, and the Mean VIF value of the Zscore variable is 1.44 less than 5; thus, multicollinearity does not occur in the research model.

**Table 2. Descriptive statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
Zscore	400	17.92	11.31	0.91	67.11
GEPU	400	5.044	.319	4.66	5.77
GDP	400	3.586	5.387	-54.23	25.12
INF	386	4.295	4.295	-4.9	84
CAR	345	16.996	3.8803	9.45	33.5
LDR	381	4.60	0.545	3.343	6.766
SIZE	378	88.78	55.69	0.33	283.91
NIM	399	3.817	2.332	.555	15.44
NII	400	32.302	10.273	11.555	71.47
CON	400	61.862	19.76	25.312	100

Source: Authors' calculations based on the data

**Regression Results**

The regression and reliability results of models (1) and (2) are presented in Table 3. AR(2) test always has a p-value greater than 0.05, showing that both cases do not occur second-order autocorrelation phenomenon. The p-value in Hansen's test of models is more significant than 0.1, showing that the instrumental variables used in the model are reasonable. Besides, the number of instrumental variables does not exceed the number of groups in the study. The above tests show that the regression results of models (1) and (2) ensure reliability.

Regression results in Table 3 show that GEPU affects banking system stability. The impact of the current year GEPU on Z index is -1.112 with 99% confidence, indicating that the impact of GEPU on Z score is economically and statistically meaningful. The absolute value of the regression coefficient of the current year GEPU has the most significant impact on the model, showing that the uncertain economic policy management of 21 major countries in the world is an unfavorable factor to the stability of the banks in the Asia region. The findings of Phan et al.

(2020), Nguyen (2021), and Shabir et al. (2021) reinforce this finding of our study. International integration and globalization deepen the linkages and cooperation in the financial sector, so GEPU leads to the confusion of other relevant management agencies in their decisions affecting the banking system's stability.

With model (2), the regression coefficient of the variable GEPU has a negative sign, showing that the impact of GEPU on the variable Z score is always consistent. The interaction variable between GEPU and GDP has a negative regression coefficient with a recorded value of -0.0229. Similarly, the regression coefficient of the interactive variable between GEPU and INF has a negative value of -0.235 but has a lower value than the regression coefficient of GEPU. Even so, both interacting variables were not statistically significant. Thus, in the study, there is no statistical evidence to show the influence of the macroeconomic environment in reducing the impact of GEPU on the Z-score of the Asian financial system.

**Table 3. Regression results of model (1) and model (2)**

Model	(1)	(2)	
	Z_score	Z_score	Z_score
Lag.1	0.940*** (0.0536)	0.939*** (0.0521)	0.926*** (0.0770)
CAR	0.609*** (0.195)	0.592*** (0.190)	0.688** (0.323)
LDR	2.634 (1.830)	2.717 (1.840)	2.728 (2.771)
SIZE	-0.0230 (0.0163)	-0.0196 (0.0177)	-0.0292 (0.0229)
NIM	-0.379 (0.500)	-0.278 (0.570)	-0.561 (0.696)
NII	0.136*** (0.0355)	0.125*** (0.0395)	0.189*** (0.0575)
CON	-0.00924 (0.0352)	-0.00995 (0.0351)	-0.0308 (0.0430)
GDP	0.148*** (0.0476)	0.282 (0.711)	0.125 (0.0841)
INF	-0.273*** (0.0953)	-0.292** (0.118)	1.021 (2.130)
<b>GEPU</b>	<b>-1.112***</b> <b>(0.584)</b>	<b>-1.057*</b> <b>(0.607)</b>	<b>-0.956*</b> <b>(1.325)</b>
GEPU#GDP		-0.0229 (0.126)	
GEPU#INF			-0.235 (0.423)
Constant	-16.03 (10.71)	-16.68 (11.23)	-17.96 (17.42)
Number of groups	31	31	31
Number of ins	24	24	24

AR1 (p-value)	0.0240	0.0258	0.0223
AR2 (p-value)	0.308	0.314	0.335
Hansen-J (p-value)	0.816	0.749	0.931
Notes: t-Statistics are between parentheses. *, **, *** Significant at 10%, 5% and 1% levels, respectively			

Source: Authors' calculations based on the data

The results of the extended model analysis (3) are shown in Table 4. The negative impact of GEPU on Z-index continues to be confirmed in model 3 when the regression coefficients of GEPU are all negative in all models where the variable is statistically significant. In particular, the equations to evaluate the interaction of GEPU with NII and CON have recognized the important economic influence of GEPU on the stability of the banking system with regression coefficients of -5,506, respectively, -23.61 at 10% significance level. This result again highlights the increasing instability of the banking system of Asian countries due to the inconsistent management of economic policies from other countries in the world.

