




RESEARCH ON THE IMPACT OF CORONA VIRUS PANDEMIC TO EFFICIENCY PROFITABILITY AT SEVERAL BANKS IN INDONESIA

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Article

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
Abstract

We are faced with millions of problems due to the corona virus pandemic, many industries and daily human activities have changed, there must be differences that exist in order to exist. Banks are one of the financial institutions that have also been affected by the coronavirus pandemic. This study collects secondary data by comparing time series and using several banks from 3 conventional banks and 2 Islamic banks in Indonesia.

At the end of this study will provide results on the impact of the corona virus on profitability efficiency by using Logistic Regression to describe some of the relationships presented as a decrease or increase in efficiency profitability and ROA due to the corona virus pandemic in Indonesia, there are several impacts and no impact is produced.

Abstrak

Kita dihadapkan pada berjuta masalah akibat pandemi virus corona, banyak industri dan aktivitas manusia sehari-hari yang berubah, harus ada perbedaan yang ada agar tetap ada. Perbankan merupakan salah satu lembaga keuangan yang juga terkena dampak pandemi virus corona. Penelitian ini mengumpulkan data sekunder dengan membandingkan time series dan menggunakan beberapa bank dari 3 bank konvensional dan 2 bank syariah di Indonesia. Pada akhir penelitian ini akan memberikan hasil dampak virus corona terhadap efisiensi profitabilitas dengan menggunakan Regresi Logistik untuk menggambarkan beberapa hubungan yang disajikan sebagai penurunan atau peningkatan efisiensi profitabilitas dan ROA akibat pandemi virus corona di Indonesia, ada beberapa dampak dan tidak ada dampak yang dihasilkan.

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BACKGROUND

Indonesia has been facing the coronavirus pandemic for almost 3 years. As the way to reduce infection and contagious of the virus, social distancing via stopping large public contact (Baloch, S., et al., 2019). This action also could change in daily activity, there are studies that measure how the coronavirus pandemic has some negative effects (Riva, G. et al., 2019), most importantly the effect was found that a lot of the people also has decreased their income (Deaton, A., 2021). At this moment, there are a lot of companies in the world that choose to stop their activities (Swasey, C. et al., 2020), a lot of business activities can be said to be less efficient at this time, and more generally the economies are entering a phase of stagnation and recession (Sułkowski, 2020).

The transformation of activities during the coronavirus pandemic 19, particularly in economic term, is called the shift of activities in how daily met (Cheval, B., et al 2021:600). Hence, most people prefer to transactions through the virtual way, often to be called as a data-driven transaction, creating a transformation in transaction process in massive area. In the transaction process that the public carries out, E-banking as one type of product that is needed by the community at this time (Kaushik, M. R. et al., 2020). Learning how the financial which already running out through the activities in the enterprise is could make that company itself is has sustainable and development things in it (Halek, V., 2021).

LITERATURE REVIEW

As we knew, bank is one of the financial institutions which is a vital core to the development of the economy (Moşteanu, D. et al., 2020). Many banks have a special line of services to attract consumers on transactions service, and online transaction have become a habit that is often carried out not only for domestic economic activities (Chen, H. et al., 2021), but also for international transactions it can also provide the bank has a foreign transaction license (Olkhov, V., 2019).

The utilization of those services by the public, creates several positive impacts on financial institutions (Ichsan, R. N. et al, 2021:200). Globalization, competition, and social trends transformation caused an intense restriction of the banking industry (Loonam, M., O'loughlin, D., 2008). Simultaneously, bank could make their customer satisfied to their service when corona virus pandemic was happened (Alabdullah, T. T. Y., et al., 2020). The potential to evaluate the banking services is needed to understand the behavioral changes in corona pandemic (Haq, I. U., & Awan, T. M. 2020).

This study is an evaluation related to bank efficiency in improving their services during the coronavirus pandemic 19. This study will figure out how efficiently several banks to regulating their financial circulation, in which the study also has pre analysis of customer satisfaction measurement in using services, with the intention to know about the different sides of human behavior and the economic resolution side (McKibbin, W., & Fernando, R. : 2020), and according the issues that already described, this study aim to know about the customer satisfaction and also to analyze the profitability efficiency of several bank in this current pandemic Helm, D. (2020), also describe the longer-term economic impact and also the environmental consequences of the economics shock and policy responses, which is similar with this study that also learn about the changing of the



habitual economic transaction. Since al of we knew that corona pandemic was happened in Indonesia at the second quarter of the year in 2020 (Yulia, H., 2020)

This study also measures about the economic and epidemiological literature to the determinants of the spread of infectious diseases and the prevention of such spread. (Qiu, Y. et al., 2020). In addition to know about the impact of the pandemic to profitability efficiency in several banks, which have on going operations in a series of periodic evaluations (Jilenga, M. T., & Luanda, P., 2021), as we knew Efficiency is one of the parameters that describe banking performance (Yusuf, M., & Ichsan, R. N. 2021), and this study also has aims comparing the result with the normal situation which is before corona pandemic-19 happened in Indonesia, found the study that concerns from customers about transactional services and informational services (Laisser Nengarivo., 2020). This study was chosen some of several banks and distinguish by conventional and Syariah banks, the table below would describe the current time of the average of total asset in whole quarter of time started from 2018-2020:

Table 1. Average Total Asset in Conventional Bank

No	Bank	Average Total Asset		
		2018	2019	2020
1.	Bank Central Asia	793.833.672	878.397.591	1.006.803.475
2.	Maybank	174.583.033	179.750.709	174.036.092
3.	CIMB Niaga	261.245.547	267.990.916	277.894.275

