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EFFECT OF MICROECONOMICS AND MACROECONOMICS ON FEE-BASED INCOME

DADANG AGUS SURYANTO[1], DISMAN[2], NUGRAHA[3], IKA PUTERA WASPADA[4], SUGIYANTO[5] and FRANKLIN KHARISMA GENTA[6]

[1]PhD Student Indonesian Education University, and Lecture STIE Ekuitas, Bandung.
[2]Professor, Indonesian Education University, Bandung.
[3,4]Associate Professor, Indonesian Education University, Bandung.
[5,6]Indonesian Cooperative Management Institute, Bandung.

Abstract

Bank companies in Indonesia have always experienced good development, even during the Covid-19 pandemic. This condition indicates that the bank company has good prospects in the future. The study was conducted to examine microeconomic variables (Market Concentration, Credit / Financing Market Concentration, Capital Adequacy Ratio, Liquidity Ratio, Bank Efficiency, Non-Performing Loans, and Leverage) and macroeconomics (Bank Indonesia Interest Rates, Inflation, and National Income) on fee-based income. This research uses a descriptive quantitative approach. The research sample during the financial crisis was 744 while the banking data before the crisis were 698 conventional National Commercial Banks in Indonesia, which were divided into the periodization of the financial crisis era in 2006-2011 and post-financial crisis in 2012-2017. Data analysis used panel data regression to determine the level of financial crisis in Indonesia. The results showed that the market concentration of third party funds, capital adequacy, bank liquidity, non-performing loans, and bank efficiency had a significant effect on fee based income. The concentration and leverage of the credit / financing market do not affect cost-based income. Bank Indonesia interest rates have a significant effect on fee-based income. Inflation and State Income as moderating variables affect the strengthening of the dependent and independent variables.

Keywords: Microeconomics, Macroeconomics, Fee-Based Income

JEL Classification: H13, D04

Introduction

At the time of Covid-19 in Indonesia, conditions in the banking sector were still relatively well maintained. This is reflected in the ratio of non-performing loans (NPL) and the capital adequacy ratio (CAR) of national banks, which are still at safe levels. Based on OJK data, banking NPLs up to July have increased to a level of 3.22 percent. However, this figure is still below the safe limit, which is 5 percent. Meanwhile, the national banking CAR as of July 2020 was 23.1 percent, an increase compared to the June 2020 period, 22.59 percent. Then, if you look at the loan to deposit ratio (LDR), it also continues to decline. In July, the national banking LDR was at the level of 87.76 percent, down from the previous month, which was 88.64 percent (Ramli, 2020). This condition indicates that the prospects for Bank companies in Indonesia have great opportunities in the future.

This condition is inversely proportional to the prediction that banks will no longer enjoy the high net interest margin (NIM) as before. The Indonesian government's insistence on banks to lower lending rates will impact the margins they earn. With this in mind, banks are required to diversify their sources of income. This can be done through fee-based income or by increasing

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efficiency by tightening operational costs. The high net interest margin of banks in Indonesia indicates that banks in Indonesia tend to be inefficient. The net interest margin is the difference between interest income and interest expense. The net interest margin can be defined as the difference between loan interest and savings. When viewed in general terms of profit, the greater the difference (spread) between loan interest and savings, the more fat the bank's income is. The size or size of this interest rate spread also indicates inefficient bank performance. (Norris & Floerkemeier 2007) states that the spread between loan and deposit interest rates is one indicator to assess the efficiency of financial intermediation. Each bank tends to control the interest rate spreads to maintain the efficiency and effectiveness of operational activities. In the annual reports published by nine banks listed on the stock market, state-owned or private companies in the last five years, most of the banks had NIMs classified as high, reaching above five percent.

