

# Comparative Analysis of Banking Concentration in Indonesia and Malaysia: Market Structure, Stability, and Policy Implication

Comparative Analysis  
of Banking  
Concentration

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Pandu Adi Cakranegara<sup>1\*</sup>, Purwanto<sup>2</sup>

<sup>1</sup>Department of Management, Faculty of Economics and Business, Universitas Ciputra;  
Jakarta, Indonesia

<sup>2</sup>Department of Management, Faculty of Business, Universitas Presiden; Bekasi, Indonesia

\*Corresponding Author E-Mail: pandu.cakranegara@ciputra.ac.id

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## ABSTRACT

Banking industry concentration is a crucial issue because it affects financial system stability, banking risk, and bank performance. Differences in concentration levels between Indonesia and Malaysia reflect distinct market structures, making comparative analysis necessary. This study aims to compare banking concentration in Indonesia and Malaysia and examine its impact on banking risk and performance. A quantitative descriptive method is employed, using concentration indicators such as the concentration ratio and the Herfindahl-Hirschman Index. The results show that banking concentration in both countries contributes to industry stability, but determinants of credit risk differ: in Malaysia, credit risk is mainly driven by economic growth and interest rate changes, while in Indonesia, concentration still significantly affects credit risk. The findings also support the structure-conduct-performance hypothesis, indicating that oligopolistic markets encourage banks to invest in safe assets and adjust lending rates to improve performance. Banking concentration benefits the banking sector and offers policy implications for maintaining financial stability and healthy competition.

**Keywords:** Banking Concentration, Banking Risk, Bank Performance, Financial Stability.

## INTRODUCTION

Increasing globalization and economic complexity have strengthened the role of banks as financial intermediaries, where banking activities are no longer limited to asset allocation. The modern economy has become more integrated and complex due to the rapid development of financial technology. However, this development has also created a digital divide, leaving individuals without access to technology behind in terms of modern financial services (Vuong, 2025). ASEAN countries, particularly ASEAN-6, exhibit different levels of technology adoption. These differences are influenced by geographical conditions, income levels, and national development priorities. Singapore, as a high-income country with a strong focus on technology, can adopt digitalization more rapidly than Indonesia, which has a vast geographical area, consists of many islands, and has a lower-income population with an economic focus on raw materials (Yuli & Rofik, 2023). Malaysia, as a middle-income country with a manufacturing-based economy, shows a level of technological adoption comparable to Vietnam, which is experiencing rapid technological growth (Vu et al., 2022).

The adoption of digital banking technologies, such as internet banking and financial applications, has also revealed differences in customer acceptance. Even in developed countries such as the United States, financial technology adoption is largely concentrated in urban and metropolitan areas (Minaryanti & Mihajat, 2024). Banks that successfully adopt technology can reduce intermediation costs and offer lower lending rates, particularly to small and medium-sized enterprises. As a result, these banks tend to gain

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larger market shares, while banks with limited resources fall behind in technology investment. This process leads to a cycle in which large banks become larger and smaller banks lose competitiveness, increasing market concentration (Rozaki et al., 2023; Herwald et al., 2024).

Barra and Ruggiero (2020) classified banks in Indonesia and Malaysia based on efficiency and technology utilization into four quadrants. Their findings show that most banks in both countries are concentrated in the high-efficiency and low-technology quadrant, while only a limited number of Indonesian banks have reached the high-technology and high-efficiency quadrant. Banks that are able to effectively adopt technology tend to control a larger market share, whereas banks that fail to adapt lose market share, thereby reinforcing banking concentration. Banking concentration has become a major concern for regulators due to its implications for competition and financial stability. Two main perspectives explain this relationship (Abdesslem et al., 2023). The first is the quiet life hypothesis, which argues that high banking concentration allows banks to manage large funds and invest in safer assets, thereby promoting stability. The second perspective, known as the concentration fragility hypothesis, suggests that excessive concentration reduces competition, creates diseconomies of scale, and ultimately increases financial instability.

Compared to other Southeast Asian countries, Indonesia and Malaysia share relatively similar banking characteristics, particularly through the implementation of a legally established dual banking system consisting of conventional and Islamic banking. Both countries are also pursuing international banking because of industry maturity, while adhering to international banking standards (Muryanto, 2023). Differences remain in regulatory structures, as Malaysia manages conventional and Islamic banking through separate chambers within Bank Negara Malaysia, while Indonesia regulates both systems within a single chamber at Bank Indonesia (Srivastava et al., 2023). In terms of asset structure, Islamic banking accounts for more than 30% of total banking assets in Malaysia, whereas in Indonesia, it accounts for only around 6%, despite Indonesia being a Muslim-majority country (Okowa & Vincent, 2022). The roles of regulators such as Bank Indonesia, the Financial Services Authority (*Otoritas Jasa Keuangan*/OJK), and Bank Negara Malaysia are therefore crucial in shaping banking structure and concentration dynamics (Murad et al., 2025; Suhartini, 2025; Wardhono et al., 2025).

