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Determinants of Net Interest Margin in Conventional Commercial Banking: A Fixed Effect Model

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Abstract

Banking is a business entity that collects public funds through deposits and distributes them to the public through loans and other services to improve many people's lives. This study aims to analyze the influence of various factors, such as capital adequacy, credit risk, and bank size, on the net interest margin of conventional banks in Indonesia. The method used in this study was associative quantitative, and secondary data was obtained from the annual financial statements of several conventional banks in Indonesia from 2018-2022. Data analysis was conducted using panel data regression analysis to test the effect between independent variables consisting of capital adequacy ratio (CAR), non-performing loans (NPL), and bank size (Size) on net interest margin (NIM). The data was processed using E-Views 12. The results of this study indicate that only capital adequacy has a positive and insignificant effect on NIM. In contrast, NPL and bank size negatively and significantly affect NIM. The findings of this study imply that to enhance NIM, companies can optimize CAR, thereby attaining optimal profits and minimizing investment risk. The results of this study also contribute as a reference and an overview of the factors that influence NIM in conventional commercial banks before investing.

Keywords: Conventional Commercial Banking; Fixed Effect Model; Net Interest Margin.

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I. Introduction

The soundness of its banking sector can gauge the stability of a nation's economy. Banks, as financial intermediaries, wield significant influence on the microeconomic level (Diyanti & Widyarti, 2012). The banking industry functions as an agent of development in the national context, allocating funds to the public in the form of credit to enhance liquidity and foster a conducive environment for business activities (Sulaeman, 2020). Examining the factors influencing banking performance, particularly Net Interest Margin (NIM), is imperative. Bank performance is affected by multiple variables, including its ability to act as a financial intermediary and facilitate transactions in the financial market (Lestari et al., 2021). NIM is defined as a financial measure that measures the comparative performance of net interest income relative to total earning assets to enhance a company's profitability through its lending activities. Therefore, evaluating a bank's profitability and asset management efficiency is essential, as these factors directly impact its financial performance. Figure 1 illustrates the annual growth of the NIM ratio for conventional commercial banks in Indonesia.

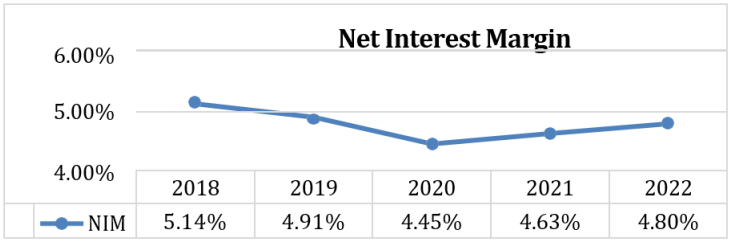

Figure 1. NIM Ratio of Conventional Commercial Banks in Indonesia

As depicted in Figure 1, the average NIM ratio for conventional commercial banks in Indonesia exceeds 4%, though it has not shown a consistent upward trend. This indicates that while banks generate net interest income to be reinvested through credit, the NIM's influence on lending practices remains significant. Amirudin (2022) suggests that the NIM is influenced by several factors, including the Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL) ratio, and bank size.

The CAR, which reflects the bank's capacity to absorb risks, is vital in ensuring financial stability. A higher CAR signifies a bank's greater ability to withstand risks associated with credit and asset management (Damayanti & Mawardi, 2022). Moreover, the size of a bank, which is often assessed through its capital adequacy, affects its capacity to absorb risk, particularly in relation to lending activities. Adequate capitalization enables banks to anticipate better and mitigate potential losses, ultimately enhancing profitability (Nugrahaning P & Wahyudi, 2016).

On the other hand, capital adequacy is a critical aspect of bank management, providing a buffer against unforeseen operational losses (Yuniar & Manda, 2021). According to Bank Indonesia regulation No. 15/12/PBI/2013, a bank must own 8% of its capital. Beyond its role as the primary source of funding for operational activities, capital serves as a fundamental foundation for the bank's resilience against potential losses. In parallel, managing credit risk minimizes losses, particularly through the NPL ratio. The NPL ratio, calculated by dividing non-performing loans by total loans, indicates a bank's risk exposure. Figure 2 presents the evolution of conventional commercial banks' CAR and NPL ratios from 2018 to 2022.