However, several aspects of the study state that government spending has a significant role in economic growth (Dahliah et al., 2020; Fizaine & Court, 2016; Luong et al., 2020; Dinh, 2020), so is the causality between economic growth and employment, which must be bridged with government policy (Roşoiu, 2015) thereby increasing the level of community welfare (Sangha et al., 2019) and the level of acceptance of a country (Lukman et al., 2018). The correlation between bank credit growth and economic growth is in line with several research results including thereby increasing the level of community welfare (Bordo et al., 2016; Chi & Li, 2017; Ketteni & Kottaridi, 2019), which concluded that the intermediary role of banking institutions is very influential in a country's economic growth. When there is a decrease in the amount of credit extended due to caution from the bank, indirectly, there will be a slowdown in economic growth in the country concerned. There are different results regarding the relationship between bank credit and economic growth, Restrepo (2019) and Mandel and Seydl (2016) stated that the bank credit factor, which was bridged between economic and tax policies, did not affect economic growth (Olilingo & Putra, 2020).

Bank Danamon has the highest NIM among other banks. Bank Danamon's NIM ranges from eight to nine percent. Bank Danamon's lowest NIM occurred in 2015 at 8.20 percent. The decline was influenced by a four percent decrease in total consolidated assets and an increase in the ratio of bad loans or non-performing loans (NPL) in certain business lines. The other highest NIM belongs to the state-owned bank BRI. The bank's net interest margin is around eight percent. It was only in 2017 that BRI's NIM fell to 7.93 percent.

Bank Permata and OCBC NISP have the lowest NIM ratios among other banks. The net interest margin of the two banks is below five percent, lower than the national average. This shows that in the early days, providing incentives by the OJK was not yet effective in delivering NIMs for banks in Indonesia in an ideal position. A year after the policy rolled in, the NIM of the banking industry began to rise. Seven of the nine banks experienced a decrease in NIM in 2017. The average national NIM also decreased from 5.63 percent in 2016 to 5.32 percent in 2017. This decrease was also supported by BI's policy of lowering the benchmark interest rate (BI 7-Day Repo Rate) by 50 basis points gradually throughout 2017. However, it should be underlined that the decline in NIM was insignificant, relatively, very slight.

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The high NIM condition in Indonesia reflects that Indonesia's banking industry is faced with issues of relatively large levels of efficiency and risk. Therefore, banks need to find other income sources in the form of non-interest income (fee-based income). Non-interest income is a form of bank income diversification. Non-interest income is an effort to increase bank income and, at the same time, is an effort to reduce the risks faced by banks (DeYoung & Roland, 2001).

Research on the factors that determine non-interest income is one of the focuses of this study. Research on this matter in Indonesia itself is still rarely conducted, but research on the factors that determine non-interest income in other countries has been done a lot, but like interest income, research on the factors that determine non-interest income is still very diverse. Hahm (2008) found that bank size, bank efficiency, and economic growth determine non-interest income in banks in countries that are members of the Organization for Economic Co-operation and Development (OECD). However, different results were found by Meslier, Tacneng, & Tarazi (2014), which explained that bank size and efficiency had a negative effect on non-interest income.

The internal factors studied consisted of TPF Market Concentration (HDPK), Credit / Financing Market Concentration (HLOAN), Capital Adequacy Ratio (CAR), Liquidity Ratio (LDR), Bank Efficiency (BOPO), Non-Performing Loans (NPL) and Leverage (LEV). These factors are important benchmarks in estimating the income received by the bank (Mergaerts & Vennet, 2015). The external factors studied, consisting of national income, inflation, and interest rates, align with research conducted by (Berger, Klapper, & Ariss, 2009).

Literature Review

The development of the shift in the structure of bank income from interest income and the development of non-interest income in Indonesia is certainly an interesting topic for further study in terms of the factors that determine it. In addition, the debate on the results of research that has been carried out in other countries, both in developing and developed countries, can be an attraction to test empirically from the variables that have been studied for study in banking in Indonesia. Therefore, this study aims to conduct an empirical test of the bank's internal factors, which are a bank's characteristics, consisting of capital adequacy, bank liquidity, and bank efficiency. In addition, researchers also involve external bank factors consisting of national income, inflation, and reference interest rates, which will be tested in relation to interest income and non-interest income at commercial banks in Indonesia.

