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The Effect of Bank Performance Factors on The Bank's Profitability in Indonesia Banks

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Abstract - **Banking is one of the important sector in the economic growth of Indonesia. To maintain the sustainability and increase the profitability of the banks, banks needs to manage the factors which influence it, such as implement an effective risk management and providing mobile banking services. This research will analyze the effect of bank performance factors on the banks' profitability by collecting the data of 14 Banks in Indonesia from 2013-2020 to compare the condition of the banks before and after the implementation by using data panel regression and dummy variables. The expected result provides insight about the factors that should be a concern for Indonesian Banks and also about Indonesian Banking in providing financial inclusion by offering digital banking services, which is mobile banking.**

Keywords – **bank performance factors, mobile banking, bank's profitability, data panel regression, dummy variables**

I. INTRODUCTION

Banking sector is one of the crucial sector to the development of the economy for every country. According to the Act of the Republic of Indonesia Number 10 of 1998 concerning Banking, Bank is a corporate entity mobilizing funds from the public in the forms of deposits and channeling them to the public in the forms of Credit and/or other forms in order to improve the living standards of the common people. To fulfill this role, the banks need to maintain the sustainability and increase the profitability of the Banks. The performance of the banks affected by many factors which is the capital, liquidity and also the competition between the banks in the country. Every banks need to develop and implement the effective risk management that covers credit risk, liquidity risk and operational risk that influence the banks performance. The previous study shows that risk management have a significant effect on the banks performance[1].

Beside developing the effective risk management, banking needs to adapt to the customers' changing behaviour as the impact of the industrial revolution 4.0 in the rapid development of technology and internet users' growth which also affect the profitability of the banks[2]. According to the PwC's 11th Anniversary Digital IQ Survey in 2018, from 60 countries and 2.268 respondents in Western Europe, the data showed that digital transformation had become a special concern[3]. In 2020, in the middle of the spread of coronavirus and significant economic changes, the digital banking transactions grew by 67.9% in March 2020 compared to March 2019. Meanwhile, the non-cash transactions using ATMs, debit cards, and credit cards decreased by 4.7% in March 2020 compared to the same period in 2019[4]. In remarkable growth, banks need to take advantage of this moment as an opportunity to develop the services that have been provided to customers. By providing digital banking services, it can be one way to reduce the spread of coronavirus because people will reduce the use of paper money which is one of the means for the spread of the virus.

However, this growth is still lower when compared to some countries in Asia. The product penetration for banks in Indonesia in 2017 is 2.7, and it is smaller than the average developed Asia, which is 5.7. Furthermore, with the considerable growth in Indonesia itself, it shows that there is a significant growth opportunity. Indonesian banks must prepare specific actions to avoid a decrease in customer loyalty due to digital banking's growth opportunity[5]. The most crucial factor that all the banks should note is the security factor and the trust of the customers. It matters because the digital services will consist of the data known only to the customer registers to the account.

The issue of trust of Indonesian Banks has to become the concern of the banks because some of the banks in Indonesia have had mistakes that degrade even eliminate

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public trust, for example the Bank Century case. According to previous research, banking customers decreased greatly after the century bank case from the aspect of current account, savings and deposits[6]. This decline indicates a decrease in public confidence in Indonesia Banks. However, by developing and providing services to the customers, the trust of the customers increases[7]. It also become the opportunity for the Indonesian Banks to provide the services that can attract and escalate the trust of the banking customers to Indonesian Banks.

II. METHODOLOGY

The sample for this research is 14 commercial banks operating in Indonesia with the period 2013-2020. These banks are categorized as BOOK 3 and BOOK 4. Almost all of these banks already provide the application of mobile banking that can be accessed on every mobile phone. The researcher used secondary data from the quarterly financial statements that were posted at the Financial Services Authority of Indonesia (ojk.go.id). The data was collected using an edited data collection sheet. The collected data are the annual report for each bank from 2010-2020 includes income statement, balance sheet, cash flow statement, and calculation of financial ratios that were already provided. The data will be processed by computer software STATA 16. For the banking industry, profitability can be measured by Return on Equity (ROE) with seven variables (mobile banking, bank age, bank size, capital equity, credit risk, overhead to asset, and loan to deposit ratio) become the independent variables and three macroeconomics variables (GDP, inflation rate and BI-7 Days Reverse Repo Rate).

The data that collected is processed using the data panel regression with the Random Effect Model with GLS (Generalized Least Square) for eliminating the heteroscedasticity and autocorrelation after doing the classical assumption test.

III. RESULTS

The data that collected consist of 112 observations that consist of 14 bank with period of time 2013-2020. In determining the model that will be used, several tests developed, there are:

- Hausman Test

The result shows that the Prob>Chi^2 is 0,0803. This result is greater than the significance level of = 5 percent (0,05). It can be concluded that the random effect model is better to estimate the model rather than the fixed effect model.

