

Determinant Factors Affecting Efficiency Intermediation and Production Approach (Case Study : Bank BUKU II Go Public In Indonesia)

Ferry Ardiansyah^{1*}, Mulya E. Siregar¹, Dedi Budiman Hakim², Hermanto Siregar¹

¹School of Business IPB University Bogor, Indonesia

²Department of Economics, Faculty of Economic and Management IPB University, Bogor, Indonesia

Corresponding author e-mail: ferryard@gmail.com

ABSTRACT

There are several approaches that can be used to explain the relationship between input and output from financial institutions, namely the production approach and the intermediation approach. Technical efficiency reflects the ability of the company to produce output with a number of available inputs. Whereas allocative efficiency reflects the company's ability to optimize the use of its inputs, with its price structure and production technology. These two measures are then combined into economic efficiency (economic efficiency). This research was conducted at eighteen banks included in the BUKU II Go Public Bank group in Indonesia. The study was conducted using secondary data from January 2014 to December 2018. To analyze the factors that influence the efficiency of intermediation and production approach, it is processed using Panel Data Regression analysis. The results of the research that have been carried out show that a significant factor affecting efficiency based on the intermediation approach is the number of variations in electronic banking and the number of Automatic Teller Machine. The significant factors affecting efficiency based on the production approach are total assets, the score of good corporate governance, the number of Automatic Teller Machine and the number of management

Keywords— Banking Efficiency, Determinant Factors, Go Public, Panel Data Regression.

I. INTRODUCTION

A. Background of Study

The development of regional and global dynamics, and to support Indonesia's economic growth in an optimal and sustainable manner, it is necessary to increase the resilience, competitiveness and efficiency of the national banking industry. This condition is considered by Bank Indonesia by issuing Bank Indonesia Regulation No.14 / 26 / PBI / 2012 concerning Business Activities and Office Networks Based on Bank Core Capital. Article 1 paragraph 4 states that Commercial Banks are based on Business Activities, hereinafter referred to as BUKU, are groups of Banks based on Business Activities that are adjusted to their core capital. In Article 3 of the provision, bank groupings in Indonesia are regulated based on core capital, where BUKU II bank groups are Banks with a Core Capital of at least Rp1,000,000,000,000.00 (one trillion Rupiah) up to less than Rp5,000,000,000,000.00 (five trillion Rupiah).

Assets at the BUKU II Go Public bank from 2015 to 2018 continued to show positive growth. In 2016, BUKU II Go Public bank assets grew by 11.67%, in 2017 and 2018, they grew by 9.35% and 6.62%. As for lending provided by the BUKU II Go Public bank during 2015 to 2018 showed growth. In 2016 the credit provided by the BUKU II Go Public bank was able to grow by 8.13%, and in 2017 it experienced a decline with loans being able to grow only 1.09%. In 2018, the BUKU II Go Public bank

was able to increase the growth of lending to 8.81%. Positive growth also occurred in the collection of third-party funds made by BUKU II Go Public banks during the period 2015 to 2018. In 2016 third party fund raising grew by 9.60%, then in 2017 the growth of third party funds fell to 7 , 20%. In 2018 the growth of third party funds will decrease to 2.64%.

The impact of loans and third-party funds raised is related to the amount of income and costs to the bank. In BUKU II Go Public banks, average operating income from 2015 to 2018 grew by 7.97% and operating costs only grew by 6.40%. Furthermore, for the development of assets, loans and third party funds that occur at the BUKU II Go Public bank, operating income and operating expenses at the BUKU II Go Public bank have growth that is not in line with the development of loans and third party funds in a certain time period. In 2017, BUKU II Go Public Bank, third party fund raising was able to grow by 7.20%, but operating expenses that occurred in 2017 showed a decrease of -2.30%. Likewise, lending in 2017 was still able to grow by 1.09%, but operating income decreased by -0.29%. In 2018 there was also a condition where third-party fund raising grew by only 2.64%, but operating expenses in BUKU II banks grew by 6.56%.

