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The Effect of Efficiency and Inflation Rate on the Financial Stability of Banks in Asean-5 Countries

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Abstract

This study was conducted to examine and analyse the effect of efficiency and inflation rate on banking financial stability in ASEAN-5 countries from 2013 to 2023. The population in this study is all commercial banks in ASEAN-5 countries totalling 169. The sampling method used purposive sampling and obtained 133 banks that met the criteria so that they became samples in this study. The results of the panel data regression analysis in this study indicate that efficiency, as measured by the BOPO ratio, shows positive and significant results on banking financial stability as measured by z-score. However, efficiency measured by the BOPO ratio shows negative and significant results on stability measured by NPL. Inflation has a negative and significant effect on banking financial stability measured by z-score. Inflation has a negative and statistically insignificant effect on banking financial stability as measured by NPL.

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1 Introduction

The smooth and effective flow of the savings-investment process through the financial intermediation function is crucial for a country's economic growth and development (Syed, 2024; Pondaag et al., 2022; Hughes et al., 2022). Economic growth is ensured by financial stability through appropriate government and private sector investments in real assets. Through self-healing mechanisms, a stable financial system can minimise financial risks, distribute resources effectively, and absorb shocks (World Bank, 2020).

The financial crisis that occurred in ASIA in 1997-1998 resulted in banks in many ASEAN-5 countries; Indonesia, Malaysia, Philippines, Thailand and Singapore experiencing bankruptcy (Noman et al., 2021; Taskinsoy, 2020). Countries in the ASEAN-5 region also felt the domino effect contagion that could lead to systemic risk from this event (Van Anh, 2022; Le, 2020). Compared to other ASEAN countries such as Malaysia, the Philippines, Vietnam and Thailand, data until the end of 2021 shows that Indonesia has the highest interest rate on bank loans (Ekananda, 2023). Based on data from Kadin Indonesia, the average interest rate on bank loans in Indonesia is 10.4%. much greater than Thailand 4.1%, Malaysia 4.9%, Philippines 7.1%, Vietnam 7.7%, and Malaysia 4.9%.

In line with international phenomena, financial stability needs attention in connection with the increasingly intense competition and efficiency of ASEAN banking, along with the growth of the ASEAN banking sector which is experiencing an increase in new entrants and supporting spectacular economic growth in line with global phenomena (Shabir et al., 2023).

In maintaining their stability, banks experience various threats (Das Gupta et al., 2021; Fatmawati & Aji, 2018; Shabir et al., 2023; Shair et al., 2021; Rehman et al., 2022). Efficiency and inflation rate are among the various determinants in influencing bank stability (Ahi & Laidroo, 2019; Kozak & Wierzbowska, 2021; Xia et al., 2019). The efficiency aspect of the banking industry is important as it represents a strong, transparent, professional, and stable banking system (Elsa et al., 2018; Muhri et al., 2023).