Despite extensive research on banking concentration, few studies provide a comparative perspective between Southeast Asian countries, particularly examining how concentration differently affects credit risk and performance in Indonesia and Malaysia. This research addresses this gap by providing empirical evidence on the distinct determinants of credit risk and the role of banking concentration in supporting financial stability, offering insights for both academics and policymakers. This study aims to analyze and compare the market structure and banking concentration in Indonesia and Malaysia, identify the main drivers behind concentration dynamics in both markets, and evaluate the relationship between banking concentration and indicators of stability and performance.

## LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

### Theoretical Foundations of Banking Concentration, Competition, and Efficiency

Bank performance is shaped by internal capabilities and external market conditions, with market structure as a key external determinant. Market structure depends on both the number of banks and the distribution of market shares, which is captured by the Concentration Ratio (CR4), measuring the combined share of the four largest banks. CR4 is suitable for markets with few dominant players but remains limited by its static focus that overlooks broader competitive dynamics (Kullab et al., 2025). From a competitive perspective, advantage arises from effective internal resource use and strategic responses to external conditions, where market structure, competition intensity, and regulation influence banks' short-term behavior, including competition or coordination to maximize profitability (Nicolò et al., 2024; Mateev & Sahyouni, 2025).

High market concentration benefits incumbent banks by strengthening pricing power and profit margins, a condition explained by the quiet life hypothesis, where dominant banks face weaker incentives to improve efficiency due to stable returns (Coccoresse & Misra, 2022; Sitorus & Rachmawati, 2024). In developing economies with liberalized financial systems, concentration often rises as a few large banks control most assets. Consistent with the Structure–Conduct–Performance (SCP) hypothesis, this structure may reduce credit expansion, shift lending toward low-risk borrowers, suppress deposit rates, raise lending rates, and widen interest spreads, potentially constraining economic activity (Coccoresse & Misra, 2022; Kaabachi et al., 2024). To overcome CR4 limitations, the Herfindahl–Hirschman Index (HHI) is widely applied because it accounts for the market shares of all banks. Similar CR4 values can mask different competitive conditions depending on the distribution of market power beyond the largest banks. HHI classifies markets as non-concentrated (<1,500), moderately concentrated (1,500–2,500), or highly concentrated (>2,500) and is particularly useful for evaluating the competitive effects of mergers and acquisitions (Solarin, 2025; Pandey et al., 2023). From an efficiency standpoint, larger banks may achieve economies of scale through cost efficiency and diversification, but excessive size can generate diseconomies of scale due to increased complexity and coordination costs, implying that optimal performance depends on balancing scale, efficiency, and risk management (Nasution, 2023; Rahmayati & Badawi, 2024; Mala & Jumono, 2025; Kullab et al., 2025; Vokoun et al., 2025).

### **The Effect of Bank Concentration on Banking Risk**

The opposing view, the concentration-fragility hypothesis, argues that high concentration increases systemic risk under too-big-to-fail conditions and creates anti-competitive environments that weaken economic stability. Fragility becomes more apparent during crises when banking systems with weak competition are more vulnerable. Talpur (2023) notes that competition plays a stronger role in economic stability; therefore, high concentration may not destabilize the economy if healthy competition persists. Fragility can also result from heavy reliance on third-party funding, leading to high banking leverage. Moreover, the interaction of high concentration and external shocks, such as natural disasters, can increase fragility in developing countries. Indonesia exemplifies this situation, as banks lend to sectors such as agriculture and businesses affected by natural disasters due to its location in the ring of fire (Ivanov et al., 2022; Duqi, 2023).

Several recent studies provide empirical support for the concentration–fragility perspective, which posits that higher banking concentration increases systemic risk. Ponziani and Theola (2025) find that market concentration significantly influences bank risk-taking behavior, where governance characteristics such as audit committee expertise and board structure interact with concentration levels to impact risk outcomes. Moreover, Kristanti et al. (2020) demonstrate a positive relationship between banking market concentration and financial distress in the Indonesian banking system, indicating that a more concentrated market structure can elevate the probability of bank instability. These findings underline that market concentration does not always lead to greater stability, providing justification for H1.

H1: Bank concentration has a positive effect on banking risk.

### **The Effect of Banking Concentration on Banking Performance**

There are two contrasting views on how banking concentration relates to financial stability. The first, known as the concentration stability hypothesis, argues that a high level of concentration promotes stability. From this perspective, large banks in a concentrated market tend to avoid risky assets. Studies by Jabbouri et al. (2023) and Bhat et al. (2024), using the concentration ratio, find that when a few major banks dominate the market, they do not need to offer very high interest rates and instead set loan rates based on borrower risk. This enables these banks to earn solid profits without taking

excessive risks. Those profits act as a buffer during economic cycles, and reduced risk-taking contributes to stronger economic stability. However, this can also lead to the quiet life hypothesis, where bank management becomes less motivated to optimize fund management due to reduced competitive pressure. While high concentration may signal stability within the banking sector, it does not always guarantee stability for the broader economy. In addition, a higher concentration can allow regulators to supervise fewer banks more effectively (Agostino et al., 2024; Shang et al., 2024).