The developments that took place at the BUKU II Go Public bank require a more in-depth analysis of how operational management affected the revenues and operating costs of the positions of 2014 to 2018 from each

of the banks in the BUKU II bank group. The diversity of performance results occurring at banks in the BUKU II group cannot be separated from the results of the business and operational processes carried out by each bank. In running a business and its operations, banks are required to be able to run it efficiently. Efficiency carried out by banks will be able to provide maximum profit or profit. Profits or profits owned will then provide added value for banks, especially for shareholders including the increase in share prices.

For this reason, it is necessary to analyze the internal and external factors that influence it. This phenomenon encourages this research to be conducted to analyze the efficiency and factors that influence the efficiency of intermediation and production in bank groups in BUKU II Go Public from the perspective of practical banking applications and practices that will create and guarantee the sustainability of banking in Indonesia.

B. Objective and Potential Contributions

Until June 2019, there are 59 banks in BUKU 2 bank categories. Based on data obtained from the Indonesia Stock Exchange, there are eighteen banks in BUKU 2 classified as of them public companies or go public with variable core capital of Rp.1 trillion to under of Rp.5 trillion. To conduct an analysis of determinant factor in efficiency intermediation and production approach analysis in BUKU 2 bank group, especially for BUKU 2 banks that already go public. The following is a summary of the financial ratios for the eighteen banks as in table 1 below:

TABLE I. SUMMARY OF 2018 FINANCIAL RATIOS OF EIGHTEEN BUKU 2 BANKS GO PUBLIC

No	Bank Name	CAR (%)	NPL Gross (%)	ROA (%)	ROE (%)	BOPO (%)	LDR (%)
1	Bank of India	39.46	4.9	0.24	0.94	3.84	97.65
2	Bank MNC	16.27	5.72	0.74	5.43	4.1	93.51
3	Bank Ganesh	31.85	4.25	0.16	0.51	5.39	97.57
4	Bank Maspion	21.28	2.14	1.54	6.35	4.75	87.25
5	Bank Ina Perdana	55.03	2.43	0.5	0.97	4.55	93.06
6	Bank Capital	18.66	2.95	0.9	8.46	4.2	92.11
7	Bank National Nobu	23.27	0.97	0.42	3.39	4.62	94.77
8	Bank Jtrust	14.03	4.26	-2.25-29.13		2.28	116.32
9	Bank Bumi Artha	25.52	1.51	1.77	6.81	4.45	81.43
10	Bank Victoria	16.73	3.48	0.33	3.41	1.82	100.24
11	Bank Mestika Dharma	34.58	2.33	2.96	9.01	6.41	68.09
12	Bank BRI Agro	28.34	2.86	1.54	5.8	3.5	82.99
13	Bank QNB	26.5	2.49	0.12	0.42	1.73	99.43
14	Bank Artha Graha	19.8	5.99	0.27	1.43	5.39	97.12
15	Bank Woori	23.04	1.72	2.59	13.01	5.04	70.39
16	Bank Sinarmas	17.6	4.74	0.25	1.12	7.61	97.62
17	Bank BTPN Syariah	40.92	1.39	12.37	30.82	32.42	62.36
18	Bank BRI Syariah	29.72	6.73	0.43	2.49	5.36	95.32

(Source: Indonesian Banking Statistics - Financial Services Authority) [4]

The ratio of financial performance at BUKU II Go Public banks has a fairly diverse distribution, as presented in Table 1. For the capital adequacy ratio represented by CAR which measures the average minimum supply obligation of

26.81%, with the highest CAR held by Bank Ina Perdana amounting to 55.03%. The best credit or financing quality management ratio, whose valuation is represented by NPLs or NPFs, in BUKU II banks averaged 3.38%, with the lowest NPLs or NPFs owned by Nationalnobu Bank of 0.97%. The bank performance measure for obtaining profit or profitability whose valuation is represented by ROA, ROE and NIM or NI, the average BUKU II bank is 1.38%, 3.96% and 5.97%, respectively. The highest ROA, ROE and NIM or NI ratios are owned by BTPN Syariah Bank, which are 12.37% and 30.82% and 32.42%, respectively. For financial ratios that measure the ability of banks to manage operational costs and operating income, the measurement of which is represented by BOPO, the average BUKU II bank is 90.40%, with the lowest value owned by BTPN Syariah Bank. Assessment of the banking intermediation ratio in terms of third party fund raising and lending or financing, the measurement of which is represented by the LDR or FDR, the average BUKU II bank is 85.15%, with the highest value held by Woori Bank.