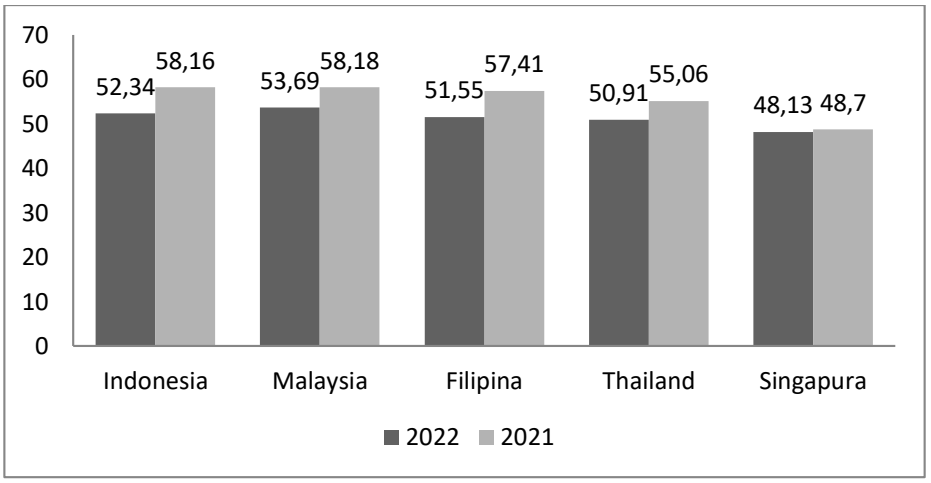

Figure 1. ASEAN-5 Bank BOPO Ratio Data

Figure 1 BOPO ratio data in ASEAN-5 banks is an indicator to measure the level of banking efficiency. If we look at the percentage comparison of the BOPO ratio in 2021 and 2022, each country has decreased. Especially the Philippines which experienced a significant decrease compared to other countries up to 5.86% compared to the previous year, Indonesia followed with a decrease of 4.82% from 2021, Singapore in 2022 decreased to 4.49% but Thailand and Singapore experienced the lowest decrease in BOPO ratio with only 4.15% and 0.57% respectively. Banks in Singapore have low-cost inefficiency compared to other countries in the ASEAN region. One of the triggers of inefficiency is loan interest (Van Anh, 2022; Nguyen, 2018).

Furthermore, this study takes into account macroeconomic factors such as inflation. An increase in the amount of money in circulation is called inflation and is believed to cause price increases (Hasnani, 2021). The Asian financial crisis in 1997-1998 and the global financial crisis in 2008 created many complex problems that ultimately resulted in

inflation (Kozak & Wierzbowska, 2021; Mirzaei et al., 2024; Tien, 2022). Due to the sharp fall in the value of the rupiah, the banking system became increasingly precarious during the economic crisis. As a result, the capital of banking institutions continues to be depleted, causing some banks to lose liquidity (Hasnani, 2021).

Table 1
Inflation Rates in ASEAN-5

Year	Indonesia	Malaysia	Thailand	Singapore	Philippines
2022	4.2%	3.4%	6.1%	6.1%	5.8%
2021	1.6%	2.5%	1.2%	2.3%	3.9%
2020	2%	(-1.1%)	(-0.8%)	(-0.2%)	2.4%
2019	2.8%	0.7%	0.7%	0.6%	2.4%
2018	3.3%	1%	1.1%	0.4%	5.3%

Source: *International Monetary Fund* (IMF)

Based on Table 1, the inflation rate in each country fluctuates. However, it tends to increase every year. Especially the inflation rate in Thailand experienced a significant increase when compared to the previous year of 1.2% in 2021 while in 2022 it rose to 6.1%. Followed by Singapore with 6.1% in 2022 and 2.3% in 2021. Philippines with 5.8% in 2022 and 3.9% in 2021. In 2021 the inflation rate in Malaysia was 2.5% and rose to 3.4% in 2022. Similarly, Indonesia experienced an increase to 4.2% in 2022 and 1.6% when compared to 2021.

The literature on bank efficiency and inflation rate on bank stability is still debated by Islam et al. (2020); Amanda (2023); Risfandy et al. (2022); Chinoda & Kapingura (2023). According to research by Boubaker et al. (2022) and Lee et al. (2021), the level of efficiency of a company will have a positive impact on its level of stability. Fukuyama & Tan (2024), stated that this is in line with these findings which show that the level of banking stability of a company will be significantly influenced by its level of efficiency. However, in contrast to the results of research by Tan et al. (2021) and Zhao et al. (2022), which states that the efficiency of banking companies does not significantly affect the stability of the company, this statement is also supported by research conducted by Alsharif (2020) and Antunes et al. (2022), that the level of efficiency of a bank has an impact on the stability of the banking company as a whole, but not significant.

Furthermore, for the inflation rate based on research conducted by Yensu et al. (2021), say that inflation has a significant positive effect on banking stability in line with research conducted by Zhu et al. (2021), which suggests that the factor of high and low inflation rates of a country has a positive effect on the stability of banking companies but on the other hand, according to research conducted by Ali & Iness (2020), states that the inflation rate of a country does not have a significant effect on the stability of bank companies.

Based on the previous research literature related to the effect of efficiency and inflation rates on bank stability, there are still different conclusions, so this study will continue and retest the effect of efficiency and inflation rates on bank stability with the object of research, namely commercial banking in ASEAN-5 countries (Halim et al., 2022). So this research was compiled with the title "The Effect of Efficiency and Inflation Rate on Banking Financial Stability in ASEAN-5 Countries".

2 Materials and Methods

The population in this study were all commercial banking companies in ASEAN-5 countries from 2013 to 2023, totalling 169 banks. Sample withdrawal was carried out by purposive sampling method so that a sample of 133 banking companies that met the predetermined criteria was obtained. This research uses a quantitative approach with the type of secondary data derived from the Focus Bank and International Monetary Fund (IMF) websites. The data analysis technique in this study uses panel data regression which is processed using STATA-17 software.