Recent empirical evidence also supports the notion that banking concentration can be positively associated with performance. Ramadhan (2024) finds that increased market concentration resulting from bank mergers is linked with price dynamics and profitability in the Indonesian banking sector, suggesting that concentrated structures can yield economies of scale and competitive pricing advantages. In a similar vein, Bhat et al. (2025) provide evidence from the Indian banking industry that concentrated markets tend to generate sustained profitability in the short term, particularly through interest rate spreads that reflect pricing power advantages. Together, these findings provide empirical grounding for H2, indicating that concentration may enhance bank performance under certain conditions.

H2: Bank Concentration has a positive effect on banking performance in Indonesia and Malaysia.

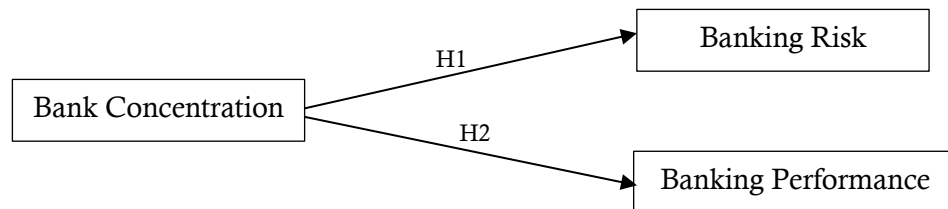


Figure 1. Research Framework

Figure 1 shows that banking concentration is assumed to influence two factors: banking risk and banking performance. The first hypothesis (H1) states that concentration influences bank risk, while the second hypothesis (H2) states that concentration also influences bank performance. In short, this model explains the direct relationship between the level of concentration in the banking market and the level of risk and performance achieved by banks.

## RESEARCH METHODS

This study employs a quantitative descriptive approach combined with a comparative approach. The objective of this approach is first to identify the characteristics of each banking industry, specifically Indonesian and Malaysian banks, using quantitative indicators. These indicators include measures of market concentration, market share, and financial stability. The quantitative approach relies on statistics, both descriptive and inferential. Descriptive statistics are applied to explain the banking conditions in Indonesia and Malaysia, providing a clear snapshot of concentration levels, market shares, and risk and performance indicators. Inferential statistics, specifically through multiple regression analysis, are then used to assess the effect of banking concentration on risk and performance in both countries. Based on the inferential analysis, further examination identifies similarities and differences in banking concentration and its impact on financial stability in Indonesia and Malaysia.

The sources of data for this study are secondary, primarily obtained from banking regulators. For Indonesia, the OJK and Bank Indonesia serve as data sources, while for Malaysia, Bank Negara Malaysia (BNM) provides regulatory data. Additional secondary data are drawn from the financial reports of commercial and Islamic banks in both countries. The research period covers the last five years, from 2020 to 2025, and relies on monthly data. Non-Performing Loans (NPL) and Return on Assets (ROA) data are

collected on a monthly basis from regulator publications, while HHI data, originally annual, are estimated as monthly trends to reflect concentration dynamics accurately.

Data analysis is conducted in three stages. The first stage uses descriptive statistics to determine the level of concentration in the banking industries of Indonesia and Malaysia. Concentration is measured using two primary tools: CR4, which captures the asset concentration of the four largest banks in each country, and the Herfindahl-Hirschman Index (HHI), which provides a more comprehensive measure of concentration and relative market share control. Trend analysis is also conducted to observe whether banking concentration is increasing or decreasing, indicating whether markets are becoming more competitive or less concentrated.

The second stage addresses the research hypothesis regarding whether banking concentration promotes stability or fragility in the banking sector. Risk is represented by NPL, and performance is represented by ROA. Multiple regression analysis examines the impact of HHI on NPL to assess risk and on ROA to evaluate performance, comparing the effects in Indonesia and Malaysia. The third stage involves a comparative analysis between Indonesia and Malaysia, assessing how banking concentration in each country influences financial stability. This approach allows for a clear understanding of both cross-country similarities and differences in market concentration, risk, and performance, providing empirical evidence to inform regulatory and strategic decision-making in the banking sector. This study uses panel data regression in EViews to analyze the relationship between banking concentration, risk, and performance in Indonesia and Malaysia from 2020 to 2025. Classical assumption tests normality, heteroscedasticity, and multicollinearity were applied to ensure the robustness of the estimates.