Table 2 Average Total Asset in Syariah Bank

No	Bank	Average Total Asset		
		2018	2019	2020
1.	Bank Muamalat	56.140.939	53.446.857	49.526.439
2.	Bank Mega Syariah	6.811.925	7.588.258	10.609.604

RESEARCH METHOD

Population of sample this study would build the questionnaires with the number of questions are 20 questions and already fill up with 30 respondents which are those respondents are from customer of several banks that mentioned in this study. Contain the secondary data in this study to measure the profitability efficiency with the tools called Data Envelopment Analysis. The study will also present several periods that are differentiated through quarter time, between years of 2018-2020, in other words there are 4 separate analyses in one year period, through data envelopment analysis studies that discuss the evaluation of profitability during the pandemic and before the pandemic happened, also be explained through the following hypotheses, including:

H1: The banks of BCA have efficiency in the current time of corona virus pandemic.

H2: The bank of CIMB has efficiency in the current time of corona virus pandemic.

H3: The bank of Maybank has efficiency in the current time of corona virus pandemic.



H4: The bank of Mega Syariah has efficiency in the current time of corona virus pandemic.

H5: The bank of Bank Muamalat has efficiency in the current time of corona virus pandemic.

H6: The Bank has sustainable activity of service in corona virus pandemic to customer satisfaction.

H7: The Banks efficiency profitability has correlation with corona virus pandemic.

H8: The Banks of Return on asset has not correlation with corona virus pandemic.

Primary data are first compiled by making questionnaires and distributing them to customers using several sample banks that have been selected in this study (Sivasakthi, D., & Aswathy, M. R., 2021), the questions in the form contain a little information about customers and also contains from evaluating the growth of bank financial institutions during the corona-19 pandemic (David, M. A., 2021). It is also known that there is a need for activities that support the growth of bank performance in its activities to satisfy customers, especially during this corona-19 pandemic (Sivasakthi, D., & Aswathy, M. R., 2021).

Secondary data here is taken by first collecting existing financial reports at several banks that have been selected as the research subject for this evaluation study, and in relation to the evaluation, secondary data will be processed through a tool called data envelopment analysis (Najafi, E., & Aryanezhad, M., 2011) to calculate how much efficient processing of existing financial resources for asset turnover and cash liquidity.

Beside that the study of Wang, C. N., et al. (2021) also measure about bank performance and offer a strategic guideline for decision-makers toward sustainable development in the banking industry with secondary data. Banks should always seek developing new improving for developing customers' expectations (Abd-El-Barr, M. 2021). In this study could measure about how the bank resolution of activity could make the customer satisfaction with existing some question about the customer satisfaction unit. This study will use SPSS linear regression to measure customer satisfaction, that measurement as Pre-Analysis to find out how far the Bank has improved in customer satisfaction, at the beginning by forming several questionnaires relating to the extent to which customers are satisfied with the services provided by the bank, especially at the time when they are facing the current coronavirus pandemic situation. As we knew that customer satisfaction is a significant helping banks to keep the bank competitive advantage. (Li, F., Lu, H., et al. 2021)

This measurement activity is carried out to determine in advance the initial conditions or company financial institutions related to customer value. We measure about the data through reliability and validity measurement. The study of Islam, K. M., & Bhuiyan, A. B. (2021) adopted a quantitative measure and collected only primary data, followed by convenience sampling. In the statistics of utilizing SPSS, there are four types of validity of correlation such as called as Pearson Correlation, Kendal Rank Correlation, Spearman Correlation, and also the Point Biserial Correlation. For this study, prefers to use Pearson Correlation, following the study of Mohammed M A. (2019) this study used 2 regressions. The first is linear regression, which is will calculate the reliable value and validity of the primary data so that the data can be calculated again to find out the impact between two related variables in this term this study will use the logistic regression as the



final measurement to know about the impact of the corona virus pandemic to the profitability efficiency in the bank.

The logistic regression is the techniques of multiple regression analysis to know about the situations of variable category, and in the practice to research situation of involving outcomes are quite common (Dayton, C. M., 1992). In the logistic regression has extend situation to involving outcome variables with 3 or more categories (Wright, R. E., 1995). To approach the logistic regression is a contingency table approach to be better interpreted in the results, through logistic regression this study would mention about the score between 0 and 1 (Ying, M. et al., 2017), and this study believe that it obscures the regression aspects of the analysis. (Hosmer Jr, D. W., 2013)

Data envelopment analysis (DEA) is a tool that will be used to calculate secondary data that has been obtained through the financial reports of each bank, by also determining the input and output in this study, data envelopment analysis is a tool that evaluates data through the given input and output. The study of Vital, B., at al. (2021) has following input and output variables for further measurement of DEA. In this study, the inputs and outputs are provided. For the input in this study, namely net asset value, Commission Provision Fee, and total operating income, while the output is the return on assets and cash equivalent.

In net asset value represents the net value of asset in whole, Net Asset Value (NAV) calculate as the total value of the entity's asset minus the total value its liabilities, for that reason in this study would measure about how long net asset value could be efficient during this pandemic situation and also as we knew the net asset value is the one of item in financial report that showing up the profitability of the enterprise (Havidz, S. A. H. et al., 2017). Net asset value as the one which is measure in this study is the interesting one, because in that way we could knew how long the enterprise could make efficiency in their profitability and from that reason as well the writer found that Net Asset Value is important for the enterprises (Havidz, S. A. H. et al., 2017). Like from the article of Lepetit, L., (2008) in the US and Europe banking's, it has surprising implication of the changes in their financial performance because it is actually coming from the fee income and particularly more stable than other income.