3 Results and Discussions

Panel data regression

Table 2
Regression Estimation of Bank Stability (Z-SCORE)

Dependent Variables = Z-SCORE	
	Fixed Effect Model
Independent Variables	
BOPO	0,0003**
	(0,000)
INF	-0,0565***
	(0,0141)
	3,010***
Constant	
	(0,901)
Number of Obs	1,275
Number of Banks	133
R-*square*	0,066

Based on table 2 after testing, the R-square (R2) value in the FEM regression model is 0.066 which shows that the variance of each regression model can be explained by the variables in the study by 6.6% while the remaining 93.4% is influenced by other variables not examined in this study. The hypothesis of this study states that the effect of efficiency measured using the BOPO ratio has a positive effect on bank stability as measured by z-score. After testing, the BOPO value is 0.0003 which means <0.05 with a significant at the 0.05 level, which means that the smaller the BOPO, the more efficient the bank is in carrying out its business activities (Husaeri & Utami 2022). Inflation has a negative and significant effect on bank stability as measured by z-score of -0.0565*** against z-score with 1% significance.

Table 3
Regression Estimation of Bank Stability (NPL)

Dependent Variable = NPL			
	OLS	FEM	REM
	(1)	(2)	(3)
Independent Variable			
BOPO	0,000***	-0,000***	-0,000***
	(0,001)	(0,000)	(0,000)
INF	-0,012	-0,273	-0.214
	(0,227)	(0,273)	(0,265)
Constant	10,762***	-3,342	8,608***
	(1,586)	(9,470)	(2,473)
Number of Obs	1,060	1,060	1,060
Number of Banks	133	133	133
R-*square*	0,026	0,022	0,025

Based on the Hausman test, the appropriate panel data estimation model to use in the panel data regression in table 3 is the random effect model. The results of the Hausman test of both models between the random effect model and the fixed effect model show that the random crosssection (Chi-Sq. d.f.) has a p>a value (0.0988> 0.05), so the Hausman test results choose the random effect model rather than the fixed effect model.

Based on the test, it can be seen that the effect of efficiency measured using BOPO has a negative and significant effect on bank stability with a value of -0.000*** with a significance value of 1%. Furthermore, inflation shows a negative result. However, it is statistically insignificant which means that inflation has no effect on bank stability as measured by NPL.

Effect of efficiency on bank stability

This research hypothesis argues that the effect of efficiency as measured using BOPO has a positive effect on bank stability as measured by z-score. This result is in line with the results of research from Luo et al. (2024); Astuti & Saputra (2019); Lee et al. (2023); and Mirzaei et al. (2024), which showed that efficiency has a positive effect on bank stability. However, based on the results of the regression, the effect of efficiency as measured using BOPO has a negative and significant effect on bank stability as measured by non-performing loans (NPL). These results are in line with research conducted by Astuti & Saputra (2019); and Mustika et al. (2023), which say efficiency has a negative effect on banking financial stability.

The effect of inflation on bank stability

This research hypothesis states that the effect of the inflation rate as measured by Inflation in each ASEAN-5 country has a negative and significant effect on bank stability as measured by z-score. with a significance of 0.000 <0.01 means that every one-unit increase will negatively affect bank stability by -56% while the rest is influenced by other variables not examined in this study such as gross domestic product. The results of this study are in line with research conducted by Shabir et al. (2023) and Paltrinieri et al. (2021), which state that inflation has a negative effect on stability.

Furthermore, inflation shows negative results. However, it is statistically insignificant in its effect on bank stability as measured by the non-performing loan (NPL) regression model. After testing, the coefficient value is -0.21, meaning that every one-unit increase in efficiency will negatively affect bank stability by -21%. the results of this study are in line with research by Adem (2023) and Astuti & Saputra, (2019), which say that inflation has no effect on banking financial stability.

4 Conclusion

The results of this study indicate that efficiency as measured by the BOPO ratio shows positive and significant results on banking financial stability as measured by z-score. However, efficiency measured by the BOPO ratio shows negative and significant results on stability measured by NPL. Inflation has a negative and significant effect on banking financial stability measured by z-score. Inflation has a negative and statistically insignificant effect on banking financial stability as measured by NPL.

Conflict of interest statement
The authors declared that they have no competing interests.

Statement of authorship
The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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