Efficiency is an effort that needs to be done by banks in carrying out their activities. The more efficient a bank is, the more profitable it is expected to increase. In banks, if the profits are increased, they will be able to increase added value for the bank and can be used as additional capital to support increased lending or financing. For customers, efficiency in the banking system will have an impact on the low interest rate or margin charged so that more people will get credit or financing facilities.

The developments that took place at the BUKU II Go Public bank as stated, demanded that banks in general, and especially banks at BUKU II, were required to be able to manage existing inputs to produce maximum output and optimize existing inputs for the output produced. This then raises some questions relating to how to manage efficiency, namely what factors affect efficiency, on banks in the BUKU II Go Public group?

The research objective is to analyse including the factors that influence the efficiency of intermediation and production which are significant in generating revenue optimization so that it can support the sustainability of earnings. The specific purpose of the study is analysing the factors that affect efficiency in banks in the BUKU II group Go Public in Indonesia is getting better.

I. MATERIALS AND METHODS

According to Farrell (1957), the efficiency of a company consists of two components, namely technical efficiency and allocative efficiency. Technical efficiency reflects the ability of the company to produce output with a number of available inputs. Whereas allocative efficiency reflects the company's ability to optimize the use of its inputs, with its price structure and production technology. These two measures are then combined into economic efficiency (economic efficiency). A company can be said to be economically efficient if the company can minimize production costs to produce certain outputs with a level of technology that is generally used and prevailing market prices [3].

Hadad et.al. (2003), there are several approaches that can be used to explain the relationship of input and output of financial institutions, namely the production approach, intermediary approach, and asset approach [5]. This intermediary approach sees financial institutions as

intermediaries. These financial institutions change and transfer financial assets, from excess funds to units that are underfunded. Output in this approach is to measure through credit loans and financial investments, whilst institutional inputs are labor and capital costs and interest payments on deposits. Basically the intermediary approach is complementary to the production approach. The intermediary approach describes banking activities as transforming money borrowed from depositors into money lent to debtors.

In accordance with the objectives of the study, an analysis of internal and external factors that affect the efficiency scale of the eighteen banks in the BUKU II Go Public Bank group for the period 2014-2018. This is done to find out what internal and external factors influence it. Internal factors used in this study are divided into two, namely financial and non-financial aspects, consisting of:

1. Internal factors, financial aspects, namely:

- a. Total amount of assets owned
- b. Non Performing Loan or Non Performing Financing Ratio or non-performing loan or financing ratio
- c. Capital Adequacy Ratio or minimum capital adequacy ratio
- d. Loan to Deposit Ratio or the ratio of loans or financing disbursed compared to third party funds that have been collected
- e. Ratio of Net Interest Margin or Net Rewards or the ratio between interest income or margin or profit sharing to average earning assets

2. Internal factors, non-financial aspects, namely:

- a. Value of Good Corporate Governance, namely the value of the results of the implementation of good corporate governance self assessment conducted
- b. Number of types or variations of electronic banking owned
- c. Total office network, including head office, regional offices, branch offices, sub-branch offices and cash offices
- d. Number of Automated Teller Machines or ATMs owned
- e. Number of employees including permanent employees and contract employees
- f. The number of management includes commissioners and directors

3. External factors, namely:

- a. Growth in money supply
- b. Inflation rate ratio
- c. Exchange rate growth
- d. Economic growth

The statistical technique used in relationship analysis is panel data analysis. According to Widarjono (2007) the use of panel data in an observation has several advantages. First, the panel data which is a combination of two time series data and a cross section is able to provide more data so that it will produce a greater degree of freedom. Second, combining information from time series data and cross sections can overcome problems that arise when there are omitted-variable problems [8].