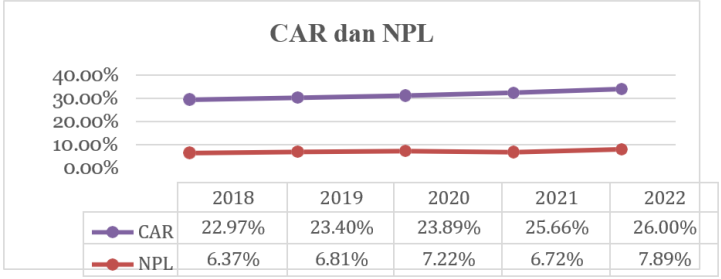

Figure 2. The NLP and CAR Ratio of Conventional Commercial Banks in Indonesia

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Figure 2 highlights the relationship between CAR and NPL ratios. The observed fluctuations in NIM are believed to be partly attributable to these variables. As the CAR has increased, conventional commercial banks with higher CARs have seen a corresponding rise in their NIM. This suggests that banks with stronger capital adequacy are more capable of managing risks and generating returns. However, the NPL ratio, which indicates the level of credit risk, also shows an upward trend, signifying the challenges posed by an increasing likelihood of loan defaults. Furthermore, the size of a bank, which can be evaluated through its total assets, has a significant impact on its overall financial activities, such as investment and diversification strategies (Damayanti & Mawardi, 2022). A larger bank is typically better equipped to manage its assets and access external financing, but mismanagement of these assets can lead to diminished profitability. Figure 3 illustrates the size ratio of conventional commercial banks in Indonesia over the same period.

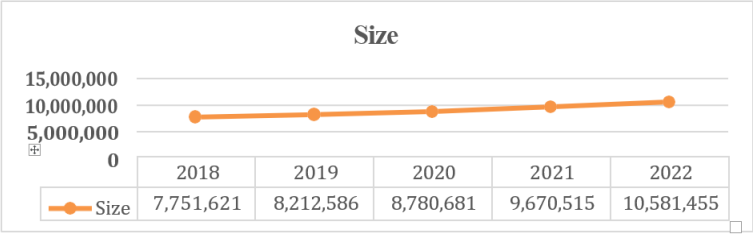

Figure 3. The Ratio of Conventional Commercial Banks in Indonesia

Figure 3 illustrates a steady increase in bank size, highlighting its significant impact on the financial system. Per productive theory, financial institutions are encouraged to leverage their assets to obtain external funding, improving their financial performance. However, the potential risks of large capital investments, particularly in NPLs, must be carefully managed to maintain a bank's financial stability.

Prior research has explored the relationships between CAR, NPL, and bank size on performance indicators such as NIM. For instance, Purba and Triaryati (2018) found a positive relationship between CAR and NIM, while Dumicic (2018) reported an opposing negative effect. Further studies, such as those by Nugrahaning P and Wahyudi (2016) have examined the influence of NIM on NPL, with some findings suggesting a negative relationship, while others observed a positive or no significant effect. This divergence in results underscores the need for further investigation into the determinants of NIM. Notably, Anindiansyah et al. (2020) found that NPL had a positive but statistically insignificant effect on NIM, while Nugrahaning P and Wahyudi (2016) argued that NPL had a negative, non-significant effect. Additionally, the influence of bank size on NIM has yielded mixed results, with some studies indicating a direct impact, while others, such as Mahdatika and Shofawati (2022), found no such effect.

Given the inconsistencies in the literature, this study addresses the research question regarding the determinants of NIM for conventional commercial banks in Indonesia. This research is expected to contribute to a deeper understanding of the factors influencing NIM, particularly in the context of the Indonesian banking sector. Additionally, the study offers valuable insight into the role of capital adequacy, credit risk, and bank size, providing a comprehensive analysis that can help improve banking performance and stability in the region.