The shift in intermediation theory has provided room for banks to freely maintain their existence by implementing activities that generate interest and non-interest income (Allen & Santomero, 1998; Bhattacharya & Thakor, 1993). The theory of Structure Conduct Performance (SCP) reinforces this, Neuberger (1997) provides an explanation that the banking market structure created is based on the conditions of banking response to market needs.

The market structure formed in the SCP theory, according to Neuberger (1997), includes market segmentation, product differentiation, and diversification. This shows that banking has

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experienced a shift in its business pattern, which has long since abandoned the classical intermediation theory, namely only as a channel for funds obtained from the public to be channeled to those who need it in the form of credit. This situation illustrates that currently, banks receive income in two forms, namely interest income and non-interest income (Busch & Kick, 2015; Lepetit et al., 2008; Stiroh, 2013).

Busch & Kick (2015) also found that there has been an increase in non-interest income from banks in Germany, which has implications for high profitability growth from year to year. This shows the behavior of banking in Europe, which has experienced a shift in the type of income due to the European culture, making banks not only financial institutions to make loans, but rather to fulfill the need to carry out payment transactions and other financial services.

Different findings were revealed in the research of Meslier et al. (2014), precisely in developing countries, bank income is still dominated by interest income. This is quite reasonable because, in developing countries, banking is used as the driving force for micro-scale businesses. Even in their findings, they revealed that there are still many micro-scale banks whose main business is providing loans to micro-scale entrepreneurs in developing countries.

Banks' current financial crisis in Indonesia has changed the orientation of the banking business where the development of interest income at commercial banks in Indonesia shows a decline, while non-interest income has increased. This condition indicates that there has been a shift in banking activity as an intermediary institution.

Non-interest income is an aspect that attracts banking interest because this income can be another alternative for banks to increase their income. For banks, the prospect of non-interest income is a response to customers' evolving needs, along with economic growth and advances in banking service technology. Customers not only need credit or savings, but customers also need ease of transactions, insurance, and investment. The bank's products, which offer various conveniences to customers, are a source of commission-based income.

Banks' tendency to increase non-interest income is reflected in the efforts of banks to add services that offer various conveniences for their customers, practical transactions without being limited by space and time by offering various features through internet banking or mobile banking. The bank's efforts to increase non-interest income generation were also reflected in the increase in services and products, including cashless currency. Other types of products that are a source of fee-based income include wealth management, administration fees, trading finance services, etc.

Interest income is a bank business that needs to be maintained, given the bank's function as an intermediary institution and an important contributor to a country's economy. Therefore, it is necessary to study the characteristics of the bank's business as an internal factor and economic conditions as an external factor related to the two types of income so that later an empirical picture can be obtained whether these two factors determine the direction of the two types of bank income.

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Method

This research uses descriptive methods and causality. Kothari (2004) explains that a descriptive approach is an approach that seeks to explain the empirical fact picture of the object under study based on the research data obtained. At the same time, causality research is a research approach that seeks to explain the causal relationship of the variables under study. The data collection technique used by researchers is the documentation method. In accordance with the objectives and empirical research model proposed in this study, the data analysis technique was performed using unbalance panel data regression analysis. The main consideration in selecting the unbalance panel regression is because the researcher wants to obtain accurate periodic research results in accordance with the existing conditions of national commercial banks in Indonesia based on the incidence of financial crises that hit banks in Indonesia. The use of unbalance panel data regression provides three choices of regression models which will be compatible with efforts to obtain empirical answers from the interaction of the variables studied. This research focuses on conventional National Commercial Banks in Indonesia, divided into the periodization of the financial crisis-era, namely 2006 - 2011, and post-financial crisis, namely 2012 - 2017.