To find out internal and external factors that influence the efficiency scale, panel data regression analysis is used. Panel data regression analysis was chosen because it is in accordance with the objectives and characteristics of the data held. Panel data regression is a combination of cross section

data and time series data, where the same cross section units are measured at different times. So in other words, panel data is data from some of the same individuals that were observed in a certain period of time. If we have a time period T ($t = 1, 2, \dots, T$) and N the number of individuals ($i = 1, 2, \dots, N$), then with panel data we will have a total observation unit of NT. The results of the panel data regression analysis are divided into two parts, namely for the efficiency of the intermediary approach and the efficiency of the production approach.

Panel data regression model for analyzing the effect of internal and external factors on the efficiency values as follows:

$$\text{EFFit} = \alpha + b1M1it + b2INFit + b3KURSit + b4PERT_EKOit + b5ASETit + b6NPLit + b7CARit + b8LDRit + b9NIMit + b10GCGit + b11EBGit + b12KTRit + b13ATMit + b14PGWit + b15PRSit + eit$$

Where:

- EFFit : Efficiency value for a certain period
- M1it : Percentage of growth in the money supply
- INFit : Percentage of inflation for a certain period
- KURSit : The percentage change in the exchange rate of the rupiah against the US Dollar for a certain period
- PERT_EKOit : Percentage of Indonesia's economic growth in a certain period
- ASETit : BUKU II Go Public bank total assets for a certain period
- NPL it : Percentage of NPL or NPF of BUKU II banks Go Public for a certain period
- CARit : CAR percentage of BUKU II banks Go Public in a certain period
- LDRit : Percentage of LDR or FDR of BUKU II banks Go Public for a certain period
- NIMit : Percentage of NIM or NI of BUKU II banks Go Public for a certain period
- GCGit : Bank Soundness - Good Corporate Governance for a certain period
- EBGit : Number of types of electronic banking owned by BUKU II Go Public banks for a certain period of time
- KTRit : Number of office networks owned by BUKU II banks going public for a certain period of time
- ATMit : Number of Self-Owned ATM Machines by BUKU II Go Public banks for a certain period of time
- PGWit : Number of BUKU II Go Public bank employees for a certain period of time
- PRSit : Number of bank management from BUKU II Go Public banks for a certain period of time
- α : Konstanta
- $b(1\dots17)$: Regression coefficient of each independent variable
- e : Error term
- t : Time
- i : Bank BUKU II Go Public

This research was conducted in June to December 2019 of eighteen banks in BUKU 2 categories in Indonesia that had listed or go public. The study was conducted in Jakarta using secondary data with a range of years from 2014 to 2018. As for the object of research are 18 (eighteen) banks in BUKU 2 in Indonesia that had listed or go public.

II. RESULTS

A. Determinant Factor in Efficiency Intermediation Approach

The results of the analysis with the Fixed Effect model show that there are two variables that have a significant effect on the real level of 10% for efficiency with an intermediation approach, namely the number of types or variations of electronic banking owned with a coefficient of 0.021156 and the number of ATMs owned by banks with a coefficient of -0.000876. The accuracy of the model generated by the Fixed Effect model for efficiency analysis with an intermediation approach is 73.38%.