From the commission and fee, we actually could see how much the financial institution such as bank could running their efficiency in financial of profitability, and also as that description above we also could knew that the commission and fee is the part of feedback value from the customers who are has use bank services. Another reason of this study to use commission and fee report is because in book value of loss gain commission and fee such the value which has a good improvement time by time in each enterprise, which mean this study want to adding another value in each bank (Ozili, P. K., 2017). The total operating income also mean as the coming report of the amount profit from businesses which are ongoing in enterprise, and adding the operating income in this study also make the site of investor could helpful to review, because in the report in total operating income was not included taxes and other one-off items that may skew in enterprise profit. The study of DeYoung, R., & Rice, T. (2004) has so much attention in the bank income such as total operating income, and focused in the balance sheets, which is display the most direct evidence of banks in traditional method and also intermediation activities between depositors and borrowers.

More reason why this study mention part of the total operating income is because the return of total operating income is probably as the one which are conclude whole



activity in the business, beside that the funding of total operating income is also could showing as the Clearent one. Regarding the study of Kadioglu, E., (2017) which is analyzing about the asset quality for the bank profitability in Turkish bank, Return on Asset as dependent variable to measure the asset quality and that study was identified, the Turkish banking sector has increasing part in the asset quality especially of non-performing loan.

Mention Return on Asset in this study as the output part in the profitability measurement is also with the theory that Return on Asset could fill the quality of profitability in enterprise and if the result going increasing in that part it is probably mean that the enterprise has increasing in profitability efficiency, especially in this time of corona pandemic.

Towards the methods that develop in service, it helps to make the bank has sustain value in strategic objectives. (Alti, A., & Almuhirat, A. 2021). The bank has more effort to make it efficient as their can do, and this study work to make the evaluation of that effort, Efficiency is kind of the valuable of activity in organization (Belasri, S. et al., 2020), profitability of several banks in Indonesia, also measured in the study of (Rizqiyah, R., 2018). and efficiency measurement in this study would be included the part of Return on Asset as the output value in the efficiency measurement (Havidz, S. A. H. et al., 2017).

Cash equivalent are the one of three main assets classes in financial investing beside stocks and also bonds, cash equivalent as also the one which has number one position in balance sheet, regarding that reason the cash equivalent as the one which has meaningful cause literally this asset is kind of the liquid asset of the enterprise. According to study of Al-Hroot, Y. A. (2020) that bank also earn the substantial amounts of noninterest income by charging their customers fees in exchange for variety of financial services. Many of these financial services are traditional banking service which is running the transaction within cash equivalent as the most value which should be adding in their financial report..

RESULT AND DISCUSSION

The figure above shown the results of the reliability measurement, the data measured is primary data by pre-spreading several questions relevant to some of the highlight topics that are commonly asked to bank customers as users of bank services and some of them are also relevant to several questions related to customer satisfaction, the results in the reliability measurement obtained good results, it can be seen in the Cronbach alpha table provided above that the value of the contribution of the questionnaires to be distributed to customers is quite relevant, with a value of 0.864 or equivalent to 86.4%.

Table 2. Items-Total Statistics

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Question 1	72.86	94.201	.671	.851
Question 2	72.79	95.952	.621	.853
Question 3	73.11	96.692	.602	.854
Question 4	72.89	93.581	.566	.853
Question 5	74.68	111.930	-.267	.894
Question 6	75.00	112.296	-.306	.890
Question 7	72.96	94.332	.695	.850
Question 8	72.82	98.300	.504	.857
Question 9	72.93	93.772	.679	.850
Question 10	74.29	88.212	.507	.859
Question 11	73.04	93.888	.672	.850
Question 12	72.82	97.041	.517	.856
Question 13	72.64	97.053	.683	.853
Question 14	72.89	96.544	.655	.853
Question 15	73.71	91.101	.526	.855
Question 16	74.04	97.888	.265	.867
Question 17	73.39	91.655	.801	.845
Question 18	73.18	93.485	.732	.849
Question 19	72.82	94.893	.755	.850
Question 20	72.86	95.164	.692	.851

The validity study is the study with generalized correlation study. In the validity result there is any a good result between each variable as we can see the score of single tailed and two tailed is going good to each variable (Adcock, R., & Collier, D. 2001). To measure the validity in primary data measurement, good accuracy is needed because the data in the questionnaires are varied, this can cause the data to be less valid for the object in question, which as can be seen that the total score indicates a relationship between each variable. (Adarkar, A., et al. 2020).