Table 4. Regression results of model (3)

Equation	Zscore					
	(1)	(2)	(3)	(4)	(5)	(6)
Lag1	0.943*** (0.0543)	0.929*** (0.0896)	0.928*** (0.0641)	0.920*** (0.0631)	0.928*** (0.0452)	1.018*** (0.0817)
CAR	1.284 (2.740)	0.687** (0.280)	0.662** (0.256)	0.783** (0.295)	0.870*** (0.207)	0.951** (0.352)
LDR	2.925 (1.910)	37.61 (29.94)	2.999 (1.989)	3.440 (2.210)	3.654 (2.168)	4.460 (3.185)
SIZE	-0.0245 (0.0163)	-0.0197 (0.0271)	-0.128 (0.0985)	-0.0263 (0.0185)	-0.0287 (0.0318)	-0.0352 (0.0215)
NIM	-0.453 (0.592)	-0.114 (0.980)	-0.447 (0.549)	4.587 (4.676)	-0.408 (0.605)	-1.417 (0.895)
NII	0.136*** (0.0393)	0.150** (0.0618)	0.175*** (0.0442)	0.165*** (0.0438)	-0.486 (1.581)	0.184*** (0.0557)
CON	-0.00663 (0.0358)	-0.0139 (0.0690)	-0.0191 (0.0334)	-0.0172 (0.0359)	-0.0212 (0.0481)	-1.870* (1.094)
GDP	0.145*** (0.0514)	0.135* (0.0724)	0.154*** (0.0517)	0.133** (0.0632)	0.105 (0.0712)	0.128** (0.0620)
INF	-0.275** (0.102)	-0.212 (0.133)	-0.232* (0.117)	-0.207 (0.126)	-0.251*** (0.0800)	-0.213 (0.130)
GEPU	0.929 (8.511)	29.92 (25.01)	-3.366 (2.552)	1.910 (3.054)	-5.506* (9.490)	-23.61* (12.64)

GEPU #CAR	-0.127 (0.520)					
GEPU #LDR		-6.674 (5.502)				
GEPU #SIZE			0.0206 (0.0200)			
GEPU #NIM				-1.035 (0.963)		
GEPU #NII					0.132* (0.309)	
GEPU #CON						0.381* (0.223)
Constant	-27.99 (46.66)	-181.5 (138.5)	-7.574 (11.81)	-37.00 (24.64)	-2.658 (43.93)	81.96 (56.33)
Number of groups	31	31	31	31	31	31
Number of instruments	24	24	24	24	24	24
AR1 (p- value)	0.0243	0.0335	0.0227	0.0284	0.0257	0.0458
AR2 (p- value)	0.341	0.347	0.311	0.425	0.259	0.692
Hansen-J (p-value)	0.772	0.916	0.859	0.890	0.702	0.979
Notes: t-Statistics are between parentheses. *,**,*** Significant at 10%, 5% and 1% levels, respectively						

**Source:** Authors' calculations based on the data

Besides, the research results also show the vital role of bank income diversification in the uncertain international policy environment. In equation (5) – considering the combined effect between GEPU and NII, the regression coefficient of the interaction variable between GEPU and NII reaches 0.132 with a significance level of 10%, while the regression coefficient of GEPU is -5,506. The reversal of the impact sign of the conjoined variable shows the role of income diversification in strengthening the stability of the credit system in the current policy uncertainty environment. The influence of diversification on financial system stability is also found in the studies of Williams (2016), and Ozili (2018). In other words, the increase in non-interest income from services helps the bank to diversify its revenue sources and to be less dependent on potentially risky credit activities, thus, increasing its ability to endure in the policy uncertainty environment.

Another factor that needs to be considered to increase the stability of the banking system in the GEPU environment is the degree of centralization of the system. Look at the regression results of equation (6) of the model (3) containing the conjoined variable between GEPU and CON. The regression coefficient of this interactive variable is 0.381 with 90% confidence, showing that a highly concentrated banking system will contribute to increasing its stability, especially in the context of GEPU. This result supports the theory of "concentration-stability" with large banks with high capital and good risk tolerance, which will help the banks operate more stably. Beck et al. (2006) show that the higher the concentration in the banking system, the less crisis the banking system has. The more concentrated the banking system, the more stable it is supported by the empirical studies of Allen and Gale (2004) and Beck et al. (2006). The explanation for this phenomenon is that the high concentration in the banks helps create larger banks with higher equity to withstand shocks better. Meanwhile, low-concentration banks often increase their competitiveness, forcing them to accept higher survival risks.

Based on the above analysis, hypothesis 04 on the specific impact of the bank reducing the adverse impact of GEPU on the stability of the bank is accepted with the variables measuring the ability to diversify income and the level of income diversification and banking system's concentration. The above results have provided statistically significant evidence that banks have tools to minimize the harmful effects of GEPU, which is to increase the ratio of non-interest income and the concentration of the banking system. Thus, the Government and regulatory agencies need to create conditions for financial intermediaries to diversify their service offerings to increase revenue from fees and commissions. Not only that, the Government and management agencies also need to focus on developing vigorous banks in the system to help limit competition, strengthen operational capacity, and bring practical benefits in stabilizing the credit system. Large banks with market position, capital capacity and governance capacity create great "pillars" to help reinforce the stability of the credit system in front of high GEPU.

