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The influence of market power and revenue diversification on the profitability and stability of Indonesian banking during the COVID-19 pandemic

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ABSTRACT

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The present study aims to assess and scrutinize the impact of market power and revenue diversification on the level of Non-Performing Loans (NPL), which serves as an indicator of banking stability, through profitability during the COVID-19 pandemic. The population of interest includes all non-Sharia commercial banking institutions listed on the Indonesia Stock Exchange (IDX) from 2020 to 2022. A purposive sampling method was employed, resulting in a total of 264 observations. The data analysis was performed using panel data regression with the assistance of EViews version 10 software. The findings of this research reveal a direct positive and significant influence of market power and revenue diversification on bank profitability, as well as a direct negative and significant impact of market power, revenue diversification, and bank profitability on NPL. A noteworthy result derived from this study is the partial mediating role of profitability in the relationship between market power, revenue diversification, and NPL. Consequently, it is concluded that market power and revenue diversification play a pivotal role in enhancing profitability, mitigating credit risk, and ultimately improving banking stability. This study lends support to the non-structural approach of NEIO (New Empirical Industrial Organization), the Competition Fragility theory, and the Product Portfolio Theory. However, it is important to acknowledge the limitations of this research, such as the focus solely on non-Sharia banking institutions due to their distinct characteristics compared to conventional commercial banks, as well as data constraints.

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1. Introduction

The maintenance of a country's economy relies heavily on the stability and resilience of its financial system. However, the financial system of Indonesia has been greatly impacted by the COVID-19 pandemic since March 2020, leading to a slowdown in economic growth. This unprecedented crisis has affected all economic actors extensively (Carnevale & Hatak, 2020). Banks, being the dominant financial institutions in Indonesia, play a crucial role in economic development by connecting capital and facilitating business growth (Bhegawati & Utama, 2020). The performance of Indonesia's banking sector as an intermediary has declined during the COVID-19 pandemic because of weak domestic demand and cautious risk management by banks in response to future uncertainties (Bank Indonesia, 2020).

Fig. 1 presents an overview of the performance of the Indonesian banking sector from 2018 to 2021. The Operational Cost to Operating Income (BOPO) ratio experienced an increase, reaching 7.19 percent in 2020. This suggests a decline in the operational efficiency of the banks. Additionally, the Net Interest Margin (NIM) decreased during the pandemic, indicating a reduced ability of banks to generate net interest income while effectively managing their productive assets. Similarly, the Return on Assets (ROA) of banks also declined, highlighting a reduction in their capability to generate profits from the

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utilization of available resources or assets. The credit risk in the banking sector, as indicated by the Non-Performing Loan (NPL) ratio, witnessed an increase during the COVID-19 pandemic. The stability of the banking sector heavily depends on the credit performance of banks during times of crisis. In 2020, the NPL ratio for conventional banks in Indonesia was 3.06 percent, which is higher than the recorded NPL ratio of 2.53 percent in 2019. Consequently, monitoring the NPL ratio becomes a paramount concern for both banks and regulators to ensure comprehensive stability of the banking system (Hamid, 2017).

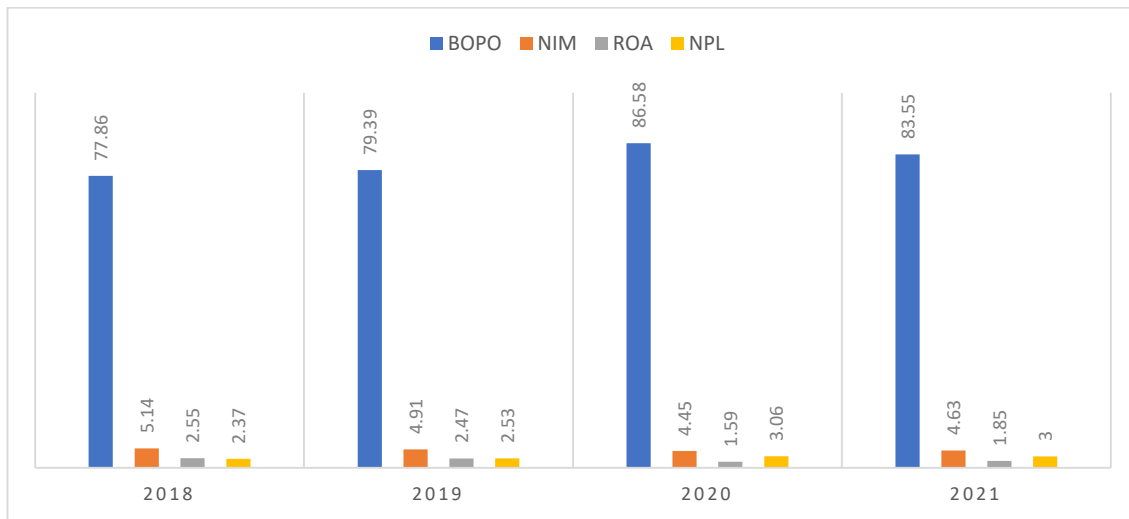


Fig. 1. Graph depicting the performance of the Indonesian banking sector from 2018 to 2021