II. Literature Review

The existing literature in this field has led to the development of several theoretical frameworks, including the Productive Theory of Credit, concepts related to conventional banking, NIM, Capital Adequacy, Credit Risk, and Bank Size. The Productive Theory of Credit asserts that credit extended by financial institutions should be used for productive investments capable of generating sufficient income to repay the credit and yield profits for the borrower. This theory emphasizes that credit should finance projects that enhance production, economic growth, and overall prosperity. In practice, conventional banks in Indonesia apply this theory by offering short-term credit options that are highly liquid and can be repaid through installments, ensuring the liquidity necessary for ongoing operations. Nabila et al. (2019) explained that conventional banks primarily generate profits from the interest rate differential between deposits and loans, known as the "spread." This difference is central to determining the interest income, calculated as the net difference between interest income and expenses to the bank's total earning assets,

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forming the NIM. Dewi and Triaryati (2017) further described NIM as the difference between interest income and interest expense, expressed as a proportion of the bank's total earning assets.

To generate consistent interest income, maintaining adequate capital is crucial for a bank's performance. Capital plays a pivotal role in safeguarding public trust and supporting the bank's financial stability (Zahrah et al., 2022). Latif et al. (2018) defines capital as the money invested by the owner to initiate or expand business operations with the goal of wealth generation. The Capital Adequacy Ratio (CAR) is one measure of capital adequacy, assessing the proportion of risk-weighted assets (such as loans and investments) financed by the bank's capital, as compared to external sources such as public funds (Susila, 2017). In addition to capital adequacy, bank size also plays a significant role in determining the bank's ability to generate interest income. Bank size, measured by a bank's total assets relative to the total assets of other financial institutions, is positively correlated with the volume of credit allocated to the public. An increase in bank size allows for economies of scale, which, in turn, enhances profitability by reducing average costs as output increases (Nurfauziah & Sayekti, 2018).

Effective credit risk management is also essential to generating income from credit financing. Credit risk arises from the possibility that debtors or other parties may fail to fulfill their financial obligations to banks (Adam et al., 2024). One of the primary metrics used to assess credit risk is the Non-Performing Loan (NPL) ratio, calculated by dividing the amount of non-performing loans by the total loans disbursed by the bank. The NPLs serve as a critical measure of the bank's operational effectiveness. The relationship between NPLs and credit risk is direct: as the NPL ratio increases, so does the credit risk borne by the bank. Consequently, managing and mitigating NPLs is vital to maintaining the financial health of a banking institution (Bramantya & Arfianto, 2015).

III. Method

Researchers conducted research using associative quantitative research and documentation and literature study methods in data collection. The research utilizes quantitative data, defined as data expressed in numerical form that can be calculated using established units of measurement. This includes financial statement data from Indonesian conventional commercial banks, as presented in the sample. The data was retrieved from secondary data sources, specifically the annual reports of conventional commercial banks listed on the Indonesia Stock Exchange from 2018 to 2022. The annual report data was obtained from www.idx.co.id, and each banking website was used as a research sample. The population of this study comprised 41 Indonesian conventional commercial banks during the 2018-2022 period. Purposive sampling was employed, selecting 35 banks listed on the IDX during the specified period. The present study utilizes panel data regression analysis, a methodological framework integrating time series and cross-section data. This analytical approach enables the integration of broader data, thereby facilitating the attainment of enhanced degrees of freedom and facilitating the incorporation of information from both time series and cross-section data. This methodological framework addresses challenges associated with omitted variables in time series and cross-section data. The data were processed using the model shown in Equation 1.

$$Y_{it} = \alpha + \acute{y}1X1_{i,t} + \acute{y}2X2_{i,t} + \acute{y}3X3_{i,t} + e_{i,t} \quad (1)$$

