



DETERMINANTS OF NET INTEREST MARGIN OF LISTED COMMERCIAL BANKS IN INDONESIA

Linda Megawaty¹⁾, Gracia S. Ugut²⁾

^{1,2)}Magister Manajemen, Universitas Pelita Harapan, Jakarta, Indonesia

Abstrak

The purpose of this study is to identify the determinants of Net Interest Margin in listed commercial banks in Indonesia, particularly the banks which are under the category of BUKU III and BUKU IV. The study uses a set of independent variables which are classified to bank-specific variables (asset size, capital adequacy ratio, asset quality, liquidity, deposits, assets management, operating efficiency, leverage) and macro-economic variables (exchange rate, inflation rate, interest rate, economic growth). The methodology used in this research is a data panel regression approach where common effect, fixed effect and random effect model are built using five-year-secondary data for period of 2015-2019. The sampling data are taken from 21 listed commercial banks in Indonesia categorized under BUKU III and BUKU IV. The result of this study indicates that capital adequacy, asset quality, deposits, asset management, and exchange rate have significant impacts on NIM.

Kata Kunci: data panel regression, Indonesian banking, net interest margin, profitability

INTRODUCTION

According to World Bank, Indonesia is the largest economy in Southeast Asia. The largest archipelago nation of more than 300 ethnic groups, Indonesia as an emerging economy has booked impressive economic growth since overcoming the Asian financial crisis in late 1990s. Today, Indonesia is the world's fourth most populous country, the world's 10th largest economy in terms of purchasing power, cutting the poverty rate by more than

half since 1999, to 9.78% in 2020. Prior to the COVID-19 crisis, Indonesia was able to maintain consistent economic growth, recently qualifying the country to reach upper middle income status (*The World Bank in Indonesia, 2021*).

There is no doubt that banking sector plays an important role in financial stability and the economy of a country. As a financial intermediary, bank collects deposits from public and granting loans and credit facilities to its client to accelerate economic growth.

*Correspondence Address : fitri2996@gmail.com
DOI : 10.31604/jips.v9i1.2022.65-75
© 2021UM-Tapsel Press

During the process, the bank will pay interest when collecting the deposits and the bank will receive interest when granting loans. The spread between the interest paid to depositor and the interest collected from lenders is called interest margin. Net interest margin (NIM) of a bank is the difference between total interest collected and total interest paid divided by the bank's total asset (Tarus et al., 2012). NIM can be used as one of the indicators of bank's profitability and how efficient a banking system works. Ideally the more efficient the banking system is, the lower the net interest margin is.

According to Bank Indonesia Regulation No. 14/26/PBI/2012 dated December 12, 2012, the commercial banks in Indonesia are classified based on their Core Capital. The classification stipulates permitted activities for each category known as "BUKU" (*Bank Umum berdasarkan Kegiatan Usaha* – Commercial Bank based on Business Activities). The classification is elaborated below:

1. BUKU I : Core Capital of less than Rp 1 Trillion
2. BUKU II : Core Capital of Rp 1 – 5 trillion
3. BUKU III : Core Capital of Rp 5 – 30 trillion
4. BUKU IV : Core Capital of at least Rp 30 trillion

This study targets to examine the determinants of net interest margin in Indonesian banking sector based on two categories; bank-specific variables and macroeconomic variables by using a panel data regression model. The study will focus particularly on the listed commercial banks in Indonesia categorized under BUKU III and BUKU IV. Based on Indonesia Banking Statistics Vol. 19 No. 6 May 2021, both the commercial banks under BUKU III and BUKU IV contributes to 85.87% of the total banking assets in Indonesia.

This study intends to answer the question why some commercial banks enjoy better NIM than others in the Indonesian banking industry, to what degree the management decision (bank-specific factor) and external factors (macroeconomic factor) will contribute to the variability of the bank's NIM. The answers will provide assistance in recognizing the characteristics of successful Indonesian commercial banks. Next, the bank management may design the policies and react with the external factors accordingly in order to increase the profitability.