- Breusch and Pagan Lagrangian Multiplier Test

The result shows that the Prob > chibar2 = 0,0000 this result is smaller than the significance level of = 5 percent (0,05). It shows that the best model to use is the random effect model.

Before running the model, the data also processed to the classical assumption test. There are:

- Normality Test

According to the result of the shapiro-wilk test, the p-value is 0,0626. It means that H_0 is accepted because the p-value is greater than the significance level of 5 percent. It shows that the residuals are normally distributed[8].

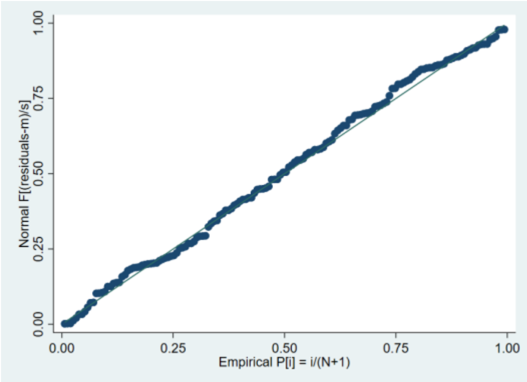

Fig.1. Normality Graph

- Multicollinearity Test

TABLE I
VIF RESULTS

Variable	*VIF*
Bank Age	1,18
Bank Size	1,43
Equity to Asset	1,37
Credit Risk	1,33
Overhead to Asset	1,17
LDR	1,2
Mobile Banking	1,61
GDP	1,63
Inflation Rate	7,03
BI7DRR	6,20

[6] Yuliza, Y., & Sari, R. Analisis Tingkat Kepercayaan Pada Nasabah Bank Umum Pasca Kasus Century. *Jurnal Ekonomi Dan Keuangan, 1(5), 14743*, 2013.

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The results above show that the data already fulfil the multicollinearity assumption because all the values of VIF are below 10. Therefore, it can be concluded that this model can pass the multicollinearity test.

- Homoscedasticity Test

According to the result of Glejser test, the result shows that the value of p>|t| is less than 0.05. It shows that there is a heteroscedasticity of the errors.

- Autocorrelation Test

According to the result of Runs test, the result shows that prob>|z| less than 0.05. It shows that the errors are not independent.

After checking the data will several test, the model of the data can be developed which is using the random effect model. The random effect model that was chosen also uses the Generalized Least Square (GLS)[9]to eliminate the heteroscedasticity and autocorrelation. The significance of the effect of the independent variables determine by the value in the section prob>chi^2 in GLS model that can be interpret as the value of the F-test. After processing the data in Stata, the researcher finds these data below:

$$ROE_{it} = -0{,}339 + 0{,}025BA_{jit} + 0{,}021BS_{jit} + 0{,}486EA_{jit} - 3{,}040CR_{jit} - 1{,}641OA_{jit} - 0{,}0297LDR_{jit} + 0{,}0035MB_{it}^{j} + 0{,}1148GDP_t + 2{,}333IR_t - 0{,}7989BI_t + \varepsilon_{it}$$

The results also determine the level of significance of all the independent variables to the dependent variable which is ROE.

TABLE II
REM GLS MODEL TO ROE

Variable	*Coefficient*	*Probability*	*Significant*
Bank Age (BA)	0,0254959	0.022	***
Bank Size (BS)	0,0218049	0.000	***
Equity to Asset (EA)	0,4866635	0.003	***
Credit Risk (CR)	-3,040706	0.000	***
Overhead to Asset (OA)	-1,641922	0.000	***
Loan to Deposit Ratio (LDR)	-0,029767	0.567	
Mobile Banking (MB)	0,0035971	0.820	
GDP	0,11483	0.673	
Inflation (IR)	2,333729	0.006	***
BI7DRR	-0,7989177	0,375	

Significance code:
0 '***' 0,001 '**' 0,01 '*' 0,05 '.' 0.1 ' ' 1

This results can be used to determine the action of Indonesia Banks to determine the main focus in developing their services.