A series of analyses or tests must be executed before conducting a regression test. These include descriptive statistical tests, classical assumption tests, and model specification tests. Descriptive statistics analyze observed data based on the mean, standard deviation, variance, maximum, minimum, sum, range, kurtosis, and skewness (skewness of distribution). The objective of the classic assumption test is to ascertain the utilization of the regression model. The validation of a model as a prediction tool hinges upon fulfilling these classical assumptions, which are regarded as prerequisites for constructing a linear regression model. In the context of multiple linear regression, the classical assumption test encompasses a series of evaluations, including normality, multicollinearity, heteroscedasticity, and autocorrelation tests. In addition to the model specification test, three model tests are required, including the Chow Test (F statistics), which aims to determine whether the right model to use in research is the common or fixed effect model. Second, the Hausman statistical test aims to select the most appropriate model to use between the fixed and random effect models. Finally, the Lambda multiplier test is employed to select the panel data estimation model precisely to determine whether the random effect model or the common

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effect model is to be used. Once the optimal model has been identified, the t-test, determination test, and multiple regression are employed.

IV. Results and Discussion

1. Descriptive Statistics

The subsequent section details the results of the descriptive statistical testing, which are presented in Table 1. Table 1 reveals that the standard deviation is lower than the mean, suggesting that the data distribution is approximately normal. The mean of CAR, while relatively low (0.278230), and the mean of Size, while relatively high (7.492042), are notable. The influence of government policies, which currently encourage the margerization of several banks, is evident. The acquisition of capital or assets can significantly boost the provision of higher lending services. This is consistent with the low average value of NPL (0.032520), suggesting that credit risk suppression is effectively managed through implementing bank management strategies, including in-depth credit analysis, loan portfolio diversification, securitization, collateral management, cash flow monitoring, and recovery management.

Table 1. Descriptive Statistical Analysis

	NIM	CAR	NPL	Size
Mean	0.047105	0.278230	0.032520	7.492042
Median	0.045500	0.232700	0.028000	7.398300
Maximum	0.190200	1.274200	0.117000	9.299400
Minimum	0.002200	0.090100	0.000000	4.923000
Std. Dev.	0.025327	0.159745	0.019845	0.959627
Observations	175	175	175	175

Table 1 also shows that the NIM variable's average value (mean) in 2018-2022 is 0.047105, while the standard deviation value stands at 0.025327. The findings indicate that the mean exceeds the standard deviation, suggesting that the Net Interest Margin variable at Conventional Commercial Banks in 2018-2022 does not fluctuate. Furthermore, it found that CAR indicates an average of 0.278230 and a standard deviation value of 0.159745. This shows that the mean value exceeds the standard deviation value, suggesting that the CAR is homogeneous and does not vary. Also, the NPL indicates an average of 0.032520 and a standard deviation value of 0.019845. This shows that the mean is greater than the standard deviation value, suggesting that the NPL variable data is homogeneous or does not vary. Moreover, the company size indicates an average of 7.492042 and a standard deviation of 0.959627. This shows that the mean is greater than the standard deviation value, suggesting that the NPL variable data is homogeneous or does not vary.

2. Classical Assumption Test results

The objective of the classic assumption test is to ascertain the validity of the regression model under consideration. The classical assumptions must be met for a model to serve as an effective estimation tool. In the context of multiple linear regression employing the Fixed Effects Model (FEM), only two classical assumptions must be fulfilled; the heteroscedasticity and multicollinearity tests.

Table 2. Descriptive Statistical Analysis

	CAR	NPL	Size
CAR	1.000000		
NPL	0.144945	1.000000	
Size	-0.307225	-0.124776	1.000000

According to the findings of the multicollinearity test results delineated in Table 2, the correlation value obtained is less than 0.9 for each independent variable. This finding suggests that the CAR, NPL, and company size variables do not exhibit multicollinearity among the independent variables in this study.

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As illustrated in Figure 4, the residual graph (blue color) does not intersect the boundaries (500 and -500), indicating that the residual variance remains constant. Consequently, there is an absence of symptoms indicative of heteroscedasticity, and the heteroscedasticity test is passed (Napitupulu et al., 2021).