LITERATURE REVIEW

One of the pioneering studies focusing on the determinants of net interest margin was conducted by (Ho & Saunders, 1981) with the basic concept that banks were only the intermediary between borrowers and lenders. In this case, banks only act as risk-averse dealers. Therefore, net interest margin is defined as the difference between the interest charged to borrowers and the interest paid to depositors and it does not include the bank's revenue generated from fees and commissions. Furthermore, the study discovered that the pure spread was influenced by four factors: managerial risk aversion, the amount of the bank's transactions, bank market structure, and interest rate variance.

There are a lot of studies in many countries and region which focuses on examining the determinants of the bank's profitability including Net Profit Margin. Most studies divides the determinants to be two categories: bank-specific variables which depend on the bank's management decision and the macroeconomic variables which depend on socioeconomic and legal situation affecting the banking industry performance. Al-Homaidi et al., (2018) examines the factors determining the bank's profitability in India. The finding

demonstrates that all bank-specific criteria mentioned in the research, except the number of branches, had a significant impact on NIM. The findings also suggest that the macroeconomic indicators included in the study are substantial and have a negative impact on the profitability (including NIM) of Indian commercial banks.

Bank-specific factors

The larger the size of the bank, which is measured by larger asset size, the more efficient it is in managing its capital cost. Bigger banks are expected to be able to raise capital cheaper due to economies of scale therefore increasing their profitability particularly on NIM. The study of (Alpen & Anbar, 2011) shows positive impact between total bank's assets and its profitability while the study of (Gul, 2011) show a negative impact between total bank's assets and its profitability.

The capital ratio is a measure of a bank's ability to keep and own cash in the event of financial distress. Throughout the financial crisis, it will become clear how the poor quality of capital ratio and unanticipated losses effect bank profitability. The researchers (Lardic & Terraza, 2019) and (Abdelaziz et al., 2020) discovered a negative relationship between profitability and capital adequacy ratio. However, some other researches showed different result whereas higher capital adequacy ratio improves bank performance and has a favorable impact on profitability. The study of (Al-Homaidi et al., 2018) and (Farooq et al., 2021) showed positive significant relationship between capital adequacy ratio and the bank's profitability.

Prior researches have commonly employed the loan-to-total-assets ratio as a measure of asset quality. Unless the bank is at unacceptably high-risk levels, asset quality is expected to have a

negative impact on profitability (Rani & Zergaw, 2017).

In today's global environment, it's critical for the banks to have a significant amount of liquid assets to ensure long-term company stability. If banks are unable to meet a fair liquidity ratio, they will be at risk of going bankrupt. When a bank's liquidity is set to an ideal level, it has a favorable impact on the bank's profitability and stability. The study of (Al-Homaidi et al., 2018) showed significant positive impact between the bank's NIM and liquidity ratio.

One of the main important sources for the banks' liquidity is the deposits from its customers as deposits from customers are the most cost-effective source of fund. Deposits are typically thought to have a favorable impact on bank profitability as long as borrowers are willing to take out loans (Al-Homaidi et al., 2018).

The ratio of total operating income to total assets is used to calculate the asset management ratio. According to (Masood & Ashraf, 2012), the higher the asset management ratio, the higher the bank's profitability. In line with this, lower the operating efficiency ratio (ratio of total operating expenses to total assets) shows management capability to be more efficient.

As equity is less expensive than debt, the profitability of the bank usually theoretically declines if the leverage ratio increases. The study of (Al-Homaidi et al., 2018) shows that leverage ratio has a negative impact on bank profitability.

Macroeconomic factors

Foreign exchange rate risk will affect banks which also maintains assets and liabilities in foreign currencies. Fluctuation in exchange rates will impact the bank's capital and net interest margin. The previous research in Indonesia conducted by (Endri et al., 2020) concluded that exchange rate has

significant negative relationship to the bank's profitability measured by NIM, whereby depreciation of local currency can affect the quality of loan negatively therefore reducing the NIM.

The real value of expenditures and income is affected by inflation. Depending on whether inflation is expected or unexpected, the link between inflation and profitability can have a positive or negative impact on profitability (Perry, 1992). If an increase in inflation is expected, banks can change interest rates quickly to boost revenues while lowering costs. The study of (Noman et al., 2015) illustrated positive link between inflation rate and profitability. On the other hand, if the rate of inflation is not expected, banks will be unable to make adequate interest rate changes quickly, causing expenses to outpace revenues. Consequently, this will have a negative influence on a bank's profits which is shown by the study of (Jadah et al., 2020).