## RESULTS

### Banking Industry Structure and Concentration Trends in Indonesia and Malaysia

The banking industries in Indonesia and Malaysia can generally be divided into several aspects, including the number of banks, total assets managed, market structure, bank classification system, and the role of the government as both a regulator and investor in the banking industry. Based on Table 1, the banking industries in Indonesia and Malaysia show significant differences. Indonesia has 104 commercial banks, resulting in a relatively fragmented market, although four large banks dominate, while Malaysia has only 26 commercial banks with fewer than 10 large banking groups, reflecting a highly concentrated and oligopolistic structure.

Total industry assets in Indonesia amount to IDR 12,500 trillion (752 billion USD), whereas Malaysia's total assets are RM 3.8 trillion (903 billion USD), indicating a more efficient scale per bank in Malaysia. The bank classification systems also differ: Indonesia classifies banks based on core capital (KBMI 1–4), while Malaysia classifies based on function and license. Government ownership in Indonesia is direct through the Ministry of State-Owned Enterprises, giving banks social and developmental roles, whereas in Malaysia, it is indirect via GLIC, making the government a professional shareholder that encourages profit-oriented and efficient operations. These differences influence market structure, bank strategies, concentration, risk, and financial stability in each country.

**Table 1.** Comparison of the Banking Industries in Indonesia and Malaysia

Comparison Aspect	Indonesia	Malaysia
Number of Banks	104 Commercial Banks (Fragmented Market)	26 Commercial Banks (Consolidated Market)
Total Industry Assets	IDR 12,500 trillion (752 billion USD)	RM 3.8 trillion (903 billion USD)
Market Structure	Although four large banks dominate the market, the Indonesian banking industry is generally competitive, with many players of various sizes.	Highly concentrated, Malaysia has fewer than 10 large domestic banking groups that dominate the Malaysian banking industry.
Bank Classification System	Based on Core Capital (KBMI 1 to KBMI 4), which determines the scope of business activities.	Based on Function & License (Commercial Bank, Islamic Bank, Investment Bank) from Bank Negara Malaysia.

Comparison Aspect	Indonesia	Malaysia
State Ownership Model	Direct Ownership by the Government through the Ministry of State-Owned Enterprises.	Indirect Ownership through Government-Linked Investment Companies (GLIC).
Key Government-Related Entities	Himbara Banks: - Bank Mandiri - BRI - BNI - BTN	GLIC (as major shareholders): - Khazanah Nasional - EPF (KWSP) - Permodalan Nasional Berhad (PNB)
Role of These Entities	Most large banks in Indonesia are government-owned banks that have social responsibilities in addition to their responsibility to generate profits. The social role of government banks is as "Development Agents". They actively implement government programs (KUR, infrastructure financing, social assistance).	The Malaysian government acts as a professional institutional shareholder. It encourages profit-oriented and efficient bank operations while ensuring alignment with the national economic agenda.
Main Focus of Government-Related Entities	Maintaining a balance between commercial objectives (profit-seeking) and the government's social-economic development mandate.	Highly commercially oriented with long-term strategic influence for national interests, not daily operational intervention.

Table 2 shows that the concentration of the four largest banks in Indonesia has been in the 56% range from 2020 to 2025 and will rise to around 58%. This concentration ratio is calculated using the percentage of the four banks' assets compared to the total banking assets in Indonesia. The four largest banks in Indonesia are three government-owned banks, namely Bank Mandiri, Bank Rakyat Indonesia, Bank Negara Indonesia, and one private bank, namely Bank Central Asia.

**Table 2.** Details of the Market Share of the Four Largest Banks in Indonesia (2020-2025)

Year	Mandiri Market Share	BRI Market Share	BCA Market Share	BNI Market Share	Total CR4
2020	16.5%	16.0%	11.4%	11.3%	55.2%
2021	17.5%	16.2%	11.5%	10.9%	56.1%
2022	18.0%	16.3%	11.6%	10.6%	56.5%
2023	19.3%	16.3%	11.8%	9.7%	57.1%
2024	20.0%	16.4%	12.0%	9.3%	57.7%
2025	20.2%	16.5%	12.1%	9.2%	58.0%

Based on Table 3, the HHI concentration in Indonesia is around 900, which means it is below 1500 or not concentrated. This figure shows that banking in Indonesia tends to be unconcentrated. There are around 104 banks in Indonesia, which keeps the HHI score of the banking industry in Indonesia low.

**Table 3.** HHI Calculation for Banks in Indonesia in 2024

Bank Name	Market Share (s)	HHI Components (s) <sup>2</sup>
Bank Mandiri	20.0	400
Bank Rakyat Indonesia (BRI)	16.4	269.0
Bank Central Asia (BCA)	12.0	144.0
Bank Negara Indonesia (BNI)	9.3	86.5
Subtotal (Top 4 Banks)	57.7	899.5
Other Banks (estimate)	42.3	90
TOTAL ESTIMATE	100	989

**Table 4.** Market Share Details of the 4 Largest Banks in Malaysia (2020-2025)

Year	Maybank Market Share	CIMB Market Share	Public Bank Market Share	RHB Bank Market Share	Total CR4
2020	27.0%	19.0%	13.5%	9.0%	68.5%
2021	27.2%	19.1%	13.6%	9.0%	68.9%
2022	27.5%	19.3%	13.6%	9.0%	69.4%
2023	27.8%	19.5%	13.7%	8.8%	69.8%
2024	28.1%	19.6%	13.7%	8.9%	70.3%
2025	28.2%	19.7%	13.8%	8.8%	70.5%

Table 4 shows the CR4 value by showing the market share contribution (based on total assets) of each of the largest banking groups in Malaysia: Maybank, CIMB Group, Public Bank Berhad, and RHB Bank.