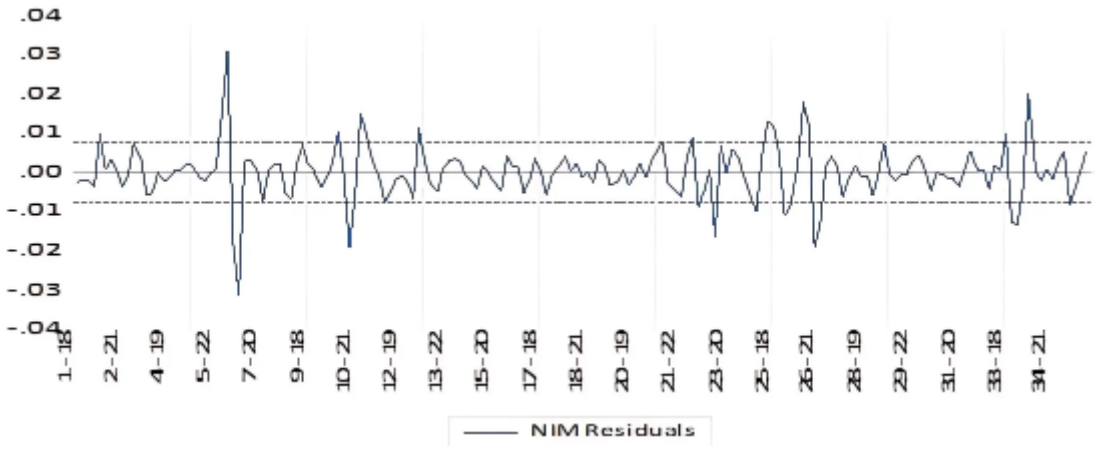

Figure 4. Heteroscedasticity Test Result

3. Result of Model Specific

3.1. Chow Test Result

Table 3 summarizes the results of the Chow test in this study. As demonstrated in Table 3, the results of the Chow test indicate the acquisition of a cross-section Chi-square probability value of 0.0000. This value is less than 0.05 with a significance level of 5%, thereby rejecting the common effects model and supporting using the fixed effects model in this study.

Table 3. Chow Test Result

Chow test	Statistic	d.F.	Prob.
Cross-section F	48.365671	(34,137)	0.0000
Cross-section Chi-square	448.908662	34	0.0000

3.2. Hausman Test Result

The model hypothesis employed in the Hausman test is articulated as shown in Table 4. The results of the Hausman test in Table 4 indicate that the cross-section probability value of 0.0003 is less than the 5% significance level (Chi-square <0.05). Therefore, the FEM is a more suitable model for this study than the Random Effect Model. Given the consistency of both the Chow and the Hausman tests, utilizing a model test employing the LM method is rendered redundant.

Table 4. Hausman Test Result

Hausman test	Chi-Square Statistic	Chi-Square d.F.	Prob.
Cross-section random	19.103342	3	0.0003

4. Panel Data Regression Analysis

The discussion will focus on the findings derived from three distinct research models: the Common Effects Model, the Fixed Effects Model, and the Random Effects Model shown in Table 5. As illustrated in Table 5, the regression equation obtained in this study is expressed in Equation 2.

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Table 5. Regression Analysis Result of Panel Data Analysis

Variable	CEM		FEM***		REM	
	Coefficient	Prob	Coefficient	Prob	Coefficient	Prob
C	0.028415	0.1061	0.271031	0.0000	0.125839	0.0000
CAR	0.036005	0.0045	0.008986	0.1595	0.003309	0.5818
NPL	-0.048722	0.6149	-0.101242	0.0466	-0.065653	0.1804
SIZE	0.001369	0.5110	-0.029783	0.0000	0.010347	0.0035
R-squared	0.046463		0.926669		0.049041	
Adj R-squared	0.029734		0.906864		0.032357	
F statistic	0.042831		0.000000		0.034738	

$$Y = 0.271031 + 0.008986X1_{i,t} - 0.101242X2_{i,t}\check{}0.029783X3_{i,t} + e \quad (2)$$