The capability of a bank to determine interest rate which can readily cover its funding expenses, operating costs, and the return over risk weighted asset return is the vital issue to focus on. Previous studies suggested mixed results. The study of (Bilal et al., 2013; Yahya et al., 2017) showed positive effect of the interest rate on bank's performance whilst the study of (Noman et al., 2015; Rashid & Jabeen, 2016) showed negative effect of interest rate on bank's performance.

In theory, economic growth which is measured by GDP growth will trigger more loan requests to the banks thus it will improve the bank's profitability. The study of (Petria et al., 2015) illustrated positive effect of GDP growth to bank's performance. Another study of (Jadah et al., 2020) also showed positive relationship between GDP growth and Iraqi's bank profitability.

DATA AND METHODOLOGY

This study analyzes the factors determining the net interest margin of commercial banks listed on the Indonesia Stock Exchange (IDX) from 2015-2019. The independent variables examined in this study are divided into two categories; (i) bank-specific variables, and (ii) macroeconomic variables. Bank specific variables include asset size, capital adequacy ratio, asset quality ratio, liquidity ratio, deposit ratio, asset management ratio, operating efficiency ratio, and leverage ratio. Macroeconomic variables include exchange rate, inflation, interest rate and GDP growth. The detail measurement of each variable is based on the definition outlined in Table 1 below.

Table 1. Variables used in the model

Category	Variables	Measurement	Notation
Dependent Variables	Net interest Margin	Ratio of net Interest to Total Assets	NIM
Independent Variables	Asset size	Total assets	ASS
	Capital Adequacy	Ratio of total equity to total assets	CAR
	Asset quality	Ratio of total loan to total assets	ASQ
	Liquidity	Ratio of total liquid assets to total assets	LIQ
Bank-specific variables	Deposits	Ratio of total deposits to total assets	DEP

Macro-economic variables	Asset Mana gement	Ratio of total operating income to total assets	AS M
	Operating Efficiency	Ratio of total operating expenses to total assets	OPF
	Leverage	Ratio of total liabilities to total assets	LEV
	Exchange Rate	Average exchange rate of USD/IDR during a fiscal year	EXC
	Inflation Rate	Annual inflation rate	IFR
	Interest Rate	Average lending interest rate	INT
	GDP growth	The percentage of GDP growth	GD P

regression model represented by below function:

$$NIM_{it} = c_0 + c_1 Log ASS_{it} + c_2 CAR_{it} + c_3 ASQ_{it} + c_4 LIQ_{it} + c_5 DEP_{it} + c_6 ASM_{it} + c_7 OPF_{it} + c_8 FIR_{it} + c_9 EXC_{it} + c_{10} IFR_{it} + c_{11} INT_{it} + c_{12} GDP_{it} + \epsilon_{it} \quad \text{Equation 1}$$

Where i refers to each individual bank, t indicates the year; c_0-c_{13} refers to the coefficient determinants and ϵ is the error term. All other variables refer to the bank-specific criteria and macroeconomic variables in Table 1. The regression model was estimated using common, fixed, and random effect model. In order to determine the most appropriate model, first we do Chow test to compare between Common Effect Model and Fixed Effect Model. Chow test result in Table 2 indicates that Fixed Effect Model is more suitable because the cross-section chi-square is < 0.05 . Subsequently, Hausman test is conducted to decide between Fixed Effect Model and Random Effect Model. Hausman test result in Table 3 showed invalid cross-section test variance, meaning that Hausman test can't be used to decide between Fixed Effect Model and Random Effect Model. Another method used is to compare the R^2 of each model in which we conclude that Fixed Effect Method is the most appropriate as it has the highest R^2 value. In addition, the Durbin Watson statistic figures for all three model are compared and it is found that Fixed Effect Model has the Durbin Watson statistic figures which is only slightly below 2 (1.966). Therefore, Fixed Effect Model is chosen in this research.