TABLE II. RESULTS OF FIXED EFFECT MODEL EFFICIENCY INTERMEDIATION APPROACH

No	Variable	Coefficient	Std. Error	t-Statistic	Prob.
1.	<i>Aset</i>	-1.04E-09	2.38E-09	-0.439638	0.6620
2.	<i>Non Performing Loan</i>	-0.002440	0.002865	-0.851910	0.3981
3.	Capital Adequacy Ratio	-0.000172	0.001001	-0.171490	0.8645
4.	Loan to Deposit Ratio	0.002025	0.000665	3.044151	0.3600
5.	Net Interest Margin	0.005542	0.010434	0.531121	0.5976
6.	<i>Good corporate governance</i>	0.032943	0.025945	1.269731	0.2097
7.	Number of E-Banking	0.021156	0.011767	1.797870	0.0779*
8.	Total Office Network	-0.000946	0.000664	-1.423769	0.1604
9.	Number ATM	-0.000876	0.000461	-1.901734	0.0626*
10.	Number of employees	4.16E-05	3.23E-05	1.286354	0.2039
11.	Number of management	0.001989	0.006038	0.329374	0.7432
12.	Growth in money supply	0.038358	0.047301	0.810935	0.4210
13.	Inflation rate	0.058173	0.071929	0.808756	0.4223
14.	Exchange rate growth	0.026156	0.032940	0.794034	0.4307
15.	Economic growth	1.217564	1.489477	0.817444	0.4173
16.	C	-6.144211	8.455733	-0.726632	0.4706
R-squared		0.733761	Mean dependent var	0.941794	
Adjusted R-squared		0.573013	S.D. dependent var	0.065648	
S.E. of regression		0.042897	Akaike info criterion	-3.176622	
Sum squared resid		0.097530	Schwarz criterion	-2.234838	
Log likelihood		169.5948	Hannan-Quinn criter.	-2.797598	
F-statistic		4.564666	Durbin-Watson stat	2.091016	
Prob(F-statistic)		0.000001			

The results of tests carried out indicate that the selected model is the Fixed Effect model. The selection was based on the results of the Chow test which showed a chi-square cross-section value of 0.0000. Based on this value, using a confidence level of 95% or an alpha value or an error value of 5% or 0.05, then if the value of prob. chi-square cross-section <0.05 then the selected model is Fixed Effect. But if on the contrary if the value is > 0.05 then the model chosen is the Common Effect. The second test with Hausman also shows that the best model is the Fixed Effect model. This is also based on the output of the generated Hausman test, namely prob. random cross-section of 0.0000. Based on a P value of 0,000 less than 0.05, the decision is to accept H1, which means the best model to use is the Fixed Effect.

TABLE III. EFFICIENCY CHOW TEST RESULTS FOR THE INTERMEDIATION APPROACH

Effects Test	Statistic	d.f.	Prob.
Cross-section F	5.425525	(17,53)	0.0000
Cross-section Chi-square	86.692622	17	0.0000

TABLE IV. HAUSMAN TEST RESULTS EFFICIENCY INTERMEDIATION APPROACHES

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	15	0.0000

TABLE V. LAGRANGE MULTIPLIER TEST RESULTS EFFICIENCY INTERMEDIATION APPROACHES

Test Hypothesis		
	Cross-section	Time
Breusch-Pagan	7.585597 (0.0059)	2.503739 (0.1136)
		10.08934 (0.0015)

For factors that affect efficiency with the intermediation approach, there are two factors, namely the number of electronic banking with the more types or variations in the number of electronic banking owned, the more efficient the bank in its operational processes. The opposite happens to the number of ATMs, the less the number of ATMs owned by banks will make banks more efficient. Development of electronic banking conducted by banks at present is generally carried out to assist customers in conducting financial transactions. Financial transactions conducted by customers in electronic banking related to the savings they have. The more customers make financial transactions in electronic banking, the customer will immediately continue to add to their savings balance. So that the existing input in the form of third party funds, in this case savings which are cheap funds for banks, will increase. Cheapening of cheap funds from savings will be useful for banks in increasing the number of loans or financing that is channeled. Inputs in the form of low-cost funds originating from savings will enable banks to sell loans or financing with cheaper interest or margins, thus encouraging output in the form of growth in financing or channeled credit. This condition will certainly lead to efficiency, namely an increase in the amount of output in the form of credit or financing channeled by the amount of third party funds that can be collected. Vice versa, the ability of banks to manage the cost of cheap funds from the increase in third-party funds originating from savings due to many customers who use electronic banking, will encourage increased bank operating income. In addition, the various types of electronic banking owned by banks will also encourage various customer segments to be served. The increasing number of customers conducting financial transactions using electronic banking will be able to increase operational income from fee-based income for each transaction made by customers. The existence of electronic banking becomes important for banks to have as the results of research conducted by Salihu and Metin (2017) who see the effect of product improvement, reliability and efficiency on customer satisfaction of electronic banking services. This study provides results that service and reliability are highly correlated, but the correlation between efficiency and satisfaction is weak. In the regression analysis, it is seen that while service and reliability have a positive effect on customer satisfaction, the effect of efficiency is negative [7]

Having an ATM machine for banks is one means to be able to meet the needs of customers' financial transactions, especially cash withdrawals. Various other financial transactions can also be done at ATM machines by customers. Currently by banks, ATM machine ownership is recorded as fixed assets, with additional costs incurred for the operation and maintenance of these ATM machines.