The results of the regression analysis reveal a constant value of 0.271031, which indicates that in the absence of changes to the independent variables, CAR, NPL, and size, the NIM for conventional commercial banks remains at 0.271031. The CAR (X1) regression coefficient is 0.008986, suggesting a positive correlation between CAR and NIM. Holding all other variables constant, a 1% increase in CAR leads to an increase of 0.008986 units in NIM. This relationship can be attributed to the generally larger financial resources of Indonesian banks, which, despite the greater funding capacity, are more exposed to credit risk due to extensive loan distributions. In contrast, the NPL coefficient (X2) of -0.101242 demonstrates a negative association with NIM. Consequently, a 1% increase in NPL leads to a 0.101242 unit decrease in NIM, assuming other variables are unchanged. Lastly, the regression coefficient for Size (X3) is -0.029783, indicating a negative relationship between bank size and NIM. Specifically, a 1% increase in Size, with all other factors held constant, leads to a 0.029783 unit decrease in NIM.

4.1. Hypotheses Test: Results of Partial Significance Test (t-Test)

The Effect of Capital Adequacy Ratio on Net Interest Margin

Table 5 presents the findings of the partial hypothesis testing of the independent variable on the dependent variable in this study. The research results indicate that the CAR variable has a significance value greater than 0.05, with a level of significant value of 0.1595. This finding indicates that the CAR of Indonesian Conventional Commercial Banks from 2018 to 2022 does not significantly influence NIM. This is because conventional banks in Indonesia tend to expand (Akmal & Kusumastuti, 2024). The study contributes to the ongoing debate on the relationship between CAR and NIM in Indonesian conventional commercial banks. It shows that CAR does not significantly influence NIM from 2018 to 2022, challenging the existing hypothesis that a higher CAR leads to lower NIM due to conservative lending practices.

A higher CAR is associated with a lower NIM, possibly due to a more conservative approach in setting interest rates, which in turn leads to a reduction in potential interest income. Conversely, a low CAR may indicate financial distress, hindering the bank's ability to offer competitive interest rates. A substantial decline in income from diverse sources, including interest, non-interest, or income from investment activities, could impede a bank's capacity to fortify its capital, thereby inducing financial strain with a concomitant negative impact on its NIM. This finding is consistent with those of a study conducted by Purnamasari and Renanda (2022), who determined that the CAR does not significantly impact NIM in most banks. Rather, it results from conventional commercial banks' failure to optimize their existing capital during a given period. This finding adds nuance to previous studies that emphasized a more direct connection between these variables and opens avenues for further research into the capital management strategies of Indonesian banks.

The correlation between the productive theory of credit and a high CAR signifies enhanced financial security. However, this could also imply that Indonesian conventional banks possess diminished funds available for the extension of credit. Nevertheless, conventional banks with a reputation for high financial safety are likely to gain the confidence of the financial markets, which could lead to lower borrowing costs.

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The relationship between CAR and the productive theory of credit is a mutually reinforcing relationship. The productive theory of credit ensures that credit provided by banks is used for income-generating purposes and economic value-added, which reduces the risk of default and increases the financial stability of banks. According to Wesso et al. (2022), a robust CAR enables banks to sustain the provision of productive credit, thereby fostering economic growth and adhering to banking regulations. This dynamic can positively impact the NIM of Indonesian conventional banks, as they can allocate capital at a lower cost, thereby generating more substantial interest income. According to the productive theory of credit, the relationship between CAR and NIM reflects a balance between the financial safety of Indonesian conventional banks, selectivity in lending, and the bank's ability to generate interest income from its loan portfolio. This balance is following the principles of the productive theory of credit.