Table 2. Chow Test Result

Effects Test	Statistic	d.f.	Prob.
Cross-section F	14.668901	(20,72)	0.0000
Cross-section Chi-square	170.547970	20	0.0000

The population in this study is the listed commercial banks on the IDX from 2015 to 2019. The sample was taken based on the following criteria:

- 1) listed commercial banks under the core capital category of BUKU III and BUKU IV
- 2) listed commercial banks which had complete data availability during the period of 2015-2019 both for bank-specific variables and external variables

Based on above criteria, there were 21 banks observed as a sample in this study using the panel data

Table 3. Hausman Test Result

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	12	1.0000

* Cross-section test variance is invalid.
Hausman statistic set to zero.

The descriptive statistics shown in

shows that there is a considerable heterogeneity amongst the sample banks.

Table 4 below depicts the trend of all studied variables for the sample over the period of 2015-2019. The variation between the mean and the median values of all studied variables

Table 4. Descriptive Statistics

Variables	Minimum	Maximum	Mean	Median	Std. Dev.
Dependent variables					
NIM	0.005	0.290	0.059	0.045	0.052
Independent variables: Bank-specific variables					
ASS	1.647	21.072	7.652	5.161	4.893
CAR	0.063	2.528	0.270	0.152	0.509
ASQ	0.191	0.904	0.647	0.649	0.093
LIQ	0.119	1.174	0.309	0.249	0.181
DEP	0.123	0.846	0.675	0.712	0.155
ASM	-0.069	0.122	0.023	0.020	0.025
OPF	-0.082	0.521	0.046	0.032	0.061
LEV	0.159	0.937	0.805	0.842	0.151
Independent variables: Macroeconomic variables					
EXC	13,308.300	14,236.900	13,692.620	13,389.400	411.897
IFR	0.028	0.064	0.040	0.035	0.012
INT	0.063	0.075	0.068	0.066	0.004
GDP	0.049	0.052	0.050	0.050	0.001

Number of observations: 105

Source: Processed data

The correlation matrix shown in

Table 5 below depicts that total asset, asset quality, liquidity, deposits, leverage, exchange rate, GDP growth has negative correlation with NIM whilst capital adequacy, asset management, operating efficiency, inflation rate, and interest rate has positive correlation with NIM or in other words move in the same direction with NIM. The table also

shows that the highest absolute value of correlation among independent variables is 0.83 which is still under 0.9; therefore, no indication of multicollinearity problem among the independent variables.

Table 5. Correlation matrix

	NIM	ASS	CAR	ASQ	LIQ	DEP	ASM	OPF	LEV	EXC	IFR	INT	GDP
NIM	1												
ASS	(0.27)	1											
CAR	0.01	0.20	1										
ASQ	(0.09)	(0.12)	0.05	1									
LIQ	(0.01)	0.37	0.50	(0.42)	1								
DEP	(0.75)	0.32	0.01	0.10	0.06	1							
ASM	0.68	(0.18)	(0.10)	0.17	(0.14)	(0.45)	1						
OPF	0.52	(0.11)	(0.04)	0.01	(0.10)	(0.28)	0.34	1					
LEV	(0.90)	0.25	(0.00)	0.18	(0.05)	0.83	(0.53)	(0.41)	1				
EXC	(0.07)	0.02	0.02	(0.03)	(0.04)	(0.12)	(0.06)	(0.20)	(0.06)	1			
IFR	0.05	(0.03)	(0.02)	0.11	0.04	0.12	0.03	0.22	0.07	(0.55)	1		
INT	0.05	(0.02)	(0.01)	0.11	0.04	0.09	(0.01)	0.18	0.05	(0.46)	0.68	1	
GDP	(0.03)	0.02	0.01	(0.08)	(0.10)	(0.06)	(0.00)	(0.19)	(0.04)	0.55	(0.80)	(0.72)	1