Table 1. Sample Number of Commercial Banks in Indonesia

Bank Group	**Number of Banks in the financial Crisis Era**					
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Bank Persero	4	5	5	4	4	4
BUSN Devisa	35	35	35	34	36	36
BUSN Non-Devisa 36	36	33	31	31	30	
BPD	26	26	26	26	26	26
Mixed Bank	17	17	15	16	15	14
Foreign Bank	11	11	8	10	10	10
Bank Group	**Number of Banks Post financial Crisis Era**					
	2012	**2013**	**2014**	**2015**	**2016**	**2017**
Bank Persero	4	4	4	4	4	4
BUSN Devisa	36	36	38	39	32	42
BUSN Non-Devisa 36	29	29	27	21	21	
BPD	26	26	26	26	27	27
Mixed Bank	14	15	12	12	12	12
Foreign Bank	10	10	10	10	10	9

Source: Indonesian Banking Statistics, 2018

After testing the hypothesis, the value of the determination of the independent variable's influence on the dependent variable can then be determined using the value of R-Square (R2) and Adjusted R Square (Adj. R2). These two values are also known as the coefficient of determination. This coefficient explains how much the variation in the dependent variable can be explained by the independent variables together. This value shows how close the regression line we estimate is to the actual data. R2 value ranges from 0 <R2 <1. The greater the R2 value,

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the better the regression model. The whole process of calculating descriptive and inferential analysis with panel data using MS software. Excel 2016 and E-Views software version 9.0.

Result and Discussion

Independent variables that are thought to have an influence on fee-based income (FBI) in this study are TPF market concentration (HDPK), credit/financing market concentration (HLOAN), capital adequacy ratio (CAR), liquidity ratio (LDR), efficiency. Banks (BOPO), non-performing loans (NPL), leverage (LEV), and BI-rate (BIRt). The fee-based income determination test is tested using panel data regression analysis. In accordance with the signs in using panel data regression, the model being analyzed must be tested on a model that is considered appropriate to explain the determinants of fee-based income, whether the model is more appropriately analyzed by common effect, fixed effect, or random effect. Regarding testing the three, this study using the Chow test and the Hausmann test Chow test is used to determine the best model among common effect models with fixed effects. Hausmann tests to determine the best model between the fixed effect or random effect (Juanda & Junaidi, 2012). The following are the tests' results for the fee-based income determinant regression model without a moderating variable.

Table 2. Chow Fee-Based Income Test Results without Moderation

Testing Techniques	Prob.	Result	Description
Chow Test	0,001	F-Test < 0,05, accept H0	Model Fixed Effect

These results indicate that the Chow test informs fee-based income that the fee-based income regression is in the form of a fixed effect. Apart from conducting the Chow test, the Hausman test was also conducted, aiming to conclude the best model between the fixed effect and the common effect. Here are the results of the Hausman test:

Table 3. Hausman Fee-Based Income Test Results without Moderation

Testing Techniques	Prob.	Result	Description
Hausman Test	0,221	Prob $\chi 2 > 0,05$, reject H0	Model Fixed Effect

Based on Chow and Hausman's testing results, it is concluded that the regression model that is considered appropriate to explain changes in fee-based income is the fixed effect. This means explaining changes in the variable concentration of the TPF market, credit/financing market concentration, capital adequacy ratio, liquidity ratio, efficiency, non-performing loans, leverage, and BI-rate to fee-based income, each bank can be distinguished because each bank has its characteristics. Inherent in the independent variables.