The Effect of NPL on Net Interest Margin

Furthermore, as illustrated in Table 5, the research findings indicate that NPL has a significance value of less than 0.05 compared to the significance level of 0.0466. This finding indicates that the NPL variable substantially impacts NIM at Indonesian Conventional Commercial Banks during the observed period. The regression coefficient value of the NPL variable is -0.101242, indicating that for every one-unit increase in NPL, NIM will decrease by -0.101242. The findings are consistent with the framework and hypotheses proposed by the authors of this study, which posits that NPLs exert a partial influence on the NIM of Indonesian conventional commercial banks during the period 2018 to 2022. The study provides a substantial contribution to understanding how NPLs affect NIM in Indonesian conventional commercial banks. A high NPL ratio indicates the bank is more susceptible to adverse credit risk. This is consistent with those of a previous study by Widyanto et al. (2020), which reported that NPL significantly impacts NIM. The existence of a unidirectional relationship between NPL and NIM is attributable to the fact that banking institutions that channel funds are confronted with an uncertain level of macroeconomic conditions and other uncertainties, namely the existence of bad debts. These banking institutions then face uncertainty over interest income and credit returns from debtors to very large banks. Banks engaging in riskier credit practices are likely to prompt banks to augment their revenue loss reserves by increasing loan interest rates and widening margins. Consequently, an escalation in credit risk, or NPL holdings, on the part of the bank will result in an augmentation of the interest income margin, thereby serving as a means of offsetting losses incurred (Ferdianti, 2015). The relationship between NPL and the productive theory of credit is interrelated, affecting each other. By adhering to the productive theory of credit, conventional commercial banks can ensure that loans are utilized for income-generating activities, thereby mitigating the risk of default and reducing the level of NPL. Conversely, a low level of NPL indicates productive and effective loan management, which supports Conventional Commercial Banks' financial stability and promotes economic growth.

The Effect of Bank Size on Net Interest Margin

The findings demonstrate that the variable of bank size exhibits a statistically significant value of $p < 0.05$ compared to the established level of statistical significance, which is 0.0000. The NPLs have been shown to have a demonstrable impact on a bank's profit margin, leading to a decline in its capital. The present study's findings are consistent with the framework and hypotheses proposed by the authors, which postulate that size exerts a partial influence on the NIM of Indonesian Conventional Commercial Banks during the period 2018-2022. The findings of this study are consistent with those of a previous study by Solichah and Hersugondo (2022) which also concluded that bank size has a significant impact on NIM. Larger banking institutions generally exhibit a more modest NIM than their smaller counterparts. This result contributes to understanding why large banks might experience a more modest margin despite having a broader loan portfolio. The study sheds light on operational costs, the impact of diversified investment strategies, and competition for funding sources as key reasons for this phenomenon.

Primarily, larger banking institutions tend to possess a more extensive branch network and engage in more intricate operations, necessitating elevated operating expenses. These expenses encompass technology infrastructure, human resources, and enhanced risk management. Secondly, large banks tend to allocate more of their funds into less liquid and riskier investments, which often result in lower returns than lending to customers. Additionally, large banks often face competition with lower interest rates when securing funding sources, such as large certificates of deposit and corporate bonds, which are considered

safer by the market. Consequently, despite the potential for higher interest income from a larger loan portfolio, the costs and pressures associated with cheaper and safer funding sources frequently result in a smaller NIM than smaller banks. These smaller banks may benefit from a lower cost structure and a focus on more profitable loans (Sutandijo & Sugiyarti, 2022).

Furthermore, the relationship between bank size and the Productive Theory of Credit can be explained as such: credit provided by conventional commercial banks must be used for productive purposes that generate income or add value to assets. The provision of productive credit is expected to increase production capacity, encourage economic growth, and strengthen the ability of borrowers to repay loans (Berger & Udell, 2001). Their size significantly influences the capacity of banks to operationalize the Productive Theory of Credit. Large conventional commercial banks possess distinct advantages in terms of resources, diversification, access to capital, and operational efficiency, all of which can support productive lending. Conversely, small commercial banks possess distinct advantages, including local knowledge and community relationships, which can facilitate support for productive projects at the local level. It is imperative to acknowledge that both types of banks have a pivotal role to play in supporting economic growth through productive lending, and each has a distinct strategy and approach to achieving this objective.