Table 3. Correlation Results

Correlations				
		Question 19	Question 20	Total
Question 1	Pearson Correlation	.669**	.655**	.686**
	Sig. (2-tailed)	.000	.000	.000
	N	28	28	28
Question 2	Pearson Correlation	.701**	.692**	.643**
	Sig. (2-tailed)	.000	.000	.000
	N	28	28	28
Question 3	Pearson Correlation	.280	.207	.464*
	Sig. (2-tailed)	.148	.291	.013
	N	28	28	28
Question 4	Pearson Correlation	.608**	.496**	.588**
	Sig. (2-tailed)	.001	.007	.001
	N	28	28	28
Question 5	Pearson Correlation	.441*	.337	.525**
	Sig. (2-tailed)	.019	.079	.004
	N	28	28	28
Question 6	Pearson Correlation	.226	.130	.384*
	Sig. (2-tailed)	.247	.510	.044
	N	28	28	28
Question 7	Pearson Correlation	.561**	.364	.634**
	Sig. (2-tailed)	.002	.057	.000
	N	28	28	28
Question 8	Pearson Correlation	.109	.202	.352
	Sig. (2-tailed)	.579	.302	.066
	N	28	28	28
Question 9	Pearson Correlation	.589**	.626**	.734**
	Sig. (2-tailed)	.001	.000	.000
	N	28	28	28

As we can see at the table the correlation between each variable are had some value that good to be implemented in this study, following the correlation to each variable is mean that the questionnaires has a good contribution to filling up the study to the intention of knew about the customer satisfaction in several banks especially at the time when corona pandemic happened in this current of time, in Indonesia there has some case of corona pandemic also in some industries like in financial institution such as a bank, and here the study to evaluating the impact of corona virus to the bank and also especially to knew the profitability efficiency in several banks that this study mentioned.



Table 4. Correlation Results

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.599	1.714	4.500	2.786	2.625	.875	23

The analysis of the reliability and validity could be found that there is any real correlation between all questionnaires that already distribute, and found that the activity of the bank could make the highest correlation to the customer satisfaction, it is relevant with mean all of respondents answers, there has 3, 5999 its mean most of the respondents has chosen the point of 3 and above as the agreement of the question that already distributed, most questionnaires also contributed the item of curios thing to know about how several bank in this study could satisfy several of customer their have and also ask to something sustaining and developing in this time of corona pandemic.

Financial profitability could be measure trough some points of profitability part in financial report. This number is from net profit, or income minus expenses, income as the total revenue a company generates. Expenses are a company's costs, like marketing costs or product costs and Profitability helps a business understand if their company is viable whether it's growing or sustaining losses.

Table 5. Efficiency Profitability Result 2019

No	Bank	Efficiency of Profitability
1	BCA Q1	1.000
2	BCA Q2	0.942
3	BCA Q3	0.821
4	BCA Q4	1.000
5	CIMB Q1	1.000
6	CIMB Q2	0.639
7	CIMB Q3	0.977
8	CIMB Q4	1.000
9	MAYBANK Q1	1.000
10	MAYBANK Q2	0.689
11	MAYBANK Q3	0.638
12	MAYBANK Q4	0.892
Mean 1.000		

In 2019 those three bank is still has some good result of profitability efficiency, for the example like the result of BCA in the quarter 1 of 2019 that bank has efficiency to covering up the profitability efficiency in the next quarter of the year BCA still has a good point of the result to called as the bank which is has profitability, and started from quarter 3 of 2019, BCA bank started decreased their value of efficiency, following of another two banks in that table also has some decreasing in addition to begin a new quarter of 2020. At the year of 2018, the conventional bank that mention in the table below, still has improvement in profitability of efficiency is probably in that year the problem of corona pandemic is still not yet appear in that year, the improvement is still good and satisfied in those quarter of the year.



In the logistic regression we found that the analysis providing some of the relation between each variable that mention in this study, like for the example for in the logistic used chi square such as different thing value that make sure between the score -2 log likelihood before variable independent entering the measurement or entering the model of the measurement, and this measurement called as Maximum Likelihood Test.

In addition to know about the ability of the independent variable in explaining the dependent variable, the Cox&Snell R-Square and Nagelkerke R-Square values are also used in this study, those values are also known as Pseudo R-Square or in OLS linear regression it is better known as R-Square. Another measurement in this study that want to build such as like the measurement about Hosmer and Lemeshow Test, this test also called as The Godness of fit test (GoF) is a test to determine whether the model formed is correct or not. It is said to be appropriate if there is no significant difference between the model and the observed value. So here are the figure that providing that information of measurement in logistic regression measurement:

Table 6. Logistic Regression Classification

Classification Table^{a,b}

Observed		Predicted		
		Corona Pandemic .00	1.00	Percentage Correct
Step 0	Corona Pandemic	.00	9	.0
		1.00	27	100.0
Overall Percentage				75.0

a. Constant is included in the model.

b. The cut value is ,500

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	
Step 0	Constant	1.099	.385	8.147	1	.004	3.000

Variables not in the Equation

	Score	df	Sig.
Step 0	Variables		
	Profitability Improvement	7.258	.007
	Return on Asset	.772	.380
	Overall Statistics	7.851	.020

The table above is a 2x2 contingency table classification that should occur or also called the expected frequency based on empirical data of the dependent variable, the overall percentage value in the above classification is 75%. Furthermore, the variable in the equation before the independent variable was entered shows that the Beta coefficient (B) of the constant is 1.009 with an odds ratio or Exp (B) of 3,000 and the significance value or p value of the Wald test = 0.572. Next about the variables that are not included in the equation, it is stated that X1 and X2 have not been included in the model.



Table 7. Logistic Regression Classification

Classification Table^{a,b}

Observed	Predicted		Percentage Correct
	Corona Pandemic .00	1.00	
Step 0 Corona Pandemic .00	0	6	.0
1.00	0	18	100.0
Overall Percentage			75.0

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	1.099	.471	5.431	1	.020	3.000

Variables not in the Equation

	Score	df	Sig.
Step 0 Variables Profitability Improvement	.229	1	.633
Return on Asset	.781	1	.377
Overall Statistics	.885	2	.642

In the logistic regression particularly has model of Step 0 the meaning is that the independent variable yet entering the model to be measure so the figures above are about the classification table. Classification table is showing up the contribution of the variable to describe or to measure in this kind type of measurement, so if there has highest percentage of the results, is mean that the dependent variable has a correct value to measure with the independent variable, such as in this study used the periodic of corona pandemic that before and currently happened in Indonesia, and compare that value with the Profitability Efficiency of several bank with current periodic of before and after corona pandemic happened, so it could be shown in the table of the classification that the corona virus pandemic has impacted the profitability in several bank which are distinguish by Conventional and Shariah bank.