After the model is confirmed, the fixed effect is the best model for explaining fee-based income variables changes. Then test the hypothesis, with the following results:

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Table 4. The Result of Fee-Based Income Hypothesis Testing without Variable Moderation

Coefficient	t-count	Prob.	Result	Description
C	18.5232	634.9948	0.0000 -	-
HDPK?	-0.0016	-2.6904	0.0072 *	Reject H0
HLOAN?	4.64E-04	0.0964	0.9232 -	Accept H0
CAR?	-0.0025	-7.2426	0.0000 *	Reject H0
LDR?	-0.0001	-9.0948	0.0000 *	Reject H0
BOPO?	-0.0021	-8.1792	0.0000 *	Reject H0
NPL?	0.0276	7.7586	0.0000 *	Reject H0
LEV?	-0.0002	-1.0702	0.2847 -	Accept H0
BIRt?	-0.1375	-34.8091	0.0000 *	Reject H0
R-squared	0.7076			
F-statistic	24.7036			
Adjusted R-squared	0.6789			
Prob (F-statistic)	0.0000			

These results inform that the r-squared value of the fee-based income model is 0.7076. This value shows the predictive power of the fee-based income variable by TPF market concentration variables, credit/financing market concentration, capital adequacy ratio, liquidity ratio, efficiency, non-performing loans, leverage, and BI-rate in the very strong category. In addition, the r-squared value reflects that 70.76% change in the fee-based income variable can be explained by variables of TPF market concentration, credit/financing market concentration, capital adequacy ratio, liquidity ratio, efficiency, non-performing loans, leverage, and BI-rate and the remaining 29.24% is explained by other variables. The results of hypothesis testing based on the information in Table 4 are explained as follows: First, the probability value of the influence of the HDPK variable on the FBI variable is 0.0072. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. Second, the probability value of the influence of the HLOAN variable on the FBI variable is 0.9232. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is above all alpha values , which means sufficient evidence to accept H0. Third, the probability value of the influence of the CAR variable on the FBI variable is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. Fourth, the probability value of the influence of the LDR variable on the FBI variable is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0.

Fifth, the probability value of the influence of the BOPO variable on the FBI variable is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the

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resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. Sixth, the probability value of the influence of the NPL variable on the FBI variable is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. Seventh, the probability value of the influence of the LEV variable on the FBI variable is 0.2847. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is above all alpha values , which means sufficient evidence to accept H0. Eighth, the probability value of the influence of the BIRt variable on the FBI variable is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. In accordance with the research design, in the second model, fee-based income is thought to be influenced by TPF market concentration (HDPK), credit/financing market concentration (HLOAN), capital adequacy ratio (CAR), liquidity ratio (LDR), bank efficiency (BOPO), non-performing loans (NPL), leverage (LEV), and BI-rate (BIRt), moderated by the variables of national income per capita (GNI) and inflation (INFL). Furthermore, the results of Chow and Hausmann's test to determine the best model between common effect and fixed effect, and common effect with random effect, are presented as follows:

Table 5. Chow Fee-Based Income Test Results with Moderation

Testing Techniques	Prob.	Result	Description
Uji Chow	0,000	F-Test < 0,05, accept H0	Model Fixed Effect

These results indicate that the fee-based income regression model, moderated by the variables of national income per capita (PNB) and inflation (INFL), follows the fixed effect model. Furthermore, the model testing is continued with the Hausmann test to determine the best model between the fixed effect and random effect.

Table 6. Husman Fee-Based Income Test Results with Moderation

Testing Techniques	Prob.	Result	Description
Hausman Test	0,356	Prob $\chi 2 > 0,05$, reject H0	Model Fixed Effect

These results indicate that the fee-based income regression model, moderated by the variables of national income per capita (PNB) and inflation (INFL), follows the fixed effect model. Thus, it is concluded that the Chow and Hausman test results that the best model to explain the effect of the independent variable on the dependent are the fixed effect. Furthermore, the results of the analysis using e-views 9.0 software, a fee-based income panel regression model moderated by per capita national income and inflation with a fixed-effect model are presented as follows:

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Table 7. The Result of Testing the Fee-Based Income Hypothesis with Moderation Dependent Variable: FBI?