Source: OJK (2018, 2019, 2020, 2021)

According to Almarzoqi et al. (2015), banks with a larger size have a competitive advantage when it comes to handling credit risk due to their greater market power. The existing literature on financial stability suggests that banks with more market power tend to be more cautious in taking risks to prevent potential profit losses, thereby promoting stability in the banking sector (Rakshit, 2020). However, to consider that uncertain circumstances, such as the ongoing COVID-19 pandemic, can impact the structure of the banking market, consequently affecting the market power possessed by banks.

In the realm of banking literature, there exist two primary methodologies for constructing proxies to gauge market power. These methodologies are known as the traditional Structure-Conduct-Performance (SCP) paradigm and the New Empirical Industrial Organization (NEIO) approach (Barra & Zotti, 2020). The SCP approach, initially introduced by Mason in 1939 and later developed by Bain in 1956, utilizes concentration measures as proxies to assess market power. The fundamental premise of the SCP approach is that the market power of banking institutions increases as industry concentration rises, establishing a direct correlation between industry structure and competitive behavior (Cupian & Abduh, 2017). In an environment characterized by low competition, the SCP framework suggests that banks are inclined to engage in collusion in order to boost their profits (Tan, 2017). On the other hand, the New Empirical Industrial Organization (NEIO) method relies on non-structural models to evaluate competition within the banking industry by analyzing deviations from competitive pricing behavior (Tabak et al., 2015). Non-structural approaches primarily focus on estimating market power based on observed banking behavior (Leon, 2014). This research adopts the Lerner index which accurately quantifies the level of market dominance exhibited by banks, thereby enabling the detection of deviations from monopolistic and perfectly competitive behaviors (Coccorese, 2014).

The impact of banking market power on bank stability, particularly in times of crisis, continues to be a topic of debate among researchers (Kim, 2017; Ibrahim et al., 2019; Shim, 2019). The correlation between bank competition and bank stability can be either negative or positive (Ibrahim et al., 2019). In terms of competition fragility, Berger et al., (2009) elucidates that increased bank competition erodes market power, reduces profit margins, and results in a decline in franchise value. Conversely, Boyd & De Nicoló, (2005) argue that banks with significant market power impose higher interest rates on borrowing firms, leading to increased risks and fragility in the financial system (competition stability). Additionally, Goetz, (2018) explains that heightened competition in the banking market enhances bank revenues, lowers the percentage of Non-Performing Loans (NPLs), and fosters bank stability.

The impact of market power on bank stability yields different results from these two perspectives. However, regardless of these variations, banks have the ability to minimize credit risk by diversifying their income into non-interest income (Mehmood & Luca, 2023; Dang & Dang, 2021). During times of increasing uncertainty, financial institutions opt to diversify their portfolios in order to mitigate risk (Athanasoglou et al., 2008). According to the Product Portfolio Theory Devinney et al., (1985) companies can reduce risk by reallocating investments into less risky products.

Previous investigations have explored the direct impacts of market power and revenue diversification on bank stability (Santoso et al., 2021; Tan & Anchor, 2017; Cuestas et al., 2020; Fu et al., 2014). Similarly, researchers have examined the direct influence of revenue diversification on bank stability (H. Kim et al., 2020; Abuzayed et al., 2018; Shim, 2019; Carnevale & Hatak, 2020). However, the findings have been inconclusive. The lack of consistency in previous studies prompts this investigation to introduce a mediating variable. Profitability is considered as the mediating variable, based on the perspective of Keeley (1990), who suggests that banks with higher profitability tend to be more risk-averse due to the increased potential for value loss. Moreover, Tan et al., (2020) explain that profitability can lead to a reduction in credit and bankruptcy risks. Additionally, Duho et al., (2020) discovered that higher profitability enhances credit risk management, thereby decreasing loan losses.

This study aims to formulate an encompassing framework that combines bank profitability and financial stability, taking into account the impact of market power and revenue diversification in the context of the COVID-19 pandemic. Consequently, this investigation seeks to explore the following research inquiries: (1) What are the direct implications of market power and revenue diversification for the stability of the Indonesian banking sector amidst the COVID-19 pandemic? and (2) What are the indirect consequences of market power and revenue diversifying the Indonesian banking sector via profitability during the COVID-19 pandemic?