RESULTS AND DISCUSSION

Results

Error! Reference source not found. below illustrates the empirical result for the model in Equation 2 using Fixed Effect Model. The F-test shows that the F-statistic value is 115.6105 with probability value result of 0.000000 which is very small compared to significance level of 1%, therefore the sample data show that the regression model fits the data and null hypothesis is rejected. The Durbin Watson statistic result is around 2 (DW=1.966) which shows that there is almost no serial correlation in the model. **Table 6** below illustrates the heteroskedasticity test result using White method, whereby it shows that the probability chi-squared is 0.0604 which is higher than 0.05 therefore no heteroskedasticity problem is detected. The R² result from the model using Fixed Effect Model is 0.98091. It indicates that all variables combined together contribute 98.09% to the

dependent variable (NIM) while other variables not studied in this model contribute 1.91%. The hypothesis for each regression coefficient of the independent variable is tested using the t-test to empirically prove that each independent variable could impact the ratio of NIM at significance level of 1%, 5%, or 10%. With a confidence level of 10%, the T-test indicates that capital adequacy, asset quality, deposits, asset management individually impact the bank's NIM positively and significantly whilst exchange rate impacts the bank's NIM negatively and significantly. From all of the twelve variables there are four bank-specific variables and one macroeconomic variable that significantly impact the bank's NIM ratio.

Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	0.818263	0.369711	2.213251	0.0301	
LOG(ASS)	0.020246	0.027821	0.727746	0.4691	
CAR	0.191898	0.075354	2.546602	0.0130	**
ASQ	0.082253	0.029134	2.823291	0.0061	***
LIQ	0.002035	0.008644	0.235381	0.8146	
DEP	0.091735	0.028624	3.204871	0.0020	***

ASM	0.169061	0.095436	1.771466	0.0807	*
OPF	0.006819	0.020441	0.333609	0.7396	
LEV	0.042315	0.083600	0.506154	0.6143	
LOG(EXC)	-0.123455	0.040927	-3.016476	0.0035	***
IFR	0.059907	0.132348	0.452645	0.6522	
INT	0.384063	0.306753	1.252027	0.2146	
GDP	2.869039	1.818139	1.578009	0.1189	
R ²	0.98091	Mean dependent var		0.058827	
Adjusted R ²	0.97243	S.D. dependent var		0.051974	
S.E. of regression	0.008631	Sum ² resid		0.005363	
F-statistic	115.6105	Durbin-Watson stat		1.966359	
Prob(F-statistic)	0.000000				

Note: significant at *** 1%, ** 5%, * 10% level

Table 6. Heteroskedasticity Test

Heteroskedasticity Test: White			
F-statistic	6.689258	Prob. F(80,24)	0.0000
Obs*R-squared	100.4931	Prob. Chi-Square(80)	0.0604
Scaled explained SS	102.1031	Prob. Chi-Square(80)	0.0485

Table 7. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	11.83782	Prob. F(2,90)	0.0000
Obs*R-squared	21.86873	Prob. Chi-Square(2)	0.0000

DISCUSSION

The research result from the chosen sample in Indonesia illustrates that bank-specific factors which significantly affect the NIM are capital adequacy, asset quality, deposits, and asset management. Asset size did not statistically affect the NIM in the sample and this result is different from previous result in other researches (Al-Homaidi et al., 2018; Farooq et al., 2021) which conclude that asset size impacts the NIM. Capital adequacy ratio has a positive impact to NIM showing that when the

bank has higher capital they want a higher NIM to offset the greater cost of equity financing which is similar to the finding of (Maudos & Fernández de Guevara, 2004). Asset quality (ratio of total loan to total assets) has a positive impact to NIM showing that the larger the loan extended by the bank the higher the NIM they want as the proportion of risky asset is higher. This is in line with the result of (Al-Homaidi et al., 2018; Farooq et al., 2021) in their research for the samples in India and Pakistan. Liquidity (ratio of total liquid assets to total assets) did not statistically affect the NIM in the sample and this result is similar to the same research done in Pakistan by (Farooq et al., 2021) but different from research in India by (Al-Homaidi et al., 2018). Deposits (ratio of total deposits to total assets) positively affect NIM and it is aligned with the result of (Owoputi et al., 2014) that higher DEP provides opportunity for credit and investment therefore will improve the bank's profitability if utilized correctly. Asset management (ratio of total income to total assets) positively impact the NIM

in the sample and it is aligned with the finding of (Masood & Ashraf, 2012) which suggested that a positive relationship exists between higher asset management ratio and the bank's profitability. Operating efficiency measured in this study is the ratio between total operating expenses and total assets which implies the idea that the larger balance sheet needs bigger operations with more expenses. The research result in this paper do not show any correlation between operating efficiency and net interest margin. The leverage (ratio of total liabilities to total assets) data studied in this sample does not have significant relationship with the NIM and this contradicts with the findings of (Al-Homaidi et al., 2018) which concludes negative relationship with the NIM in India.