**Table 5.** Comparison of Banking Market Concentration: Indonesia vs. Malaysia (2020-2025)

Year	CR4 Indonesia	HHI Indonesia (Estimate)	CR4 Malaysia	HHI Malaysia (Estimate)
2020	55.2%	910	68.5%	1.300
2021	56.1%	935	68.9%	1.325
2022	56.5%	950	69.4%	1.345
2023	57.1%	971	69.8%	1.380
2024	57.7%	989	70.3%	1.441
2025	58.0%	1,005	70.5%	1.475

Table 5 compares banking concentration in Indonesia and Malaysia using the CR4 and HHI indicators. It discusses which country has a higher concentration level and the possible causes (e.g., history of mergers and acquisitions, government policy). These figures are estimates based on data released by the respective regulators. Regardless of the figures, this level of concentration can occur due to various factors, including liberalization, banking deregulation, banking tightening, mergers, and acquisitions. One example is that in 1998, the Indonesian government closed four state-owned banks and created a new bank, Bank Mandiri, which is currently a privately owned bank with state ownership and the largest assets in Indonesia.

Based on the comparison table, several key conclusions can be drawn regarding banking concentration in Indonesia and Malaysia. From 2020 to 2025, Malaysia's banking concentration was consistently higher than Indonesia's, with a stable CR4 of 70%, while Indonesia's CR4 fluctuated between 55% and 58%. These figures are supported by HHI data, with Indonesia's HHI around 1,000, considered unconcentrated, and Malaysia's HHI around 1,500, classified as moderately concentrated. In terms of market categories, Indonesia's banking market, with an HHI below 1,500, falls into the "Unconcentrated" category, indicating relatively healthy competition with many players. Meanwhile, Malaysia's market, though still below 1,500, consistently approaches the threshold for "Moderately Concentrated," reflecting a tightly oligopolistic market structure. Both countries show a gradual upward trend in banking concentration, suggesting a more consolidated industry. However, in Indonesia, the large number of banks means that achieving a higher level of consolidation requires additional effort to strengthen market concentration.

### **Relationship Between Concentration and Banking Risk in Indonesia and Malaysia**

Banking concentration is a key structural factor that influences risk-taking behavior in the banking sector, particularly in Indonesia and Malaysia, where market dominance by large banks is pronounced. To ensure accurate estimation of the relationship between concentration and banking risk, the regression model must satisfy classical assumption requirements. Accordingly, this section presents the results of the normality, heteroscedasticity, and multicollinearity tests as a preliminary assessment before further analysis of the concentration–risk relationship.

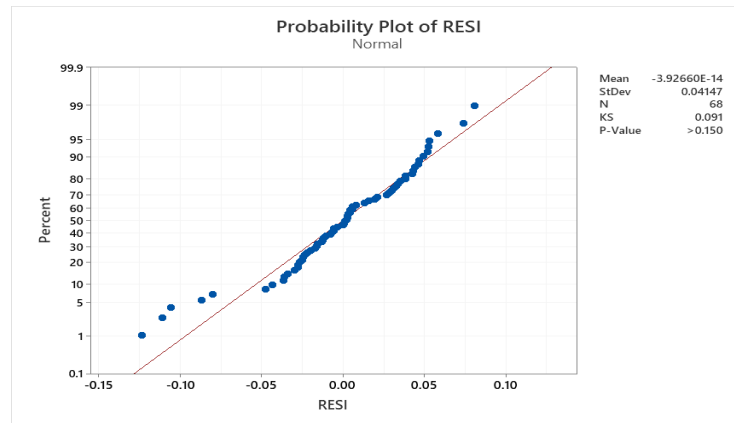


Figure 2. Normality Results Test

Figure 2 shows that the normal distribution will form a straight diagonal line. If the residual data distribution is normal, then the line describing the residual data will follow the diagonal line. Normal data will produce a few extremely low and extremely high values and will mostly cluster in the middle. If the image forms a straight diagonal line and the points are scattered around the diagonal line and follow the direction of the diagonal line, then it can be said that the residuals are normally distributed.