Variable	Coefficient	t-count	Prob.	Result
C	18.8715	136.1983	0.0000 -	-
HDPK?	0.0046	2.462940	0.0139 *	Reject H0
HLOAN?	-0.0072	-9.593712	0.0000 *	Accept H0
CAR?	-0.0028	-2.657878	0.0080 *	Reject H0
LDR?	-0.0006	-7.896825	0.0000 *	Reject H0
BOPO?	0.0744	7.075954	0.0000 *	Reject H0
NPL?	-0.0016	-0.976795	0.3289 -	Reject H0
SOLV?	-0.1327	-10.66732	0.0000 *	Accept H0
BIRt?	-0.0217	-1.439365	0.1503 -	Reject H0
PNB?	-0.0148	-2.196152	0.0283 **	Accept H0
INFL?	-0.0148	-2.196152	0.0283 **	Reject H0
HDPK?PNB?	-0.0002	-3.921930	0.0001 **	Reject H0
HLOAN?PNB?	0.0002	3.026881	0.0025 **	Reject H0
CAR?PNB?	0.0002	1.924302	0.0546 *	Reject H0
LDR?PNB?	2.9200	6.169932	0.0000 **	Reject H0
BOPO?PNB?	0.0005	7.176248	0.0000 **	Reject H0
NPL?PNB?	-0.0051	-5.336793	0.0000 **	Reject H0
SOLV?*PNB?	0.0001	0.585429	0.5584 -	Reject H0
BIRt?PNB?	-0.0031	-2.813317	0.0050 **	Reject H0
HDPK?INFL?	-0.0003	-12.01794	0.0000 **	Reject H0
HLOAN?INFL?	0.0003	8.544190	0.0000 **	Reject H0
CAR?*INFL?	-2.81E-03	-1.038743	0.2991 -	Reject H0
LDR?INFL?	3.65E-03	3.846942	0.0001 **	Reject H0
BOPO?*INFL?	1.34E-03	0.628570	0.5298 -	Reject H0
NPL?*INFL?	-0.0001	-0.595344	0.5517 -	Accept H0
SOLV?*INFL?	0.0001	1.550560	0.1213 -	Accept H0
BIRt?*INFL?	0.0003	1.270306	0.2042	Accept H0
R-squared	0.7592			
F-statistic	27.2213			
Adjusted R-squared	0.7313			
Prob (F-statistic)	0.0000			

These results inform that the r-squared value of the fee-based income model, which is moderated by PNB and INFL, is 0.7592. This value shows the predictive power of the fee-based income variable by TPF market concentration variables, credit/financing market concentration, capital adequacy ratio, liquidity ratio, efficiency, non-performing loans, leverage, and BI-rate moderated by per capita national income and inflation. In a very strong category. The r-squared value reflects that a 75.92% change in fee-based income variables can be explained by variables of TPF market concentration, credit/financing market concentration, capital adequacy ratio, and liquidity ratio efficiency, non-performing loans, leverage, and BI-

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rate. Which is moderated by national income per capita and inflation, and other variables explain the remaining 24.08%.

When looking at the r-squared value in the first model with the r-squared value in the second model, it appears that the r-squared value has increased. The first model is 0.7076 to 0.7592. This increase indicates that the variables of national income per capita and inflation play a role in moderating the influence of the variables of TPF market concentration, credit/financing market concentration, capital adequacy ratio, liquidity ratio, efficiency, non-performing loans, leverage, and BI-rate on fee-based income. Furthermore, the results of testing the hypothesis based on the information in Table 4.16 are explained as follows:

First, the probability value of the influence of the HDPK variable on the FBI variable is 0.0139. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. Second, the probability value of the influence of the HLOAN variable on the FBI variable is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. Third, the probability value of the influence of the CAR variable on the FBI variable is 0.0080. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. Fourth, the probability value of the influence of the LDR variable on the FBI variable is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. Fifth, the probability value of the influence of the BOPO variable on the FBI variable is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0.