Some costs that must be borne by the bank when having its own ATM machine include purchasing costs (around USD 10,000 - 15,000), maintenance costs including paper costs, security and cleaning costs, charging fees, rental fees, network fees and communication costs. As for the costs that must be incurred by banks for maintenance costs for an ATM machine, on average around more than Rp. 15 million, it will be even more expensive if the machine is located in a shopping center or mall. The more ATM machines the bank has, the greater the burden the bank will have. In addition to the costs incurred, from the bank's ATM machine ownership also receives income in the form of fee-based income, among interbank transfer fees of around Rp 6,500, cash withdrawal fees by other banks ATM cards in the amount of Rp 3,000 - Rp 4,000, fees for checking balance by card ATMs of other banks, amounting to Rp 1,000 - Rp 2,000. At present even the most transactions made by customers at ATMs are cash withdrawals, which in this case banks that issue debit cards generally do not charge fees when making transactions at the bank's ATM machine, so it does not provide income for the bank. For this reason, one of the factors that reduces the number of ATM machines can provide efficiency measures from the input side. Currently, several attempts have been made by banks to continue to serve the needs of customers' financial transactions while still not owning or reducing the number of ATM machines. This is done in collaboration with third parties who provide network services and rent ATM machines at a cost of IDR 8-10 million per unit of ATM machines per month or other banks that already have ATM machines. Banks that issue debit cards and have ATMs with little or no ATMs can still serve the needs of customers in financial transactions, by charging transaction fees that must be paid by customers. At present several banks have switched to providing a Cash Recycle Machine (CRM) ATM, which is an ATM machine that provides cash deposits and withdrawals. The development of electronic banking is currently down, reducing the number of customer transactions at ATMs, because most of the customer's financial transaction needs have been done by the customer himself through his handphone. And even now the bank has cooperated with various shops or stalls by providing Electronic Data Capture (EDC) machines to meet customers' cash withdrawal needs. The investment and management cost of this EDC machine is far cheaper than the cost of an ATM machine, which is around IDR 500,000 - IDR 1 million.

B. Determinant Factor in Efficiency Production Approach

The results of the analysis with the Fixed Effect model show that there are four variables that have a significant effect, namely the number of management owned with a coefficient of 0.013827 at the real level of 5% and total assets with a coefficient of -4.00E-09, the value of good corporate governance with a coefficient of 0.045480 and the number of ATMs owned by the coefficient of -0,000828 at the real level of 10%. The accuracy of the model generated by the Random Effect model for efficiency analysis with an intermediation approach is 80.83%.

The results of tests carried out indicate that the selected model is the Fixed Effect model. The selection was based on the results of the Chow test which showed a chi-square cross-section value of 0.00000. Based on this value, using a confidence level of 95% or an alpha value or an error value of 5% or 0.05, then if the value of prob. chi-square cross-

section <0.05 then the selected model is Fixed Effect. But if on the contrary if the value is > 0.05 then the model chosen is the Common Effect. The second test with Hausman also shows that the best model is the Fixed Effect model. This is also based on the output of the generated Hausman test, namely prob. random cross-section of 0.0000. Based on a P value of 0,000 less than 0.05, the decision is to accept H1, which means the best model to use is the Fixed Effect.