The heteroscedasticity test results indicate that all independent variables, HHI (0.841), NPL (0.652), and GDP Growth (0.545), have p-values greater than 0.05, implying that none of these variables significantly affect the variance of the residuals; therefore, the regression model does not exhibit heteroscedasticity and the residual variance can be considered constant across observations. Consistent with Ghazali (2016), although cross-sectional data are often susceptible to heteroscedasticity, the test confirms that this issue is not present, ensuring that the regression estimates are reliable and unbiased. Furthermore, the multicollinearity test, assessed through tolerance and Variance Inflation Factor (VIF) values, shows that the VIF values for HHI (6.71), NPL (5.35), and GDP Growth (1.71) are all below the critical threshold of 10, indicating the absence of serious multicollinearity among the independent variables. This suggests that each explanatory variable contributes unique information to the model without strong linear dependence on the others, resulting in reliable coefficient estimates, non-inflated standard errors, and valid statistical inference.

$$NPL_t = \beta_0 + \beta_1 HHI_t + \beta_2 GDP\ Growth_t + \beta_3 Log(Assets)_t + \beta_4 BI\ Interest\ Rate_t + \varepsilon$$

The regression results show that the model used has an R-squared ( $R^2$ ) value of 0.965 or 96.5%, indicating that 96.5% of the variation in the dependent variable can be explained by the independent variables included in the model. This analysis was conducted based on 68 observations, so this model can be considered quite representative of the available data.

Table 6. Hypothesis Testing

Variable	Coefficient ( $\beta$ )	P-value	Significance
Intercept ( $\beta_0$ )	10.50	0.045	Significant
HHI	-0.015	0.008	Highly Significant
GDP growth	-0.080	< 0.001	Highly Significant
Log(Assets)	+0.250	0.550	Not Significant
BI Interest Rate	+0.075	0.015	Significant

Based on Table 6, the negative and highly significant HHI coefficient ( $-0.015$ ) indicates that greater market concentration significantly reduces credit risk, supporting the Concentration–Stability hypothesis even after controlling for macroeconomic factors. GDP growth also has a negative and highly significant effect on NPL, reflecting improved repayment capacity during economic expansion, while the Bank Indonesia benchmark

interest rate shows a positive and significant effect, suggesting higher borrowing costs increase credit risk. In contrast, bank size (log assets) does not significantly affect NPL. Although credit risk in 2020–2025 is strongly influenced by macroeconomic conditions, market structure independently and significantly contributes to banking stability, as evidenced by the persistent negative relationship between HHI and NPL.

To extend the analysis beyond Indonesia, the discussion is subsequently directed to the Malaysian banking sector. Examining Malaysia provides a comparative perspective on how market concentration and macroeconomic conditions influence credit risk within a different regulatory and structural environment, allowing the robustness of the concentration–stability relationship to be further assessed across countries.

The regression model demonstrates a strong explanatory power, with an R-squared ( $R^2$ ) value of 0.821, or 82.1%, indicating that the model accounts for approximately 82% of the variation in the dependent variable. This analysis is based on 68 observations, suggesting that the model provides a reliable representation of the data and that the selected independent variables are largely relevant in explaining the observed outcomes.

$$NPL_t = \beta_0 + \beta_1 HHI_t + \beta_2 GDP\ Growth_t + \beta_3 Log(Assets)_t + \beta_4 OPR\ Interest\ Rate_t + \varepsilon$$

Table 7. Hypothesis Testing

Variable	Coefficient ( $\beta$ )	P-value	Significance
Intercept ( $\beta_0$ )	5.15	0.06	Almost Significant
HHI	+0.0002	0.750	Not Significant
GDP growth	-0.015	< 0.001	Highly Significant
Log(Assets)	-0.180	0.120	Not Significant
OPR Interest Rate	+0.110	0.005	Highly Significant

The model demonstrates a high level of fit, with an  $R^2$  of 82.1%, indicating that it explains approximately 82% of the variation in credit risk (NPL) in Malaysia. Based on Table 7, the HHI coefficient is not statistically significant ( $p = 0.750$ ), indicating that banking concentration does not have a measurable effect on banking risk in Malaysia. Therefore, Hypothesis 1 (H1) is not supported in the Malaysian context. Instead, credit risk during 2020–2025 appears to be primarily influenced by macroeconomic conditions: stronger economic growth significantly reduces NPLs, while higher benchmark interest rates increase debtors' burden and credit risk. The lack of significance for banking concentration suggests that Malaysia's banking sector has reached a mature and stable stage, where marginal changes in market structure no longer affect risk. At this stage, banking stability depends more on effective risk management practices and robust macroprudential supervision by Bank Negara Malaysia rather than on market concentration.

The findings show a clear contrast between Indonesia and Malaysia in the concentration–risk relationship. In Indonesia, higher banking concentration significantly reduces credit risk, supporting the concentration–stability hypothesis and highlighting the importance of market structure in financial stability. In Malaysia, however, concentration has no significant effect on banking risk, as stability is mainly driven by macroeconomic conditions and institutional strength. This suggests that concentration remains a stabilizing factor in less mature banking systems like Indonesia, while in more mature systems such as Malaysia, stability depends more on regulation, macroeconomic fundamentals, and banks' internal risk management than on market structure.