Table 8. Logistic Regression Model Summary

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	31.697 ^a	.217	.321

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than ,001.

After the independent variable entering the model there has some of the result that we should be explained as intention to know how much the variable are match between each other, In model summary we can see that there is any meaningful value between Cox & Snell R Square and also R Square, in the Cox Snell R Square that has 21,7% as much as the dependent variable could be describe with the independent variable and also in Negelkere R Square there has 32,1% of independent ability to describe the dependent variable.

The following value beside those result of Cox & Snell R Square and also R Square are mean that there has value also could be measure for dependent variable, such



as in this study the time of before and current time the corona virus happened in Indonesia. Those values are actually not good enough to conclude that between variable could be describing each variable very well, as we knew that the value between the variable is could not match since there are any development value of variable independent such as return on asset.

Table 9. Logistic Regression Model Summary

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	26.123 ^a	.036	.053

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

The model summary of the Shariah bank also has known from logistic regression that already seen in the table above, could see that the Model Summary generally could be mentioned the result of Nagelkerke R Square and describe the ability of independent variable to describe the dependent variable is just 5,3%. In the model summary we can see that shariah banks cannot be fully explained in terms of the available independent and dependent variables, if it is seen that the independent variable can even only slightly contribute to calculating the relationship between the variables to explain the dependent variable, this is known because the results of profitability efficiency in shariah banks have good results even when the corona virus pandemic occurs in Indonesia, from this picture we can assume that there are good results in profitability efficiency which can cause no good relevance to the dependent variable, namely the corona virus pandemic.

Table 10. Logistic Regression Chi-Square

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	4.793	7	.685

Hosmer and Lemeshow Test is used to determine whether the model formed is correct or not. It is said to be appropriate if there is no significant difference between the model and the observed value. In the table of Hosmer and Lemeshow test is shown that the table is could be match with the value in the table value of Chisquare because the value of calculation from this study could be seen as much as 4.793 is mean the value is less than the table value of the chi square, beside that if we can see that the significant has value as much as 0.685 is also mean that the significant value greater than 0,05 so the model also accepted the value of 0 (Zero).

Table 11. Logistic Regression Chi-Square

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	6.304	8	.613



Hosmer and Lemeshow test shown there has the opposite value to the model is known that the calculated chi square or observation value in shariah bank is 6.304, where this value is actually greater than chi square table.

Table 12. Classification Table and Variable in The Equation

Classification Table^a

Observed		Predicted		Percentage Correct	
		Corona Pandemic .00	1.00		
Step 1	Corona Pandemic	.00	4	5	44.4
		1.00	4	23	85.2
Overall Percentage					75.0

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Profitability Improvement	2.633	1.143	5.304	1	.021	13.914
	Return on Asset	.311	.365	.727	1	.394	1.365
	Constant	-.363	.829	.192	1	.661	.695

a. Variable(s) entered on step 1: Profitability Improvement, Return on Asset.

The classification table is shown about the frequency of expectations based on empirical data on the dependent variable, where the number of samples that have a variable category with a dependent reference or bad consequences that occur, is seen in the classification table when the independent variable has been entered and as much as 75% percentage of the existing classification table.

Variable in the equation table has a positive relationship related to the dependent variable, namely the corona virus pandemic with the independent variable, namely efficiency profitability and also Return on Assets, but the significance table shows that the significant good only lies in the independent variable profitability. improvement, other independent variables do not often have a significant relationship to the dependent variable, namely the corona virus pandemic, this can occur due to an increase in Return on Assets in several existing Conventional Banks even when the corona virus pandemic occurs.



Table 13. Classification Table and Variable in the Equation

Classification Table^a

Observed	Predicted		Percentage Correct
	Corona Pandemic .00	1.00	
Step 1 Corona Pandemic .00	0	6	.0
1.00	0	18	100.0
Overall Percentage			75.0

a. The cut value is .500

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a Profitability Improvement	.317	.976	.106	1	.745	1.374
Return on Asset	-.777	.975	.635	1	.426	.460
Constant	1.371	.985	1.938	1	.164	3.938

a. Variable(s) entered on step 1: Profitability Improvement, Return on Asset.

In the classification table, it can be seen that there is a good percentage in measuring the relationship between variables in this study, especially in Shariah banks, it can be seen that the score obtained is 75%, this indicates that this study can be carried out further as a proof of study, and in this part, it is which will be proven is related to the relationship between the existing independent variable and the dependent variable. Furthermore, we can see in the table variables in the equation in the table that contains information regarding the measurement of profitability efficiency and also Return on Assets of Shariah banks with the corona virus pandemic that occurred in Indonesia, the independent variable that explains the profitability improvement of shariah banks has a positive relationship that can be seen in part B on the variable in the Equation but unfortunately the relationship with the positive predicate cannot be said to be significant because what can be seen in the Sig table the value obtained is more than 0.05, this makes the independent variable not yet fully influence the existing dependent variable.