2. Literature Review and Hypothesis

2.1 Market Power and Profitability

The SCP theory has been extensively utilized to examine the relationship between market concentration and bank profitability. The SCP theory suggests that market power is linked to collusive behavior among banks in the market (Hamid, 2017). In banking sectors with high market power and concentration, collusion and significant profitability can be observed (Yuanita, 2019; Tan, 2017). While concentration measures reflect the number and distribution of firms within the industry, they fail to consider the behavior of banks in the market (Abel et al., 2018). These indicators also do not adequately define the physical and product markets (Shaffer, 2004). As a result, the New Empirical Industrial Organization offers a fresh approach, measuring the level of market power by directly observing behavior (Tan, 2017; Leon, 2014; Barra & Zotti, 2020). According to this approach, banks with high efficiency are expected to increase market share and profits (Cupian & Abduh, 2017).

The banking industry has been assessed in previous studies using a non-structural method to evaluate competition. Kumankoma et al. (2018) determined that there is a direct correlation between market power and bank profitability. In line with Perera et al. (2013) found that high levels of competition result in a decrease in profitability. As a result of the information provided, the first hypothesis of this study is stated as follows:

H₁: *Market power has a positive impact on bank profitability.*

2.2 Revenue Diversification and Profitability

The theory of product portfolio suggests that companies can mitigate or enhance risk by selecting appropriate investments in their product offerings (Devinney & Stewart, 1988). Effective business planning, resource optimization, risk reduction, and expedited new product introductions are facilitated by product portfolio management (Jugend et al., 2016). The product portfolio consists of a range of products available for purchase from an organization (Jacobs & Swink, 2011). Expanding potential income sources can increase revenue while reducing non-interest operating costs (Paltrinieri et al., 2021).

In a study conducted by Luu et al. (2020), the impact of diversification on financial performance was thoroughly examined. The researchers discovered a significant and positive effect of diversification on bank performance. This finding aligns with the results obtained by (Duho et al., 2020; Wolfe, 2011), who both concluded that there is a positive relationship between revenue diversification and profitability. Building on the aforementioned evidence, we propose the following hypothesis for our study:

H₂: *Revenue diversification has a positive impact on bank profitability.*

2.3 Market Power and Non-Performing Loans (NPL)

The viewpoint of competition- that a high level of competition (resulting in low market power) can lead to a decrease in bank stability and an increase in fragility of the banking system (Ahi & Laidroo, 2019). Within the franchise value framework, the competition-fragility view directly associates with cautious behavior (Keeley, 1990). Franchise value incentivizes banks to adopt a conservative approach to protect their value, thereby reducing the inclination to take high risks (De Nicolo & Zotova, 2020). Banks with substantial market power possess a competitive advantage that can mitigate the risk level associated with their chosen competition strategies (Laeven & Levine, 2009).

The study conducted by Santoso et al., (2021) examined the impact of market power on bank risk and revealed that higher market power leads to a reduction in risk-taking. Likewise, Amidu et al., (2019) and Yusgiantoro et al., (2019) also reported that higher levels of market power are associated with lower insolvency risk. Taking these findings into consideration, the third hypothesis of this study can be stated as follows:

H₃: *Market Power has a negative impact on the occurrence of Non-Performing Loans (NPL).*

2.4 Revenue Diversification and Non-Performing Loans (NPL)

To enhance stability, banks may contemplate expanding their potential revenue sources (Adem, 2023). To mitigate the possibility of new crises or withstand existing ones, banks exhibit reluctance towards investing in risky activities (Ali Mirzaei, 2019). The diversification of income can assist banks in overcoming declines in revenue that may result from selective lending practices (Ovi et al., 2014). Adapting to trading activities has the potential to enhance a bank's performance and stability (Ammar & Boughrara, 2019). It is worth noting that commercial banks that primarily focus on credit card loans face a higher risk of bankruptcy in comparison to those that offer a diverse range of traditional products (Sinkey & Nash, 1993).

According to a research study conducted by (Duho et al., 2023), it was found that revenue diversification has a positive impact on credit risk management and improved credit quality. Furthermore, (Lee et al., 2014) discovered that non-interest activities carried out by banks can effectively reduce risk. Additionally, (Shim, 2013) found that diversification with a wider range of operating income sources can significantly lower the risk of bankruptcy. Based on the aforementioned findings, the fourth hypothesis of this study is as follows:

H₄: *Revenue diversification has a negative impact on the occurrence of Non-Performing Loans (NPL).*

2.5 Profitability and Non-Performing Loans (NPL)

Franchise value is positively influenced by higher profitability, leading to a reduction in risk-taking by banks (Berger et al., 2009). Banks are motivated to exercise caution in taking risks due to the potential loss of franchise value (Nicolo & Zotova, 2020). Traditional theory suggests that banks with greater profit generation have lower incentives for assuming risks (Martynova et al., 2020).