### Relationship Concentration and Banking Performance in Indonesia and Malaysia

This section examines the relationship between banking concentration and performance in Indonesia and Malaysia during the 2020–2025 period. Using ROA as a measure of performance, the analysis evaluates how market structure, bank-specific characteristics, and macroeconomic conditions influence profitability. The regression

model is employed to assess the extent to which concentration and risk factors jointly explain variations in banking performance across the two countries.

The regression model demonstrates a very strong fit, with an R-squared ( $R^2$ ) of 0.941, or 94.1%, indicating that it explains approximately 94% of the variation in the dependent variable. This analysis is based on 68 observations, suggesting that the model provides a reliable representation of the data and that the selected independent variables are highly relevant in explaining the observed outcomes. The multiple regression model used is:

$$ROA_t = \beta_0 + \beta_1 HHI_t + \beta_2 \text{Log(Assets)}_t + \beta_3 \text{NPL}_t + \beta_4 \text{GDP Growth}_t + \varepsilon$$

**Table 8.** Hypothesis Testing

Variable	Coefficient ( $\beta$ )	P-value	Significance
Intercept ( $\beta_0$ )	-15.20	0.002	Highly Significant
HHI	+0.0018	0.021	Significant
Log(Assets)	+0.650	0.150	Not Significant
NPL	-0.855	< 0.001	Highly Significant
GDP growth	+0.125	< 0.001	Highly Significant

Table 8 shows that the ROA model has a strong explanatory power, indicating that the selected variables explain most of the variation in Indonesian banks' profitability during 2020–2025. Market concentration (HHI) has a positive and significant effect, supporting the Structure–Conduct–Performance hypothesis that higher concentration enhances profitability. Credit risk (NPL) negatively and significantly affects ROA, while GDP growth significantly improves profitability through stronger credit demand and repayment capacity. Bank size (log assets) is not significant, suggesting that profitability is driven primarily by credit quality, macroeconomic conditions, and market concentration rather than scale alone.

While the Indonesian banking sector demonstrates a strong linkage between market concentration, credit risk, and profitability, these relationships may differ under a more mature financial system. Accordingly, the analysis proceeds to Malaysia to evaluate whether banking performance is driven by similar structural factors or is more strongly influenced by macroeconomic conditions and institutional strength.

The regression model shows a strong fit, with an R-squared ( $R^2$ ) of 0.895, or 89.5%, indicating that the model explains approximately 89.5% of the variation in the dependent variable. This analysis is based on 68 observations, suggesting that the model provides a reliable representation of the data and that the chosen independent variables are largely relevant in explaining the observed outcomes. The multiple regression model used is:

$$ROA_t = \beta_0 + \beta_1 HHI_t + \beta_2 \text{Log(Assets)}_t + \beta_3 \text{NPL}_t + \beta_4 \text{GDP Growth}_t + \varepsilon$$

**Table 9.** Hypothesis Testing

Variable	Coefficient ( $\beta$ )	P-value	Significance
Intercept ( $\beta_0$ )	-8.45	0.031	Significant
HHI	+0.0001	0.810	Not significant
Log(Assets)	+0.302	0.045	Significant
NPL	-0.450	< 0.001	Highly Significant
GDP growth	+0.035	< 0.001	Highly Significant

Based on Table 9, the model shows a very strong fit, indicating that the included variables explain most of the variation in Malaysian bank profitability. Unlike Indonesia, market concentration (HHI) has no significant effect, providing no support for the Structure–Conduct–Performance hypothesis. Credit risk (NPL) negatively and significantly affects profitability, reflecting higher provisioning costs, while GDP growth has a positive and highly significant impact by strengthening credit demand and repayment capacity. Bank size, however, exerts a positive and significant influence, suggesting economies of scale play a key role. During 2020–2025, Malaysian banking

profitability is driven mainly by macroeconomic conditions and operational efficiency rather than market concentration.

The findings reveal a clear contrast between Indonesia and Malaysia regarding the concentration–performance relationship. In Indonesia, higher market concentration significantly enhances profitability, supporting the Structure–Conduct–Performance hypothesis and highlighting the role of market structure alongside credit quality and macroeconomic conditions. In Malaysia, by contrast, concentration does not significantly affect profitability, as banking performance is primarily driven by macroeconomic fundamentals, operational efficiency, and economies of scale. This comparison suggests that in less mature or more fragmented banking systems like Indonesia, market concentration remains an important driver of profitability, whereas in more mature and competitive systems like Malaysia, fundamental and institutional factors play a more decisive role than market structure.