Even the results obtained by the Return on Assets at Shariah Banks are negative and also do not have a good significance level on the dependent variable, what can be concluded here is that it is true that there is a good improvement related to Profitability Efficiency and also Return on Assets. Sharia Banks measured in this study are completely unrelated to the problems experienced by the whole world and especially in Indonesia, namely the Corona Virus Pandemic. The interpretation analysis is also as the main concern that would be describe in this study, like some following descriptions:

H1: The banks of BCA have efficiency in the current time of corona virus pandemic

As we can see, in the table of result trough data envelopment analysis that there has some point which are improve but still not many improvements as the expected especially in the profitability at the time when corona virus happened. After measure the financial profitability that the items of financial performances are already collected from BCA financial report during 2018-2020 such the result found there is any some point that make BCA has value of profitability efficiency, such as at the time when Return on Asset in



that institution has increasing that such make the profitability efficiency at the time.

H2: The bank of CIMB has efficiency in the current time of corona virus pandemic

Is similar with the CIMB Niaga as the part of conventional bank, corona-19 pandemic also could be influencing the profitability efficiency in the bank, and found that there is any some lack point especially when the corona 19 pandemic happened in Indonesia and impacting some industry in Indonesia and as the impactful industry also the financial institution of the bank, CIMB Niaga as the one of the banks which is also still has not improvement yet.

H3: The bank of Maybank has efficiency in the current time of corona virus pandemic

Bank that also has impact from the corona19 pandemic also should be paying intention of it, because also still yet has efficiency in profitability, towards the measurement from data envelopment analysis there has result that the bank of Maybank also still has not yet improvement at the time when corona pandemic happened in Indonesia. Might the result has a great value of efficiency such as nearly the score of 1 (one) is seems that the bank still has a good ability to doing some improvement but the problem has very obvious is might be from the corona-19 pandemic and it would be highlight problem that should be solved, like what kind of the activity could be improve and to be create with the intention to fill up the customer satisfaction, because it could be relevant between customer satisfaction to be used the service of the bank with the profitability in it.

H4: The bank of Mega Syariah has efficiency in the current time of corona virus pandemic

One of shariah bank has quite good improvement of the profitability efficiency result towards data envelopment, the result shown the business in Mega Syariah has success to facing the corona virus pandemic at the time until 2020 was ended. Before corona pandemic happened in Indonesia, Mega Syariah Bank also has a good result for the efficiency, and even at the time when facing the problem of the corona pandemic, this result make another result of the analysis such as in the logistic regression has not impacted correlation at the those times, because between before and after that problem of corona pandemic happened the Mega Syariah Bank also has a good improvement of profitability.

H5: The bank of Bank Muamalat has efficiency in the current time of corona virus pandemic

Both of shariah bank generally has efficiency at the time when corona virus happened, and it could be concluded the bank of shariah bank, especially for Muamalat bank should be kept or might also increase their capability and the efficiency in term of profitability. The result in efficiency of profitability especially in Muamalat bank has satisfied, even though in this study also mentions in the beginning of this chapter that Muamalat bank has not developing in asset, and this study would proof that the increasing in Asset is not mean also has efficiency in profitability. If this study is a comparing part to another bank the profitability need is might from the liquidity asset that has to cover the liabilities, and



the number of sales or in this study called as commission fee is also important to measure in the efficiency of profitability as intention to know that the institution has enough liquidity and enough to covering their need or event for covering their liabilities.

H6 The Bank has sustainable activity of service in corona virus pandemic to customer satisfaction

If we can see in the previous measurement of SPSS there is any some improvement in several banks that mention in this study, the first bank is from Bank Central Asia that improve in their service and also could found that there is any customer satisfaction in it, almost all of the customers in that bank has satisfied for the service that there already used in several years especially at the time when corona virus already happened in Indonesia.

This study found the result that overall of the banks has finally improvement to make the customer satisfied even at the time when coronavirus pandemic happened, with the number of Cronbach Alpha as much as 86.4% means that the questionnaires have reliable enough to be analyzed and found that there also has a good meaning of the Average of the result which are the customers has chosen the relative answers of 3,499 that point such a good value that this study could describe the customers has a good satisfied enough at the time and for the next to do is the bank should have a new improvement in intention to make the bank more sustainable in future and especially to face the same thing of coronavirus pandemic problem.

H7: The Banks efficiency profitability has a correlation with coronavirus pandemic

Towards the data of profitability result and going on to the logistic regression of binary logistic, there has any a good result and this study would distinguish into two type of bank such as Conventional bank and also Shariah bank, for the result in the conventional bank there has any correlation between the profitability efficiency and also corona-19 pandemic. But for the shariah bank since there has improvement at the time when corona virus happened in Indonesia then the corona virus pandemic time is not really impacting the bank Syariah for the profitability efficiency it would be conclude also that in the profitability efficiency there has not any correlation or relationship with corona-19 pandemic.

H8: The Banks of Return on asset has not correlation with corona virus pandemic

From both types of the banks that mentioned in this study, there has any correlation in conventional bank, even though also has no correlation in the shariah bank cause even in the corona virus pandemic there has still improved. Since the beginning of the efficiency part there has already describe about Return on Asset of some banks in the conventional type and it has enough result of Return on Asset. However, it has inadequate profitability result, so is relevant and has correlation with the corona virus pandemic that measure as the time to compare the condition before and after corona virus happened in Indonesia.