According to Tan and Floros (2019), banks that exhibit higher levels of profitability tend to have more effective monitoring and management mechanisms. This is beneficial as it helps to decrease the volume of problematic loans, thereby reducing credit risk. Additionally, Duho et al., (2023) support this notion by highlighting that high profitability enhances credit risk management and reduces loan losses. Taking these findings into consideration, we can propose the following hypothesis for this study:

H₅: *Profitability has a negative impact on Non-Performing Loans (NPL).*

2.6 The Mediation Role of Profitability in The Impact of Market Power On Non-Performing Loans (NPL)

The competition-fragility approach suggests that stringent competition energizes banks to partake in excessive risk-taking as a result of the pressure on bank profits (Keeley, 1990; Hellmann et al., 2000). Within a competitive banking environment, a reduction in profits generated from lending markets weakens credit risk evaluation and ups the ante on bank risk (Allen & Gale, 2004). Profitability coming from strong market authority gives a shield against negative externalities and makes banks more stable (Nicolo, 2016). As per the above description, the following hypothesis of this study is formulated:

H₆: *Profitability serves as a mediator in the influence of Market Power and Non-Performing Loans (NPL).*

2.7 The Mediation Role of Profitability in The Impact of Revenue Diversification On Non-Performing Loans (NPL)

In the product portfolio theory, product diversification can support organizations in preserving their sales quantity equilibrium and guarding them from the potential risks of market transformation (Jacobs & Swink, 2011). If complexity management of these products is realized effectively, it can result in greater earnings (Meyer & Mugge, 2001). What is more, diversification in non-interest income activities have been suggested to bolster a bank's activities and assist it in the reduction of risk (Demirgüç-Kunt & Huizinga, 2010). Research further has demonstrated that revenue diversification in banks fosters greater yields and diminishes the probability of bankruptcy (Saunders et al., 2020). Subsequently, the seventh hypothesis of this particular study is formulated as follows:

H₇: *Profitability serves as a mediator in the influence of Revenue Diversification on Non-Performing Loans (NPL).*

3. Research Methodology

3.1 Research Sample and Data Collection

A purposive sampling approach was employed with specific constraints to ensure representative sampling. The following criteria were taken into account when selecting the sample: (1) the sample comprises companies listed on the stock exchange during the period from 2020 - 2022; (2) the research pool includes publicly-traded banks that submitted their full quarterly financial reports during this time frame. The sample is showcased in Table 1.

Table 1

Research Sample

No	Research Samples Criteria	Number of Companies
1	The Number of Commercial Banking Companies Listed on the Stock Exchange from 2020 to 2022	42
2	Financial companies that failed to share comprehensive quarterly accounts from 2020 to 2022.	(9)
	Number of Samples	33
	Total number of observations throughout the course of two years	264

Source: idx.co.id (2022)

This investigation did not include Islamic banks on account of the discrepancies in features between conventional business banks and Islamic banks, particularly with regard to income collection. Conventional commercial banks are driven by revenue, applied with interest rates, whilst Islamic banks are driven by profit-sharing or ratio. The analysis focused on quarterly data from June 2020 to March 2022, which totaled 264 records. The choice for the sample duration and data frequency was based on the need for financial data from Indonesian banking organizations stemming from the COVID-19 pandemic.

3.2 Variable Measurement

The objective of this study is to determine how profitability mediates the effects of market power and income diversification on the soundness of Indonesian banks amid the downturn driven by the COVID-19 pandemic. The measures employed to assess each factor in this analysis are outlined in Table 2. All indicators used in this study are taken from prior research (Santoso et al., 2021; Ali Mirzaei, 2019, Fu et al., 2014; Stiroh & Rumble, 2006, Akande et al., 2018; Abuzayed et al., 2018; Luu et al., 2020; Nisar et al., 2018; Tan & Anchor, 2017; Kasman & Kasman, 2016; A Mirzaei et al., 2013; Tan et al., 2020).