Sixth, the probability value of the influence of the NPL variable on the FBI variable is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. Seventh, the probability value of the influence of the SOLV variable on the FBI variable is 0.3289. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is above all alpha values , which means sufficient evidence to accept H0. Eighth, the probability value of the influence of the BIRt variable on the FBI variable is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. Ninth, the probability value of the PNB variable's influence on the FBI variable as moderated by INFL is 0.1503. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is above all alpha, which is sufficient evidence to accept H0. Tenth, the probability value of the influence of the INFL variable on the FBI variable is 0.0283. When compared with alpha levels of 1%, 5%, and 10%, it appears that the resulting regression probability is below the alpha values of 5% and 10%, which means there is sufficient evidence to reject H0. Eleventh, the probability value of the HDPK variable's

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influence on the FBI variable as moderated by PNB is 0.0001. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0. Twelfth, the probability value of the HLOAN variable's influence on the FBI variable as moderated by PNB is 0.0025. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha values , which means there is sufficient evidence to reject H0.

Thirteenth, the probability value of the influence of the CAR variable on the FBI variable as moderated by PNB is 0.0546. When compared with alpha levels of 1%, 5%, and 10%, it appears that the resulting regression probability is only below 5% and 10% alpha, which means that the alpha is sufficient evidence to reject H0. Fourteenth, the probability value of the LDR variable's influence on the FBI variable as moderated by PNB is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha, which means there is sufficient evidence to reject H0. Fifteenth, the probability value of the influence of the BOPO variable on the FBI variable moderated by PNB is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha, which is sufficient evidence to reject H0. Sixteenth, the probability value of the NPL variable's influence on the FBI variable as moderated by PNB is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha, which is sufficient evidence to reject H0. Seventeenth, the probability value of the SOLV variable's influence on the FBI variable as moderated by PNB is 0.5584. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is above all alpha, which is sufficient evidence to accept H0. Eighteenth, the probability value of the BIRt variable's influence on the FBI variable as moderated by PNB is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha, which is sufficient evidence to reject H0. Nineteenth, the probability value of the HDPK variable's influence on the FBI variable as moderated by INFL is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha, which is sufficient evidence to reject H0. Twentieth, the probability value of the HLOAN variable's influence on the FBI variable as moderated by INFL is 0.0000. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is below all alpha, which is sufficient evidence to reject H0. Twenty-first, the probability value of the influence of the CAR variable on the FBI variable as moderated by INFL is 0.2991. When compared with alpha levels of 1%, 5%, and 10%, it appears that the probability of the resulting regression is above all alpha, which is sufficient evidence to accept H0.

This study's results have both similarities and differences with the results of research examining the factors of interest income and non-interest income from the perspective of structure - behavior - performance theory, which is still debated. Maudos & Solís (2009) found that interest income in commercial banking in Mexico is influenced by market structure, bank efficiency, and bank size. However, in contrast to the results of research on banks in Indonesia,

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Ariyanto (2011) found no influence between market structures on the NIM of Indonesian banks, while banking efficiency had a significant effect on NIM. Manurung (2013) found that market structure and bank efficiency are factors that determine NIM in banks that go public in Indonesia, he also adds that bank size is a factor that determines NIM. Islam & Nishiyama (2016) stated that interest income in banks in South Asian countries such as Bangladesh, India, Nepal, Pakistan, market structure, and size has a negative effect on non-interest income.

Research on interest income, research on the factors that determine non-interest income is also a concern of many researchers. Moreover, the current trend in banks in various countries is oriented towards non-interest income to maintain business continuity (DeYoung, 2004). Craigwell and Maxwell (2005) explain that non-interest income growth occurs in developed countries, supported by deregulation factors and technological changes for the development of loan securitization and credit scoring.

Meanwhile, in Barbados, a developing country, non-interest income has not yet achieved the expected results. Developed countries' tendency to achieve both in terms of non-interest income is higher than banks in developing countries, which has been previously proven by DeYoung (2004). He found that in 1989 - 2001, commercial banks' non-interest income in the United States had reached more than 40 percent of operating income. The high composition of non-interest income is due to changes in banking business regulations and the development of information technology.