SUMMARY

It has indicated that there has various result in this study, such as several different results between two types of banks called conventional and Syariah, this study can conclude that the institution of the bank is overall still has good improvement to as we knew that in this current of time is not easy to improve and get the business sustain, so generally is still good overall.

There is also any several lacksness that we could measure in this exploring study. In some bank of conventional banks should keep their improvement to make their business sustainable cause this study found there is still not yet efficiency in profitability, is going to be true that we also saw in the previous part of the result in efficiency that some of them have decreasing efficiency in financial profitability. For part of Shariah bank there are 2 shariah banks that already measure in this study and the result is going well for them, regarding the secondary data of financial report there has any improvement also even at the time when corona pandemic happened in this time.

At the time when coronavirus happened in Indonesia, the conventional bank has some decreasing value and make the result of profitability also has decreased between each bank. As the result, Maybank has relatively good value than other. In the Shariah Bank has a good improvement even at the time the coronavirus, and the best bank is Muamalat bank that also could make the institution has efficient of profitability. This study also had an intention to know how profitability has a correlation or no to coronavirus pandemic, with the measurement using the logistic regression started from 3 (three) conventional banks that has a good correlation between profitability efficiency, Return on Asset and also the time when before and after coronavirus pandemic happened in Indonesia, those banks have a good average score in the result.

For Shariah Bank there has not any correlation in it since the result of the profitability and also Return on Asset has improvement till the end of 2020. Therefore, the dependent variable such as corona virus pandemic could not be match or relevant with those independent variables such as profitability and also Return on Asset. In conclusion, coronavirus pandemic could impact most of banks, in this study but this study proves that there is also a chance to improve their value, and suggests creating more service in digitalization and making it with no limitations condition, it could be making more satisfaction and profitability improvement.

REFERENCES

- Abd-El-Barr, M. (2021). Evaluation and Performance Comparison of a Model for Adoption of Biometrics in online Banking. *Kuwait Journal of Science*, 48(2).
- Adarkar, A., Hyde, P., Maxwell, M. N., & Sridharan, A. (2020). Leading a consumer bank through the coronavirus pandemic. no. March.
- Adcock, R., & Collier, D. (2001). Measurement validity: A shared standard for qualitative and quantitative research. *American political science review*, 95(3), 529-546.
- Alabdullah, T. T. Y., Ahmed, E. R., & Nor, M. I. (2020). The World Declining Economy and Coronavirus Pandemic: Systems Should Be Continued. *Russian Journal of Agricultural and Socio-Economic Sciences*, 102(6), 89-96.



- AL-HROOT, Y. A., AL-QUDAH, L. A., & ALKHARABSHA, F. I. (2020). The impact of horizontal mergers on the performance of the Jordanian banking sector. *The Journal of Asian Finance, Economics, and Business*, 7(7), 49-58.
- Alti, A., & Almuhiat, A. (2021). An Advanced IoT-Based Tool for Effective Employee Performance Evaluation in the Banking Sector. *Ingénierie des Systèmes d Inf.*, 26(1), 103-108.
- Baloch, S., Baloch, M. A., Zheng, T., & Pei, X. (2020). The coronavirus disease 2019 (COVID-19) pandemic. *The Tohoku journal of experimental medicine*, 250(4), 271-278.
- Belasri, S., Gomes, M., & Pijourlet, G. (2020). Corporate social responsibility and bank efficiency. *Journal of Multinational Financial Management*, 54, 100612.
- Chen, H., Qian, W., & Wen, Q. (2021, May). The impact of the COVID-19 pandemic on consumption: Learning from high-frequency transaction data. In *AEA Papers and Proceedings* (Vol. 111, pp. 307-11).
- Cheval, B., Sivaramakrishnan, H., Maltagliati, S., Fessler, L., Forestier, C., Sarrazin, P., ... & Boisgontier, M. P. (2021). Relationships between changes in self-reported physical activity, sedentary behaviour and health during the coronavirus (COVID-19) pandemic in France and Switzerland. *Journal of sports sciences*, 39(6), 699-704.
- David, M. A. (2021). A STUDY ON FINANCIAL PERFORMANCE ANALYSIS OF KARUR VYSYA BANK. *EPRA International Journal of Multidisciplinary Research*, 7(7), 422-424.
- Dayton, C. M. (1992). Logistic regression analysis. *Stat*, 474-574.
- Deaton, A. (2021). Covid-19 and global income inequality (No. w28392). National Bureau of Economic Research.
- DeYoung, R., & Rice, T. (2004). How do banks make money? The fallacies of fee income. *Economic Perspectives-Federal Reserve Bank of Chicago*, 28(4), 34.
- Halek, V. (2021). Predicting Financial Distress in Companies Using the Original CCB Model.
- Haq, I. U., & Awan, T. M. (2020). Impact of e-banking service quality on e-loyalty in pandemic times through interplay of e-satisfaction. *Vilakshan–XIMB Journal of Management*.
- Havidz, S. A. H., Jianmu, Y., Aima, M. H., & Ali, H. (2017). Technical and Scale Efficiency Employing Data Envelopment Analysis: Empirical Evidence from Islamic Public Banks in Indonesia. *International Journal of application or Innovation in engineering & Management*, 6(8).
- Helm, D. (2020). The environmental impacts of the coronavirus. *Environmental and Resource Economics*, 76(1), 21-38.
- Hosmer Jr, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression* (Vol. 398). John Wiley & Sons.
- Ichsan, R. N., Suparmin, S., Yusuf, M., Ismal, R., & Sitompul, S. (2021). Determinant of Sharia Bank's Financial Performance during the Covid-19 Pandemic. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, 4(1), 298-309.