Table 2

Definition of the Variable

Type of the Variable	Variable	Operationalization	Measurement
Independent Variable	Market Power (MP)	The capacity of banks that are commercialized to augment the retail rate of commodities or services over and above their marginal expense.	$Lerner_{i,t} = \frac{Pricing_{i,t} - MC_{i,t}}{Pricing_{i,t}}$
Independent Variable	Revenue Diversification (DIV)	The commercial bank activities to obtain interest and non-interest income.	$AHHI_{NOI} = 1 - [(NII/NOI)^2 + (NON/NOI)^2]$
Mediation Variable	Profitability (PROF)	The capacity of banks to produce returns after factoring in all overhead expenditures.	$ROA = \frac{Net\ Profit}{Total\ Asset}$
Dependent Variable	Non Performing Loan (NPL)	Commercial banking's capacity to control credit risk	$NPL = \frac{Non - Performing\ Loan}{Total\ Loan}$

Source: observations by the authors (2022)

3.3 Research Model

This study considers the use of a panel data model, which will be analyzed by EViews version 10 software. In particular, two models are studied relative to the coronavirus pandemic: one examines how market power and diversified income can have an effect on the profitability of banks, while the other assesses the direct impacts of market power and diversified income on non-performing loans (NPL). For testing purposes, a significance level of $\alpha = 0.05$ (or 5%) is utilized. If a variable's probability is less than 0.05, then the alternative hypothesis is accepted. For the selection of the appropriate regression model, an examination of the Chow and Hausman tests is made, resulting in the employment of the Fixed Effects Model (FEM). The equations used for both models are detailed as follows:

$$PROF_{i,t} = \beta_0 D_{it} + \beta_1 MP_{i,t} + \beta_2 DIV_{i,t} + \varepsilon_{1it}$$

$$NPL_{i,t} = \beta_0 D_{it} + \beta_3 MP_{i,t} + \beta_4 DIV_{i,t} + \beta_5 PROF_{i,t} + \varepsilon_{2it}$$

A two-stage procedure is deployed in order to evaluate the impact of market power and income diversification on bank stability via profitability. This process initiates with the Sobel test which is used to ascertain the magnitude of the mediation effect. The significance of the outcome is determined by comparing the generated t-value to the critical t-value (1.96) and evaluating the P-value in terms of the significance level (0.05). If the t-value surpasses the aforementioned threshold and the P-value is

lower than the end point 0.05, it is possible to infer that a mediation effect exists. Lastly, the Variance Accounted For (VAF) test can be utilized to measure the intensity of the mediation, with the following interpretation: VAF values greater than 80% indicating full mediation, values ranging from 20% to 80% ($\leq \text{VAF} \leq 80$) indicating partial mediation, and anything below 20% implying an absent mediation effect.

4. Empirical Analysis

4.1 Descriptive Analysis

Table 3 displays the descriptive analysis of each research element, including the quantity of records (N), extreme values (minimum and maximum), means, and standard deviations of each variable. The Lerner index has a minimum of -0.944433 and a peak of 0.152680, with an average of 0.152680, demonstrating that the banking sector in Indonesia exists under monopolistic competition. Meanwhile, the AHHI index accumulates varying values from 0.067496 to 0.499944, featuring an average of 0.306569, implying that income sources for Indonesian banks during the COVID-19 pandemic are determinedly different. In addition, the ROA values vary from -0.089189 to 0.041398, having a mean of 0.002949, suggesting that the return on assets of the banks is comparatively feeble. Last but not least, the NPL values stretch from 0.000374 to 0.099838, with an average of 0.026008, demonstrating that the level of non-performing loans in the Indonesian banking sector during the COVID-19 pandemic is relatively low.

Table 3

Descriptive Statistic of Variable for Commercial Banks

Variable/Measurement	N	Maximum	Minimum	Mean	Std. Dev
MP/Indeks Lerner	264	0.661370	-0.944433	0.152680	0.278609
DIV/AHHI	264	0.499944	0.067496	0.306569	0.112395
PROF/ROA	264	0.041398	-0.089189	0.002949	0.013247
NPL/NPL	264	0.099838	0.000374	0.026008	0.017571

Source: Processed Data, 2023

4.2 Regression Results

Based on the evaluation via panel data regression for Model 1 with both the Chow test and the Hausman test, the results indicate that the Fixed Effect Model (FEM) is the optimum model to examine the effects of market power and revenue diversification on bank profitability throughout the COVID-19 pandemic. As Table 4 shows, the outcomes of the Fixed Effect panel data regression examination for structural model one is as follows:

Table 4

The Results of the Statistically Significant Fixed Effect Panel Data Regression Examination of the First Structural Model

Hypothesis	Path	Coefficient	Std. Error	P-Value	Ket
H1	MP (X1) → PROF (M)	0,008219	0,004044	0,0433	Significant (Accepted)
H2	DIV (X2) → PROF (M)	0,019083	0,007805	0,0152	Significant (Accepted)
C		-0,004156	0,002354	0,0788	
	R-Squared			0,686241	
	Adjusted R-Square			0,639656	
	Prob (F-Statistic)			0,000000	

Source: Processed data (2023)

The results of the fixed-effect model regression analysis in Table 4 show a Prob. Value (F-Statistics) of 0.000000, which is smaller than the predetermined error level (alpha) of 0.05. Therefore, it can be concluded that the estimated regression model is statistically significant. The adjusted R-Square value of 0.639656 indicates that 63.9 percent of the variation in Profitability is influenced by the variations in market power and revenue diversification, while the remaining 36.1 percent is explained by other factors not included in the model. The regression coefficient for the variable market power' was positively affiliated (0.08219) and its t-test significance value was 0.0433, which was less than the necessary alpha level of 0.05. This implies that market power exhibited a quantitatively meaningful, positive correlation with Profitability in the time of the COVID-19 pandemic. Similarly, income diversification had a quantitatively significant, positive association with profitability, as shown by the regression coefficient for this variable being positive (0.019083) and the t-test significance value being 0.0152, which was also significantly lower than 0.05.