Among all of the macro-economic variables used in this study, the result in **Error! Reference source not found.** illustrates that only the variable of exchange rate is statistically significant on the net interest margin in Indonesia. It shows that the higher the exchange rate in USD/IDR (the weaker the Indonesian rupiah is), the net interest margin will fall. The negative correlation between exchange rate and net interest rate margin supports the finding of (Al-Homaidi et al., 2018) and (Farooq et al., 2021). The other macro-economic variables which are inflation rates, interest rates and GDP growth are not statistically significant and have positive relationship with NIM. The finding of (Al-Homaidi et al., 2018) also shows that IFR and INT do not impact the NIM significantly in India but the study of (Farooq et al., 2021) shows that IFR and INT are statistically significant to NIM with the sample data in Pakistan.

CONCLUSION

This paper analyses the factors (bank-specific and macroeconomic) which influence the banking profitability

in form of Net Interest Margin in 21 listed commercial banking in Indonesia during 2015 – 2019. The banks which are taken into sample are the banks categorized under BUKU III and BUKU IV based on Bank Indonesia Regulation No. 14/26/PBI/2012 dated December 12, 2012. The research is analyzed using Fixed Effect panel data regression. The result of the research shows that CAR, ASQ, DEP, ASM positively and significantly impact the bank's NIM ratio whilst EXC negatively and significantly affect the NIM ratio. Other variables included i.e. ASS, LIQ, OPF, LEV, IFR, INT, GDP growth are proven not to have significant statistical impact to NIM. All of the independent variables can explain 98% of the variation in the NIM.

The research can be expanded in the future by analyzing the variations in bank's profitability using the proxy of ROE, ROA in addition to NIM for the commercial banking in Indonesia. In addition, considerations can be made to compare and analyze the determinants of bank's NIM among other countries in South East Asia as it is believed that the NIM of banks in Indonesia is the biggest compared to the NIM in other countries in South East Asia, therefore the analysis of the comparisons might give better insight for the government in the region to plan for their monetary policies.

ACKNOWLEDGEMENTS

I would like to thank all of the mentors in Universitas Pelita Harapan and independent reviewers who provided assistance to review this paper

REFERENCES

Abdelaziz, H., Rim, B., & Helmi, H. (2020). The Interactional Relationships Between Credit Risk, Liquidity Risk and Bank Profitability in MENA Region. *Global Business Review*. <https://doi.org/10.1177/0972150919879304>

Al-Homaidi, E. A., Tabash, M. I., Farhan, N. H. S., & Almaqtari, F. A. (2018). Bank-specific