TABLE VI. RESULTS OF FIXED EFFECT EFFICIENCY OF PRODUCTION APPROACHES

No	Variable	Coefficient	Std. Error	t-Statistic	Prob.
1.	<u>Aset</u>	-4.00E-09	2.18E-09	-1.831838	0.0726*
2.	Non Performing Loan	0.002751	0.002633	1.044843	0.3008
3.	Capital Adequacy Ratio	0.000795	0.000920	0.863975	0.3915
4.	Loan to Deposit Ratio	0.001000	0.000611	1.636138	0.1077
5.	Net Interest Margin	-0.005036	0.009590	-0.525162	0.6017
6.	<i>Good corporate governance</i>	0.045480	0.023846	1.907234	0.0619*
7.	Number of E-Banking	0.005167	0.010815	0.477787	0.6348
8.	Total Office Network	0.000052	0.000611	0.904713	0.3697
9.	Number ATM	-0.000828	0.000423	-1.954741	0.0559*
10.	Number of employees	-2.91E-06	2.97E-05	-0.097954	0.9223
11.	Number of management	0.013827	0.005550	2.491507	0.0159**
12.	Growth in money supply	0.010211	0.043474	0.234865	0.8152
13.	Inflation rate	0.014423	0.066110	0.218166	0.8281
14.	Exchange rate growth	0.007776	0.030275	0.256841	0.7983
15.	Economic growth	0.366140	1.368971	0.267457	0.7902
16	C	-1.318830	7.771622	-0.169698	0.8659
R-squared		0.808323	Mean dependent var		0.929903
Adjusted R-squared		0.692593	S.D. dependent var		0.071111
S.E. of regression		0.039427	Akaike info criterion		-3.345354
Sum squared resid		0.082387	Schwarz criterion		-2.403570
Log likelihood		176.8502	Hannan-Quinn criter.		-2.966329
F-statistic		6.984570	Durbin-Watson stat		1.960441
Prob(F-statistic)		0.000000			

TABLE VII. EFFICIENCY CHOW TEST RESULTS IN PRODUCTION APPROACH

Effects Test	Statistic	d.f.	Prob.
Cross-section F	9.061842	(17,53)	0.0000
Cross-section Chi-square	117.190026	17	0.0000

TABLE VIII. HAUSMAN TEST RESULTS EFFICIENCY OF PRODUCTION APPROACHES

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	15	0.0000

TABLE IX. LAGRANGE MULTIPLIER TEST RESULTS EFFICIENCY OF PRODUCTION APPROACHES

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	44.99694 (0.0000)	2.465614 (0.1164)	47.46255 (0.0000)

For factors that affect efficiency with a production approach there are four factors: total assets owned, the value of self-assessment of good corporate governance, the number of self-owned ATMs and the number of management. In the assessment of efficiency with the production approach, the input aspect consists of operational costs, labor costs and other operational costs, while for the output aspects include operating income and other operating income. The results of the analysis conducted show that the effect of assets on the value of efficiency is quite small on the value of efficiency. This is because the assets in general at the bank consist of credit or financing, securities owned, loss reserves, fixed assets, productive assets and other assets. A significant increase in assets, especially if the bank has a

problematic loan or financing is high enough to provide additional costs or high operational expenses for the bank. This will certainly have an impact on the low output in the form of operating income. If the bank has assets in the form of high enough securities, compared to credit or financing, it can also have an impact on lower operating income output, because the income from securities is lower compared to credit or financing.

The bank as a legal entity is a limited liability company. In limited liability companies, limited to two important organs namely the board of directors responsible for operational operations and the board of commissioners supervising the shareholders. The number of boards of directors and the number of boards of directors as per the applicable rules and regulations is a minimum of three persons each. However, the number of boards of directors and commissioners can be adjusted according to the complexity of the bank's business. The large number of directors and commissioners will certainly have an impact on the amount of input, namely the cost or burden of remuneration which is part of labor costs. However, if the business and types of services provided are increasingly diverse and growing, it requires operational management and supervision that is more focused. In this case it is necessary to have a division of tasks and responsibilities by adding the number of directors in charge. This will have an impact on each director who will focus on determining the strategy and operational implementation. The addition of the number of directors will also be followed by the addition of the number of commissioners who will participate in supervising.