Table 5

The Results of the Statistically Significant Fixed Effect Panel Data Regression Examination of the Second Structural Model

Hypothesis	Path	Coefficient	Std. Error	P-Value ≤ 0.05	Ket
H3	MP (X1) → NPL (Y2)	-0,016481	0,004484	0,0003	Significant (Accepted)
H4	DIV (X2) → NPL (Y2)	-0,023094	0,008688	0,0084	Significant (Accepted)
H5	PROF (Y1) → NPL (Y2)	-0,643210	0,072612	0,0498	Significant (Accepted)
C		0,036026	0,002604	0,0000	
	R-Squared			0,785604	
	Adjusted R-Square			0,752692	
	Prob (F-Statistic)			0,000000	

Source: Processed data (2023)

After evaluating and examining the Chow and Hausman tests, it was concluded that the Fixed Effect Model (FEM) was the most accurate model to study how market power, diversification of revenues and profitability impact the stability of Indonesian banking stability during the 2020 coronavirus pandemic. Table 5 demonstrates the findings from the fixed effect panel data regression analysis carried out in respect to structural model two:

The regression analysis results of the second structural model, as presented in Table 5, suggests that the F-Statistic Value of 0.000000 is less than the error level (alpha) of 0.05 that was specified. This indicates that the formulated regression is suitable, with an adjusted R-Square value of 0.752692, which implies that 75.2 percent of the variation in NPL is attributable to the changes in market power, diversification of income, and profitability, while the remaining 24.8 percent is influenced by other external factors. Moreover, the assessed coefficient values for market power, income diversification, and profitability were all -0.016481, -0.023094, and -0.643210 respectively, along with p-values for the t-tests of 0.0003, 0.0084, and 0.0498, which are all smaller than 0.05. This establishes that market power, income diversification, and profitability have a direct and considerable negative effect on the non-performing loan (NPL) variable during the recent COVID-19 pandemic.

4.3 Sobel Test and Variance Accounted For (VAF)

In order to ascertain the mediating nature of the two hypotheses (Hypothesis 6 and Hypothesis 7) proposed in this research, a Sobel test was performed (Bader & Jones, 2021). This procedure encompassed three steps. First, a linear regression model was established to measure the passive effect of X on M and thereby calculate the unstandardized regression coefficient (a) and its corresponding standard error (Sa). Thereafter, a multiple regression model was set up to gauge the active effect of both X and M on Y in order to calculate the unstandardized regression coefficient (b) along with its related standard error (Sb). Finally, an appropriate Sobel calculator (e.g., <http://quantpsy.org/sobel/sobel.htm>) was utilized to obtain the test statistic, associated standard error and the resulting significant level (P-Value).

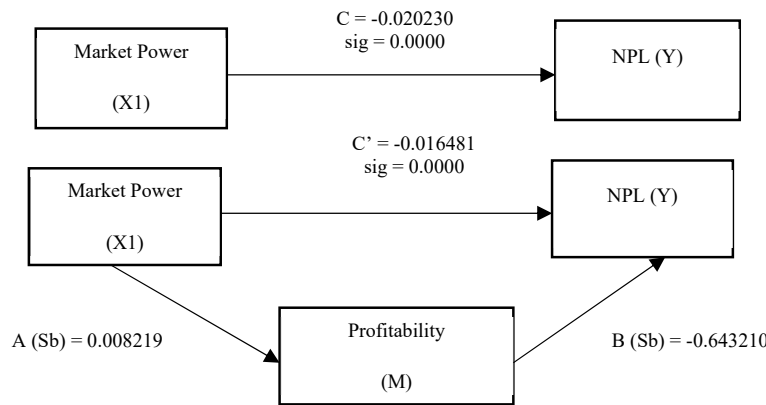


Fig. 2. The Model of Market Power on Bank NPL: Implications of Direct and Indirect Effects