IV. DISCUSSION

The result of of R-square shows that 60,98% of ROE explained by all the independent variables included in this research. These are the relation between all the independent variables and the macroeconomics variables to the dependent variables which is ROE.

a. Bank Age

The research results show that there is a significant positive relationship between the age of the bank and the profitability of the banks.
Based on the year of its establishment, BRI became one of the oldest banks in Indonesia. In 2019, Bank Rakyat Indonesia (BRI) became the bank with the largest number of users, transactions and the most fee-based income.

b. Bank Size

The result reveals a significant positive relationship between bank size and the profitability of the banks. These results indicate that as the getting bigger, as shown from the size of the total assets, the profitability also increases. This result is in accordance with some previous research that proves that size is positively related to the banks' profitability. Referring to an earlier study[10], large banks can take advantage of economies of scale by diversifying their products and increasing their profitability from it. Indirectly, it also can decrease the transaction costs of the banks.

c. Credit Risk

The result shows that credit risk has a significantly negative impact of Indonesian banks' performance. This result is in line with previous study[11]. Credit risk shows the possibility of losses resulting from the bank borrower or counterparty repaying the loan or failing to meet the obligations. The high number of credit risks shows that the bank will spend more effort and cost in managing the loan problem. It also indicates that the lower the profitability will be.

d. Overhead to Asset

The result of the research shows that overhead to asset has a significant negative impact on Indonesian banks' profitability. It means that if the overhead to

[9] Gujarati, D. Basic Econometrics: (Fourth Edition). *New York Mc. Graw Hill Companies*, 2004.

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asset increases, the profitability of Banks will decrease. This results in accomplice with preceding research[12]. The bank with a low value of overhead to asset, is efficient in managing the expense that impacts increasing profitability.

e. Capital Equity

The result of the research shows that capital equity has a significant positive effect on the profitability of Indonesian Banks. This result is in line with the previous study[9]. It indicates that the greater the capital equity will encourage Indonesian banks' performance. Capital equity shows the ability of the capital of the bank. With a large amount of capital, the bank can expand the business. This action certainly can increase the profitability of the banks.

f. Loan to Deposit Ratio

The result shows that LDR has a negative effect on profitability which means, liquidity has a positive effect on profitability, but not significantly. The too-high percentage of LDR means that the bank may not have enough liquidity to cover any unpredicted fund requirements. This result in accordance with the previous study[13]. When the bank has a low percentage of LDR, the bank has enough money to cover the unforeseen expenses that are needed.

g. Mobile Banking Services

The result show that the provision of mobile banking has a positive effect on the bank's profitability, which is the ROE used in this research, but not significant. This result aligns with the previous study[14][15] which stated that mobile banking positively impacts profitability banks. It also shows that Indonesian people already adapt to technological advances by utilising digital banking services, especially mobile banking that is easier to use and simpler than other digital banking services before, such as internet banking. And also it becomes an opportunity for Indonesian banks to develop this service.

h. GDP

This research reveals that Gross Domestic Product has a positive effect on the profitability of Indonesian Banks, but not significant. Some of the preceding research shows the results in line with this research.

i. Inflation Rate

This research shows that inflation has a positive and significant relationship with banks' profitability. This result indicates that if the inflation rate increases and can be controlled, it encourages Indonesian banks' profitability escalate.

j. BI-7 Days Reverse Repo Rate

This research shows that BI7DRR has a negative relationship with banks' profitability, but not significant. It means that when the BI7DRR decrease, the profitability of Indonesian Banks increase. If the BI7DRR decrease, it can increase the demand and the intention of the customers to do credits. And this condition can escalate the profitability of the banks by controlling the payment of all the credits.

V. CONCLUSION

In Indonesia most of the banks try to increase their profitability by maintaining and optimizing their performance and also by providing mobile banking services. Even the banks that have not offered mobile banking also try to develop this technology as one of the adaptations of technology development. Based on these facts, the researcher finds an effect of bank performance factors and mobile banking services on ndonesian banks' profitability. The data used in this research is collected from the annual report from 2013-2020 on the website of the Financial Services Authority.

Based on the result of the data panel regression analysis, the result shows that some of the bank performance factors significantly affect Indonesia Bank's profitability. There are bank ages, bank size, equity to asset that are significantly positively related to profitability—furthermore, the credit risk and overhead to assets significantly negatively correlated with the profitability of banks. However, some variables do not significantly impact the profitability, which is LDR with a negative correlation to the profitability of Indonesian banks.

The result also shows that the provision of mobile banking shows a positive relationship with Indonesian banks' profitability, but not significant. This condition reveals that providing and developing digital banking services, especially mobile banking, can increase Indonesian banks' profitability. However, this impact could happen after the banks implemented mobile banking services for several years.

Even the significance level still not significant, the high growth of mobile banking users and the optimisation of the application and the infrastructure in Indonesia can be an opportunity to increase the significance level in the future. Having a tremendous number of mobile banking users can increase the number of transactions and give a considerable increase in fee-based income. This growth certainly has a positive impact on the revenue and also the profitability of the banking.

For the macroeconomic variables, both GDP and Inflation rate, positively correlated with profitability and

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BI7DRR negatively correlated with banks' profitability. Inflation rate significantly affects, nevertheless GDP and BI7DRR do not significantly affect the profitability of Indonesian banks.

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