Determination R^2 Test Result and f-Test

The coefficient of determination is a statistical measure of how well a model can explain the variation in a data set. The coefficient of determination ranges from 0 to 1, with higher values indicating a stronger association between the independent and dependent variables. A low R2 value suggests that the independent variables cannot adequately explain the variation in the dependent variable. Conversely, values approaching 1 indicate that the independent variables provide a substantial amount of information necessary for predicting the variation in the dependent variable (Azmy et al., 2019). This research contributes to understanding the explanatory power of the CAR, NPL, and bank size in determining NIM. As illustrated in Table 6, the adjusted R-squared value is 0.926669, indicating a substantial degree of explanatory power.

Table 6. Results of Determination R^2 Test Result and f-Test (FEM)

Variable	R-Squared	Adj R-squared	F statistic
FEM	0.926669	0.906864	0.000000

The coefficient of determination indicates that the independent variables, comprising the CAR, NPL, and bank size, can account for 92.6669% of the variability in the Net Interest Margin variable of Indonesian Conventional Commercial Banks. The residual 7.3331% (100-value Adjusted R-Squared) is attributed to other variables not encompassed in this study. This finding reinforces the importance of these factors in determining the financial performance of Indonesian conventional commercial banks. It provides a robust statistical foundation for further studies on the determinants of NIM. It also suggests that while the study covers the most influential variables, there is still room for other factors to be explored in future research.

Research on the determinants of NIM in banking institutions has demonstrated congruence with numerous studies, including the findings of CAR research, which has been shown to exert a positive influence on NIM. This observation aligns with the results reported by Nurfauziah and Sayekti (2018), who concluded that total assets favorably impact net interest margin. Conversely, the outcomes of research on NPL demonstrate a negative correlation with NIM, aligning with the findings of Damayanti and Mawardi (2022). Their research indicates that NPLs have a substantial negative impact on bank performance. Furthermore, the findings of research on the impact of bank size on NIM are consistent with the results reported by Wanady et al. (2022) and Arif (2018). However, these results are at odds with those reported by Nurfauziah and Sayekti (2018) which suggest that bank size has a positive effect on net interest margin.

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V. Conclusion

The Findings indicate that the employment of the FEM demonstrates a positive and insignificant effect on the CAR of conventional commercial banks. Furthermore, the analysis reveals a negative and significant effect of NPL on the CAR of conventional commercial banks. Additionally, the study shows that bank size exerts a negative and significant effect on the CAR of conventional commercial banks. The results of this study contribute collectively to expanding the knowledge of financial performance determinants in Indonesian banks, with particular emphasis on how regulatory, operational, and strategic factors interact to influence key financial metrics such as NIM.

In this study, the authors acknowledge the limitations inherent in their research despite their best efforts to mitigate them. One such limitation pertains to utilizing a sample constrained to the 2018-2022 timeframe. The findings will vary if the study were to be conducted over a more extensive period. Additionally, the researchers acknowledge that extraneous variables, not included in their study, may also contribute to the variation in NIM. Consequently, the variables employed in this study may not fully capture all the factors that influence NIM. The authors recommend further expanding the scope of this research; it is anticipated that the number of research samples and research periods will be augmented with the incorporation of additional variables beyond the scope of this study. This approach is expected to yield more comprehensive and profound research outcomes concerning the variables that impact NIM. Secondly, from an academic standpoint, it is anticipated that this research will contribute to advancing knowledge concerning CAR, NPL, Size, and NIM. This enhanced understanding can then serve as valuable insights for advancing science. Thirdly, it is recommended that companies use this research as a reference for decision-making processes aimed at increasing NIM. To that end, companies can optimize CAR so that NIM can increase properly. Consequently, investors can utilize these findings as a reference point and an overview of the factors influencing NIM in conventional commercial banks. This, in turn, can assist investors in making informed decisions before investing, thereby achieving optimal profits while minimizing investment risk.

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