## **DISCUSSION**

The findings show contrasting results between Indonesia and Malaysia. In Indonesia, H1 and H2 are supported: higher banking concentration reduces NPLs and increases ROA, indicating lower risk and higher profitability, consistent with Abdesslem et al. (2023). In Malaysia, neither hypothesis is confirmed, suggesting that concentration does not significantly affect risk or performance. This underscores that the impact of concentration is context-dependent, shaped by market structure, regulation, and economic conditions (Nicolas, 2024).

Focusing on H1, the negative relationship between concentration and credit risk in Indonesia supports the concentration-stability hypothesis, indicating that larger banks behave more prudently and maintain diversified portfolios to mitigate risk. This finding aligns with Abem (2023), who emphasizes that asset diversification and investment in risk management technology contribute to banking system stability. Indonesian banks appear to leverage scale and better risk management practices, supported by strong supervision from OJK and Bank Indonesia, which reinforces stability (Hati et al., 2023). In contrast, Malaysia’s results show no significant effect of concentration on risk, reflecting a mature and highly oligopolistic banking market where macroeconomic fundamentals such as GDP growth and interest rates primarily drive credit risk, as discussed by Rahmayati and Badawi (2024). The strong market dominance of a few large banks like Maybank and CIMB allows for predictable risk patterns, while the fragmented Indonesian market creates opportunities for concentration to meaningfully enhance stability. These findings underscore that structural differences and regulatory contexts critically mediate how concentration influences banking risk (Naili & Lahrachi, 2022; Barra & Ruggiero, 2023).

Regarding H2, the positive effect of concentration on ROA in Indonesia aligns with the Structure-Conduct-Performance (SCP) hypothesis, suggesting that dominant banks can influence pricing, attract deposits, and expand lending efficiently to improve profitability, as supported by Nicolas (2024). Contrary to the quiet life hypothesis, Indonesian banks remain competitive despite higher market concentration, investing in asset diversification, advanced risk management technology, and brand value preservation to maximize performance, as observed by Abem (2023) and Dacanay et al. (2024). In Malaysia, however, concentration does not significantly impact ROA, implying that bank performance depends more on operational efficiency, scale economies, and internal risk management rather than market share, consistent with the findings of Dalla (2025). These distinctions suggest that concentrated markets do not automatically lead to higher profitability; managerial practices and operational quality are critical determinants, particularly in mature oligopolistic markets (Herwald et al., 2024).

Regulatory frameworks further explain these differences. In Indonesia, macroprudential oversight by Bank Indonesia, combined with microprudential supervision from OJK, ensures that risk remains controlled even as concentration rises, guiding lending behavior and merger activity while maintaining system stability, as discussed by Abem (2023) and Hati et al. (2023). Malaysia employs a dual-pronged

regulatory approach through Bank Negara Malaysia, integrating macro- and microprudential measures, including ICAAP, ILAAP, stress testing, and governance oversight, which stabilize the system regardless of market concentration (Naili & Lahrichi, 2022). This supports the notion by Barra and Ruggiero (2023) that robust supervision can enhance stability even in highly concentrated markets. These regulatory differences suggest that consolidation can improve stability if paired with strong oversight, highlighting the importance of governance in realizing the benefits of market concentration.

Despite these insights, the study has limitations. Monthly HHI data were estimated, and the 2020–2025 period includes pandemic-related disruptions, which may influence generalizability. Future research could utilize actual monthly HHI data, incorporate governance variables, and extend comparative analysis to other ASEAN countries to better capture regional dynamics. Nevertheless, this finding is consistent with previous studies by Dacanay et al. (2024) and Abem (2023), which emphasize that concentration, when supported by strong regulation and careful supervision, can enhance banking system stability without necessarily compromising performance, providing valuable guidance for policymakers considering consolidation strategies.

## **CONCLUSION**

Based on this study, it can be concluded that the banking industries in Indonesia and Malaysia both have an oligopolistic market structure, but Malaysia leans toward a strong oligopoly with higher market concentration, while Indonesia has a lower concentration due to a larger number of banks. The findings indicate that banking concentration contributes to stability, as evidenced by a reduction in credit risk in both countries. Concentration allows banks to hold larger assets, reduce unit costs, and invest in safer assets. Large banks with high franchise value are also less likely to take risks that could damage their reputation, further enhancing the stability of the banking system.

Regarding profitability, in Indonesia, market concentration significantly affects ROA, while in Malaysia, profitability is more influenced by economic fundamentals and operational efficiency, including risk management and economies of scale. The oligopolistic structure enables dominant banks to determine interest rates, aligning with the quiet life hypothesis, whereby banks allocate funds to safe assets with higher interest rates to earn profits without taking excessive risks. The implications of this study suggest that banking consolidation can improve both stability and efficiency, but strong macroprudential supervision remains essential to manage risks effectively. For future research, it is recommended to examine the role of regulatory and supervisory frameworks in greater detail, including a comparative analysis of macroprudential policies in both countries. Additionally, further studies could explore how market structure affects medium and small banks, which may not be fully captured in the current analysis.

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