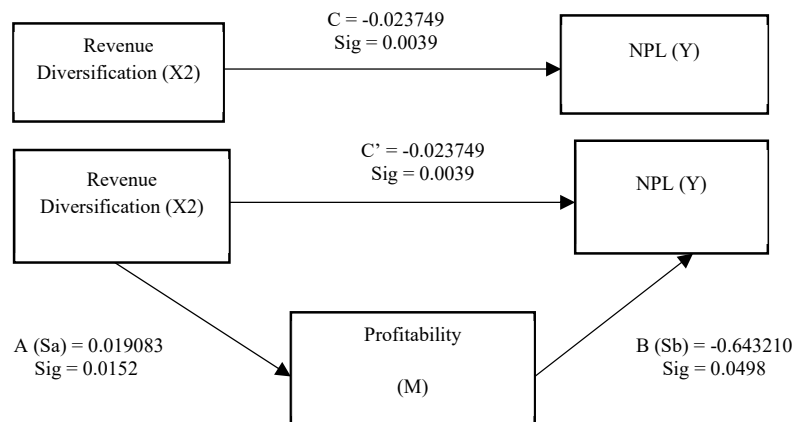


Fig. 3. The Model of Diversification on Bank NPL: Implication of Direct and Indirect Effects.

The results from the Sobel test, shown in Table 6, state that the t-value = 1.98092313 is greater than 1.96 and the p-value = 0.04759989 is smaller than 0.05, which establish that market power bears a significant indirect relation to NPL through the mediating factor of profitability. The negative Z-Sobel (-1.98092313) implies that the indirect influence is negative.

Table 6 also reports that the computable t-value = 2.35684302 is more than 1.96 and the p-value = 0.01843104 is smaller than 0.05, which implicates that diversification of income has a noteworthy sway on NPL via its role as a mediator in the form of profitability. The negative value of the Sobel test (-2.35684302) reveals a negative indirect effect.

Table 6
Sobel Test Result

Hypothesis	Path	Z-Sobel	P-Value \leq 0.05	Ket
H6	MP (X1) \rightarrow PROF (M) \rightarrow NPL (Y)	-1.98092313	0.04759989	Significant (Accepted)
H7	DIV (X2) \rightarrow PROF (M) \rightarrow NPL (Y)	-2.35684302	0.01843104	Significant (Accepted)

Source: Processed data (2023)

Furthermore, the mediation trial utilizing the VAF approach in this study fulfills several conditions: first, the direct effect (C) is found to be significant when Profitability (PROF) is not included in the model. Second, when the Profitability (PROF) factor is added into the model, the indirect effect (A x B) is also found to be significant.

The sum of VAF can be ascertained utilizing the calculations:

$$VAF = \frac{\text{Indirect Effect}}{\text{Total effect}} = \frac{A \times B}{A \times B + C}$$

The results of VAF calculation based on Figure 2 are as follows:

$$\begin{aligned} VAF &= 0.008219 \times (-0.643210) / 0.008219 \times (-0.643210) + (-0.020230) \\ &= 0.0052865 / 0.0217675 \\ &= 0.207181 \text{ or } 20.7\% \end{aligned}$$

The Value of VAF in testing the indirect influence of market power on bank stability through profitability yields a value of 20.7 percent, which is higher than 20 percent. Therefore, it can be concluded that profitability serves as a partial mediator of the influence of market power on bank stability.

The results of VAF calculation based on Fig. 3 are as follows:

$$\begin{aligned} VAF &= (0.019083 \times (-0.643210)) / (0.019083 \times (-0.643210) + (-0.023749)) \\ &= -0.0122744 / -0.03602338 \\ &= 0.34073427 \text{ or } 34.07 \text{ person} \end{aligned}$$

The VAF test results for the indirect impact of revenue diversification on bank stability through profitability provide a result of 34.07 percent, which is higher than 20 percent. So, it may be suggested that in this situation, profitability acts as a partial mediator.

5. Discussion

This research yields the finding that market power held by banks during the COVID-19 pandemic will lead to improved profitability. Banks exhibiting increased efficiency are likely to gain market share and profits, because reduced production costs afford them the opportunity to offer cost-competitive prices to customers, resulting in increased sales and market share (Le & Ngo, 2020). Additionally, this finding aligns with the non-structural approach (NEIO), which proposes that banks with higher efficiency will experience greater gains in market share and profits (Cupian & Abduh, 2017). This result is corroborated by prior studies: Yanikkaya et al. (2018), Kumankoma et al. (2018), and Viverita (2014) all observed a positive correlation between bank market power and increased profitability.