### **Conclusion**

One of the factors of uncertainty that many researchers are interested in comes from the economic policy uncertainty of governments. Modifying economic policies' orientations and objectives causes stakeholders risks in making capital use decisions. Using the data from 31 Asian countries from 2008-2020 and the systematic GMM regression method, the research results show that GEPU harms the stability of banking systems in Asia. The regression coefficients show this statement with statistical significance and economic significance in the original model and two extended equations. This result supports relevant economic theories as well as is consistent with empirical studies on the relationship between EPU and bank stability in the studies of Phan et al. (2020), Shabir et al. (2021) and Nguyen (2021). The uncertain orientation in economic policy creates asymmetric information, directing many outcomes for the decision-making process of banks and customers. The

research results provide empirical evidence for governments and management agencies in Asian countries to consider adding the GEPU indicator as a warning indicator of the unfavourable impacts of the global environment on the financial system's stability.

Although it is impossible to interfere in the management of economic policies of major countries, countries in Asia have "weapons" to minimize the negative impact of GEPU. The identified factors minimize, even reversing, the direction of the impact from adverse to positive of GEPU when combined with the ability to diversify income and concentration of the systems. Specifically, the higher the non-interest income ratio of a bank in the GEPU environment, the more favorable it will be on bank stability. It is explained based on the theory of "income diversification". Non-interest income mainly comes from exploiting facilities, employees and brands to generate revenue from fees and commissions. Therefore, this source of income is less affected by the economic policy management of the government and regulatory agencies, as is the income from interest in credit activities. Therefore, the banks in the system themselves need to focus on diversifying their product and service portfolio, especially the service group that generates non-interest income. In addition, the regulatory agency also needs to create an open mechanism so that banks can deploy new services, especially payment services, in the digital age to increase revenue. In addition, the research results support the theory of "concentration-stability". In other words, there are large banks in the credit system with a high market share, which will increase the ability of the credit system to withstand the irregularities of global economic policy. So developing some key banks to help limit competition and strengthen operational capacity brings practical benefits in stabilizing the credit system.

The study only focuses on clarifying the impact of GEPU on the stability of the credit system, with the control variables having yet to consider the impact thresholds of essential indicators, such as NII and CON, to consider the two-sided impact of factors in GEPU environment. In addition, the following research direction may expand the factors reflecting the national governance capacity because some studies show that this is a controlling factor that decreases the influence of EPU on the banking system. In addition, the study can extend the usage of GEPU for the banking crisis prediction models with the dependent variable receiving the value 0 - 1.

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## WPLYW NIEPEWNOŚCI GLOBALNEJ POLITYKI GOSPODARCZEJ NA STABILNOŚĆ BANKÓW

**Streszczenie:** Celem niniejszego artykułu jest określenie wpływu niepewności globalnej polityki gospodarczej na stabilność systemu bankowego w krajach azjatyckich. Zmienna zależna w badaniu jest mierzona za pomocą wskaźnika Zscore ryzyka płatniczego banku. Głównym czynnikiem objaśniającym jest niepewność globalnej polityki gospodarczej, a inne zmienne kontrolne obejmują charakterystykę systemu bankowego i krajowe środowisko gospodarcze. Dane dotyczące azjatyckich systemów bankowych pochodzą z Banku Światowego w latach 2008-2020. W oparciu o system uogólnionej metody momentów, główne wyniki wskazują, że niepewność globalnej polityki gospodarczej poważnie pogarsza niestabilność systemu bankowego krajów azjatyckich. Badanie pokazuje również, że zdolność do wykorzystania zmobilizowanego kapitału i stopień koncentracji systemu zmniejsza niekorzystny wpływ niepewności globalnej polityki gospodarczej na stabilność systemu bankowego w krajach azjatyckich.

**Słowa kluczowe:** niepewność, polityka gospodarcza, system bankowy, stabilność, Azja

## 全球经济政策不确定性对银行稳定性的影响

**摘要:** 本文旨在确定全球经济政策的不确定性对亚洲国家银行体系稳定性的影响。研究中的因变量是通过银行的支付风险 Zscore 来衡量的。主要解释因素是全球经济政策的不确定性，其他控制变量包括银行体系特征和国民经济环境。亚洲银行体系数据来自世界银行 2008-2020 年，基于系统广义矩法，主要结果表明全球经济政策的不确定性正在严重加剧亚洲国家银行体系的不稳定性。该研究还表明，动员资金的使用能力和系统的集中程度降低了全球经济政策不确定性对亚洲国家银行体系稳定性的不利影响。

**关键词:** 不确定性、经济政策、银行体系、稳定性、亚洲