The focus in determining the strategy, operational and business implementation and supervision carried out will have an impact on increasing output in this case the bank's operating income. More and more management shows that efficiency has also resulted from research conducted by Bokpin (2013) on banks in Ghana which results in governance (larger board size) greatly increasing earnings efficiency but slightly worsening bank cost efficiency. Finally, the capital adequacy ratio and bank size are both significant predictors of bank efficiency in Ghana [2]. However, the results obtained are contrary to the research conducted by Adnan, et.al. (2011) regarding the impact of corporate governance on the efficiency of banks registered in Malaysia using panel data analysis. Corporate governance variables are represented by the board leadership structure, board composition, board size, director ownership, institutional ownership and block ownership. The findings show that a smaller board size and a higher percentage of block ownership leads to better efficiency than Malaysian banks [1]. The same study was carried out in Nepali banking by Poudel and Hovey (2012), with the results of the study that a larger board size and audit committee and a lower frequency of board meetings and a lower proportion of institutional ownership led to better efficiency in commercial banks [6].

The main purpose of the company, including banks, is to provide added value and increase wealth in shareholders. Various measures of bank operational performance used by banks so far such as net profit, asset growth, Return On Assets (ROA), Return On Equity (ROE), have not considered the risks of transactions or services provided by banks. The objectives of increasing business growth, increasing efficiency and implementing governance and risk

are not aligned. For example, in order for output to be high in the form of faster or larger volume of loans or financing, the credit or financing process must be accelerated, and standards of prudence and governance loosened, which tend to increase risk. If the number of credit analysts is increased in order to improve governance and risk, processing costs become more expensive and efficiency decreases. Conversely, if a bank implements good governance and risk in the credit or financing process, then the risk can be maintained. But the process tends to be long and customers can move to other banks so that business growth is disrupted.

III. CONCLUSION

The results of the analysis of internal and external factor variables that significantly affect efficiency based on the intermediation approach of the selected model indicate that there are two factors, namely the number of variations or variations in electronic banking and the number of ATMs owned by banks. This condition shows that currently banks in BUKU II Go Public in their managerial implications are demanded to focus more on developing electronic banking. The results of the analysis of internal and external factor variables that significantly affect efficiency based on the production approach indicate there are four factors: total assets, self assessment value of good corporate governance, the number of ATMs owned and the number of management. Responding to these results, then to achieve business objectives, banks need to find an optimal balance between business, operational and governance or good corporate governance and risk management

REFERENCES

- [1] Adnan, M.A, Htay SN, Rashid HM, Meera AK. A panel data analysis on the relationship between corporate governance and bank efficiency. *Journal of Accounting, Finance and Economics*. Vol.1 No.1 July 2011, Issue Pp.1-15.
- [2] Bokpin, GA. Ownership structure, corporate governance and bank efficiency: an empirical analysis of panel data from the banking industry in Ghana. *Corporate Governance : The International Journal of Business in Society*. 2013.Vol. 13 No.2. pp.274-287.
- [3] Farrell, M.J. The measurement of productive efficiency. *Journal of The Royal Statistical Society*, 1957.Vol. 120 No. 3, pp. 253-81.
- [4] Financial Services Authority, 2018. <http://www.ojk.go.id>, Indonesian Banking Statistics
- [5] Hadad, Muliaman D. Efficiency Analysis of the Indonesian Banking Industry: Use of the Nonparametric Data Envelopment Analysis (DEA) Method. Research Paper, No. 7/5, Bank Indonesia Financial System Stability Bureau. 2003.
- [6] Poudel dan Hovey. 2012. Corporate Governance and Efficiency in Nepalese Commercial Banks. SSRN. <https://ssrn.com/abstract=2163250>.
- [7] Salihu, A and Metin, H. The impact of services, assurance and efficiency in customer satisfaction on electronic banking services offered by banking sector. *Journal of Internet Banking and Commerce*. 2017. Vol.22 No.3: Pp 1-2.
- [8] Widarjono A. *Econometrics: Theories and Applications for Economics and Business* (2nd ed). Yogyakarta: Ekonisia FE UII. 2007.