The second finding of this research established that diversification of revenue sources in banking improves profitability during the COVID-19 pandemic. This discovery affirms the Portfolio Product theory Devinney et al., (1985), which argues that a diversified portfolio of products reduces potential losses from a single income stream. In recent years, banks have ventured into assorted practices such as insurance, securities, asset management, and trading (Abuzayed et al., 2018). In the Indonesian banking industry, during the pandemic, bank revenue arrives from interests, e-banking, credit cards, transfer fees, trading, and other banking services. The results of this study agree with prior analysis conducted by (Nisar et al., 2018; Moudud-Ul-Huq, 2020; Li et al., 2021; Ochenge, 2022), which demonstrated that diversifying strategies improve profitability within the banking sector, similar to what happened during the Global Financial Crisis of 2007-2008 (Nguyen, 2019).

The third finding of this research showed that banks with elevated market power have more stable Non-Performing Loan (NPL) levels, backing the idea of Competition Fragility. This concept suggests that banking systems in competitive settings display higher instability, leading to vulnerability (Ahi & Laidroo, 2019; Clark et al., 2018). Additionally, it has been noted that banks with higher market power and brand value are likely to stay away from risky endeavours, buttressing the financial system's stability (Rungharoenkitkul, 2015; Danisman & Demirel, 2019; Dwumfour, 2017). In line with these conclusions,

the research findings of Akande et al. (2018) and Abel et al. (2018) displayed that greater competitiveness results in increased risk taking from the banking sector, bringing on financial fragility.

The fourth finding of this research demonstrated that the decline in Non-Performing Loan (NPL) rates amidst the COVID-19 crisis is related to revenue diversification among banks. According to the Portfolio Product Theory (Devinney & Stewart, 1988), banks can reduce risk and manage volatility by diversifying income sources into lower risk products. Studies by Adem (2023), Wang and Lin (2021) and Octavianus and Fachrudin (2022) found that diversification reduces risk and increases stability. Thus, it is believed that banks with diversified income or revenue sources are more resilient to the impacts of the COVID-19 pandemic; they can spread risks, offset losses, maintain economic flexibility, and reduce their reliance on one source of income or revenue.

The fifth finding of this research showed that during the COVID-19 pandemic, greater profitability seemed to be linked to lower NPL risk. This is due to a higher franchise value, which results in banks taking fewer risks (Berger et al., 2009). Profitableness can be detrimental if risks occur since they are likely to suffer a larger hit (Keeley, 1990). Xu et al. (2019) confirmed this point with their study, where higher profitability had a negative effect on credit risk. Additionally, Nguyen & Le (2022) showed a positive connection between higher profitability and banking stability. This research has unearthed a sixth connection: profitability functions as a partial mediator in the association between market power and NPLs. Banks with high market power and profitability have the capacity to maintain stability during the COVID-19 pandemic using successful NPL management. This finding conforms to the Competition Fragility concept, which supposes that competition can lessen interest revenue and total bank profits, potentially acting against bank system stability (Allen & Gale, 2004; Hellmann et al., 2000; Keeley, 1990). This study's revelations are further supported by Albaity et al. (2019) who observed that banks dealing with less competition benefit from larger profits and are less likely to suffer risks of bankruptcy and credit risk.

Our seventh finding in this research demonstrates that profitability functions as a halfway go-between in the connection between diversification of revenue and non-performing loans (NPL). This finding bolsters the Portfolio Product hypothesis, which proposes that item diversification can adjust sales volume and shield organizations from market variances (Jacobs & Swink, 2011). The broadening of a bank's income through non-interest generating sources permits an increase in overall income. Higher revenue contributes to improved bank efficiency and subsequently diminishes credit hazard, as banks have more income sources to cover potential misfortunes from loan defaults. Sanya and Wolfe (2011) deduced that diversifying across different income-generating actions expands risk-adjusted returns and moderates bankruptcy risk.

6. Conclusion and Suggestion

During the COVID-19 period, financial institutions in Indonesia boasting impressive market power were able to attain higher profitability due to their vigorous cost-reduction strategies. In addition, those diversifying their revenue sources, such as credit cards, e-banking, transfer fees, trading, commissions, and other banking fees, additionally observed increased profitability. Moreover, banks with both heightened market power and income diversification tended to demonstrate a greater degree of steadiness credited to their successful credit risk management methods. Nevertheless, credit risk management was contingent on the bank's capacity to maintain profits during the coronavirus pandemic. In the current analysis, profitability played the role of mediator in the connection between market power, income diversification, and credit risk, adding to banking stability. Typically, profitable banks had solid monitoring and management techniques, lowering credit risk by curtailing problematic loan volumes.

The limitations of this research include its inability to be widely generalized, as it was conducted only in Indonesia with non-sharia commercial banks and was limited to the availability of financial data. Recommendations for banking institutions, policymakers, and future researchers are to maintain market power, optimize revenue diversification, pay attention to regulations, explore Islamic banking and non-bank financial institutions, and consider technical efficiency as a mediating variable in the context of the digital revolution and banking innovation.

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