- and macro-economic determinants of profitability of Indian commercial banks: A panel data approach. *Cogent Economics and Finance*, 6(1), 1–26. <https://doi.org/10.1080/23322039.2018.1548072>
- Alpen & Anbar. (2011). Bank specific and Macroeconomic determinants of Commercial Bank Profitability: Empirical Evidence from Turkey. *Business and Economics Journal*, 2(2).
- Bilal, M., Saeed, A., Gull, A., & Akram, T. (2013). Influence of bank specific and macroeconomic factors on profitability of commercial banks: A case study of Pakistan. *Research Journal of Finance and Accounting*, 4(2).
- Endri, E., Marlina, A., & Hurriyaturrohmah. (2020). Impact of internal and external factors on the net interest margin of banks in Indonesia. *Banks and Bank Systems*, 15(4). [https://doi.org/10.21511/bbs.15\(4\).2020.09](https://doi.org/10.21511/bbs.15(4).2020.09)
- Farooq, M., Khan, S., Atique Siddiqui, A., Tariq Khan, M., & Kamran Khan, M. (2021). DETERMINANTS OF PROFITABILITY: A CASE OF COMMERCIAL BANKS IN PAKISTAN. *Humanities & Social Sciences Reviews*, 9(2). <https://doi.org/10.18510/hssr.2021.921>
- Gul, S. I. F. Z. K. (2011). Factors Affecting Bank Profitability in Pakistan. *Romanian Economic Journal*.
- Ho, T. S. Y., & Saunders, A. (1981). The Determinants of Bank Interest Margins: Theory and Empirical Evidence. *The Journal of Financial and Quantitative Analysis*, 16(4). <https://doi.org/10.2307/2330377>
- Jadah, H. M., Alghanimi, M. H. A., Al-Dahaan, N. S. H., & Al-Husainy, N. H. M. (2020). Internal and external determinants of Iraqi bank profitability. *Banks and Bank Systems*, 15(2). [https://doi.org/10.21511/bbs.15\(2\).2020.08](https://doi.org/10.21511/bbs.15(2).2020.08)
- Lardic, S., & Terraza, V. (2019). FINANCIAL RATIOS ANALYSIS IN DETERMINATION OF BANK PERFORMANCE IN THE GERMAN BANKING SECTOR. *International Journal of Economics and Financial Issues*, 9(3). <https://doi.org/10.32479/ijefi.7888>
- Masood, O., & Ashraf, M. (2012). Bank-specific and macroeconomic profitability determinants of Islamic banks: The case of different countries. *Qualitative Research in Financial Markets*, 4(2–3). <https://doi.org/10.1108/17554171211252565>
- Maudos, J., & Fernández de Guevara, J. (2004). Factors explaining the interest margin in the banking sectors of the European Union. *Journal of Banking and Finance*, 28(9). <https://doi.org/10.1016/j.jbankfin.2003.09.004>
- Noman, A. H. M., Manir Chowdhury, M., Jahan Chowdhury, N., Jonaed Kabir, M., & Pervin, S. (2015). The Effect of Bank Specific and Macroeconomic Determinants of Banking Profitability: A Study on Bangladesh. *International Journal of Business and Management*, 10(6). <https://doi.org/10.5539/ijbm.v10n6p287>
- Owoputi, J. A., Kayode, O. F., & Adeyefa, F. A. (2014). Bank Specific, Industry Specific and Macroeconomic Determinants of Bank Profitability in Nigeria. *European Scientific Journal*, 10(25).
- Perry, P. (1992). Do Banks Gain or Lose from Inflation? *Journal of Retail Banking*, 14(2).
- Petria, N., Capraru, B., & Ihnatov, I. (2015). Determinants of Banks' Profitability: Evidence from EU 27 Banking Systems. *Procedia Economics and Finance*, 20. [https://doi.org/10.1016/s2212-5671\(15\)00104-5](https://doi.org/10.1016/s2212-5671(15)00104-5)
- Rani, D. M. S., & Zergaw, L. N. (2017). Bank Specific , Industry Specific and Macroeconomic Determinants of Bank Profitability in Ethiopia. *International Journal of Advanced Research in Management and Social Sciences*, 6(3).
- Rashid, A., & Jabeen, S. (2016). Analyzing performance determinants: Conventional versus Islamic Banks in Pakistan. *Borsa Istanbul Review*, 16(2). <https://doi.org/10.1016/j.bir.2016.03.002>
- Tarus, D. K., Chekol, Y. B., & Mutwol, M. (2012). Determinants of Net Interest Margins of Commercial Banks in Kenya: A Panel Study. *Procedia Economics and Finance*, 2. [https://doi.org/10.1016/s2212-5671\(12\)00080-9](https://doi.org/10.1016/s2212-5671(12)00080-9)
- The world bank in Indonesia*. (2021). <https://www.worldbank.org/en/country/indonesia/overview>
- Yahya, A. T., Akhtar, A., & Tabash, M. I. (2017). The impact of political instability, macroeconomic and bank-specific factors on the

Linda Megawaty, Gracia S. Ugut

Determinants Of Net Interest Margin Of Listed Commercial Banks In Indonesia.....(Hal 65-75)

profitability of Islamic banks: An empirical evidence. *Investment Management and Financial Innovations*, 14(4).
[https://doi.org/10.21511/imfi.14\(4\).2017.04](https://doi.org/10.21511/imfi.14(4).2017.04)