Based on the SCP theory, the shift in bank income is based on the readiness of the factors that create bank services as an element of the supply factor. The first component that must be owned by a bank is bank capital. Bank capital is the driving force for bank business activities, so bank capital size greatly affects the bank's ability to carry out its operations. Capital for banks is often associated as an important requirement to cover various business risks faced by banks (Chiaramonte & Casu, 2016; Shim, 2013; Sugiarto, 2004). Through the capital owned by the bank, the business risk associated with activities to generate interest income and non-interest income will be covered if, in the future, these activities cause losses to the bank.

The second factor that needs to be considered by banks as intermediation institutions are the problem of liquidity. Liquidity describes a bank's ability to fund increases in assets and meet the liabilities that arise without causing major losses (Greuning & Bratanovic, 2009). This means that the bank must always have funds when a customer withdraws his funds, while the customer's funds are still in the creditor. Therefore, liquidity is also related to the compliance of creditors in repaying their loans to banks. The greater the value of bad credit, the more it is estimated that the bank will experience liquidity difficulties. Thus, a bank with controlled liquidity becomes a requirement for banks to carry out business processes oriented towards interest income and non-interest income.

The third factor that supports banking activities is bank governance, which is reflected in bank efficiency. Neuberger (1997) uses efficiency as a performance measure, which is expected to provide feedback for the aspects of structure, behavior, and regulation formulation that are able to monitor and protect banking practices. Gordo (2013) explains that efficiency is the ratio

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between output and input. This measure refers to technical or operational efficiency (TE), which reflects the company's ability to obtain optimal output from an input used, or conversely, the company's ability to utilize at least an input to produce a certain amount of output. In line with Gordo (2013) opinion, banks in Indonesia use BOPO to implement the allocative efficiency model, namely comparing operational costs as an input factor to operating income as an output factor (Wijaya, 2009).

Apart from factors related to bank characteristics, macroeconomic conditions are considered factors that determine interest income and non-interest income. Nguyen (2012) found that the relationship between interest income and non-interest income is determined by the authorities' interest rate in a country. Countries with high-interest rates reduce interest income and vice versa. The condition of high-interest rates only encourages the public to take advantage of banking services, which has implications for non-interest income for banks.

Pasiouras & Kosmidou (2007) states that the Gross Domestic Product (GDP) affects banks' level of profitability in Australia against foreign banks. He found a positive relationship between economic growth and bank profitability. Economic growth creates a better situation for various banking transactions to occur. In addition, with good economic growth, banks can operate efficiently. The same thing was also found in Jha (2019) research, which states that GDP per capita significantly affects NIM. GDP as a parameter in assessing economic growth is expected to serve as a stimulus to increase people's income. The increase in public income is expected to encourage an increase in bank income. Thus, the better the GDP value will increase the non-interest income of banks.

Apart from GDP, inflation is considered a pre-condition for the growth of bank income, interest income, and non-interest income. Inflation is a macro-fundamental factor from macroeconomic indicators that describe economic conditions in which goods' prices generally increase, thus weakening people's purchasing power (Sukirno, 2016). Demirguc-Kunt & Huizinga (1999) found inflation to be a factor that determines bank income. According to them, inflation must be well controlled to provide support for banking activities related to bank intermediation activities. The same thing was also stated by Maudos & Solís (2009), who found that inflation has a negative effect on bank income.

Conclusion

Based on the research that has been done, it can be concluded that the market concentration of third-party funds has a significant effect on fee-based income. Credit/financing market concentration does not affect fee-based income. Capital adequacy has a significant effect on fee-based income. Bank liquidity has a significant effect on fee-based income. Bank efficiency has a significant effect on fee-based income. Non-performing loans have a significant effect on fee-based income. Leverage does not affect fee-based income. BI interest rates have a significant effect on fee-based income. Inflation and National Income as moderating variables affect strengthening the dependent variable on the independent variable.

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