- Islam, K. M., & BHUIYAN, A. B. (2021). Determinants of the effectiveness of internal Shariah audit: Evidence from Islamic banks in Bangladesh. *The Journal of Asian Finance, Economics, and Business*, 8(2), 223-230.
- Jilenga, M. T., & Luanda, P. (2021). Factors influencing profitability of commercial banks in Tanzania: A case study of CRDB Bank Plc. *Economics*, 8(1), 61-69.
- Kadioglu, E., Telceken, N., & Ocal, N. (2017). Effect of the asset quality on the bank profitability. *International Journal of Economics and Finance*, 9(7), 60-68.
- Kaushik, M. R., Rastogi, P., & Vakeel, M. S. (2020). A Study on the Effect of COVID Pandemic on E-Banking Services Adoption. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 11(2), 650-660.
- Laisser, N. (2020). The role of mobile banking services on customer satisfaction in commercial banks: a case study of NCBA (T) bank-Dar es salaam, Tanzania (Doctoral dissertation, The University of Dodoma).
- Lepetit, L., Nys, E., Rous, P., & Tarazi, A. (2008). Bank income structure and risk: An empirical analysis of European banks. *Journal of banking & finance*, 32(8), 1452-1467.
- Li, F., Lu, H., Hou, M., Cui, K., & Darbandi, M. (2021). Customer satisfaction with bank services: The role of cloud services, security, e-learning and service quality. *Technology in Society*, 64, 101487.
- Loonam, M., & O'loughlin, D. (2008). Exploring e-service quality: a study of Irish online banking. *Marketing Intelligence & Planning*.
- McKibbin, W., & Fernando, R. (2020). The economic impact of COVID-19. *Economics in the Time of COVID-19*, 45(10.1162).
- Mohammed M A. (2019). Robust Logistic Regression In The Presence Of High Leverage Points [J]. *Journal Of Al-Qadisiyah For Computer Science And Mathematics*, , 11(3): Page 1-11.
- Moşteanu, D., Roxana, N., Faccia, D., Cavaliere, L. P. L., & Bhatia, S. (2020). Digital technologies' implementation within financial and banking system during socio distancing restrictions—back to the future. *International Journal of Advanced Research in Engineering and Technology*, 11(6).
- Najafi, E., & Aryanezhad, M. (2011). A BSC-DEA approach to measure the relative efficiency of service industry: A case study of banking sector. *International Journal of Industrial Engineering Computations*, 2(2), 273-282.
- Olkhov, V. (2019). Economic and financial transactions govern business cycles. *ACRN Journal of Finance and Risk Perspectives*, 8, 1-20.
- Ozili, P. K. (2017). Bank earnings management and income smoothing using commission and fee income: A European context. *International journal of managerial finance*.
- Qiu, Y., Chen, X., & Shi, W. (2020). Impacts of social and economic factors on the transmission of coronavirus disease 2019 (COVID-19) in China. *Journal of Population Economics*, 33(4), 1127-1172.
- Riva, G., Bernardelli, L., Castelnuovo, G., Di Lernia, D., Tuena, C., Clementi, A., ... & Serino, S. (2021). A virtual reality-based self-help intervention for dealing with the psychological distress associated with the COVID-19 lockdown: an



- effectiveness study with a two-week follow-up. *International journal of environmental research and public health*, 18(15), 8188
- Rizqiyah, R. (2018). Analysis of Efficiency and Financial Distress at Several Mining State Own Enterprises and Non State Own Enterprises (ICFBE, President University).
- Sivasakthi, D., & Aswathy, M. R. (2021). A Study on Customer Satisfaction towards E-Banking Services in Indian Bank with Special Reference towards Coimbatore City. *Epra International Journal of Multidisciplinary Research*, 7(7), 360-363.
- Sułkowski, Ł. (2020). Covid-19 pandemic; recession, virtual revolution leading to de-globalization?. *Journal of Intercultural Management*, 12(1), 1-11.
- Swasey, C., Winter, E., & Sheyman, I. (2020). The Staggering Economic Impact of the Coronavirus Pandemic. *Data, Data for Progress*, [https://www. dataforprogress. org/memos/coronavirus-economic-impact](https://www.dataforprogress.org/memos/coronavirus-economic-impact).
- Vital, B., Nellutla, R., & Krishna Reddy, M. (2021). Selection and Analysis of Input-Output Variables using Data Envelopment Analysis of Decision Making Units- Indian Private Sector Banks. *International Journal of Engineering and Advanced Technology (IJEAT)*, 10(5), 119-127.
- Ying, M., Chen, W., & Huatao, P. (2017). A Research on the Impact of Green Marketing on Enterprise Asset Return Based on Logistic Regression. *Innovation And Management*.
- Yulia, H. (2020). Online learning to prevent the spread of pandemic corona virus in Indonesia. *ETERNAL (English Teaching Journal)*, 11(1).
- Yusuf, M., & Ichsan, R. N. (2021). Analysis of Banking Performance in The Aftermath of The Merger of Bank Syariah Indonesia in Covid 19. *International Journal of Science, Technology & Management*, 2(2), 472-478.
- Wang, C. N., Nguyen, N. A. T., Dang, T. T., & Trinh, T. T. Q. (2021). A decision support model for measuring technological progress and productivity growth: The case of commercial banks in Vietnam. *Axioms*, 10(3), 131
- Wright, R. E. (1995). Logistic regression.