DIVERSIFICATION, CAPITAL STRUCTURE, FREE CASH FLOW, AND PROFITABILITY ON ASEAN-5 BANK: A PVAR APPROACH

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Abstract:. This study examines the bidirectional causal relation between diversification, profitability, free cash flow, and leverage on ASEAN-5 Bank. This reserch utilizes data from top 100 bank in ASEAN-5 countries (Indonesia, Malaysia, Thailand, Philliphine, Vietnam) developing countries with 8 years observation period from 2010-2017. We exclude crisis period of 2008 to prevent from bias result. Data were collected from quarterly financial report due to the need for time series analysis that required data with long period of time to prevent the problems of degree of freedom. The contribution of this study is testing different variables and different research samples in the *panel vector autoregression* which are relatively rarely used and for the purpose to be compared with prior research. The result of this study shows that there is a positive and significant bidirectional causal relation between return on asset and diversification, so we can conclude that diversification is one of the antecedants of banking profitability in ASEAN-5. Furthermore, the analysis was continued by conducting robustness checking based on bank size of total assets. The result shows the similar findings for bank with small total asset. Bank with higher total asset shows bidirectional causal relation between free cash flows and diversification.

Index terms: Bank diversification, Diversification strategy, Profitability, Capital structure, Panel VAR.

1. INTRODUCTION

In 2018, the world's emerging economies are suffering caused by depreciation in currency exchange, and it also happen in ASEAN because most of them adopted flexible currency exchange regime (Bloomberg, 2018). As a response to the financial instability, Indonesia's central bank raised The Seven-Day Reserve Repurchase Rate (BI7DRR) fifth time with total increase of 150 bps since May 2018 as an intensive efforts to shield the rupiah from a global rout (Bank Indonesia, 2018). This changing of interest rate caused bank operating losses because the bank should pay higher amount of interest rate to the lender and get lower income from borrower, it's called bank negative spread (Mercieca, Schaeck, & Wolfe, 2007). This is the reason behind why bank should have another income from additional source named non-interest income. There are so many types of non-interest income, like fee based income, provision fee, additional spread from foreign exchange currencies, and other operational income like fund management fee (Berger & Bonaccorsi di Patti, 2006).

Many researcher has analyze the relationship between diversification toward several factors like bank risk, capital structure, bank profitability and other factors. However, the investigation on diversification topics did not reached consensus (Berger & Bonaccorsi di Patti, 2006). The different result primarily because different statistical treatment, different methodology of data collection, and different data measurement. Basically, there are two result about diversification and their impact to company overall performance, diversification premium and diversification discount. The condition of stability is not confirmed for the relationship between diversification and performance, but it is proved for the factors observed simultaneously (Jouida, 2018). In order to have a comprehensive result, this study aimed to analyze the diversification contribution in the bank's overall performance and leverage in a different point of view. We are going to use a different methodology compared to previous study. This studies consisted of three variable. The first one is diversification that will be measure by Shanon Entropy Index (SE) as a proxy of income diversification. The other variables are profitability which measured by Return on Asset (ROA) and leverage. We treat all the variables as an endogenous variable, none treated as independent variable or dependent variable. Panel vector autoregression will be used as a methodology to estimate the dynamics relationship among variables. For robustness check, we are applying stationarity test and optimal lag test to analyze the data complexion.

2. LITERATURE REVIEW

2.1 Diversification

There are several number of reasons behind firm diversification action including efficiency on production, market power, risk management, resource exploitation, and managerial entrenchment (Jouida, 2018). Bakke and Gu (2017) convince that diversification leads to increased operational efficiency through economies of scope because the firm can separate the fixed cost of production among wide range of diversified products and through joint product of financial service. In financial service, when companies have a well-diversified portfolio, the risk will be reduced near zero as an idiosyncratic risk is minimal if not eliminated in a well-diversified firm (Park & Jang, 2013). Opposite with Park and Jang studies, several studies show that diversification leads to companies discounted performance (Căpraru, Ihnatov, & Pintilie, 2018).

2.2 Capital Structure

Capital structure remains a crucial topic in the field of finance, since the seminal paper of Modigliani and Miller's (1958) many studies have examined a wide range of financing decision aspects and their relation with company overall performance. Moreover, the other studies confirm that the leverage level may be affected by the diversification strategy. Bodie *et al.* (2014) defining capital structure is a combination of long-term debt used by the company for its operational activities.

Capital structure in this studies measured by leverage. We opt to use book value for financial institution because the capital regulation is imposed on book value and not on the market one (Jouida & Hellara, 2018). The debt ratio is also considered as a risk measure. A high ratio is related with a low bankruptcy risk. Thus, the access to funds is done at a low cost that results the increase of profits. The financial debt agency costs between shareholders and lenders.

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2.3 Profitability

According to Graf (2011), profitability ratios are the ratios used to measure the effectiveness of overall company management, which is indicated by the amount of profits obtained by the company. The profitability ratio is considered to be the most valid tool in measuring the results of the company's operations, because profitability ratios are a comparison tool for various investment alternatives that are in accordance with the level of risk. The greater the investment risk, the higher the profitability expected. We choose the return on assets (ROA) that is used as an indicator of operational profitability (Jouida & Hellara, 2018).

2.4 Free Cash Flow

Free cash flow is an excess funds outside the company's obligation to manage assets and financing new projects or ongoing investments (Park & Jang, 2013). Some hypothesis regarding the theory relating to free cash flow (FCF) always connect FCF with agency conflict which generally says that excess cash flow in a company increases the tendency of a manager to misbehavior (Jensen & Meckling, 1976). Ordinary deviations are made by investing in projects with negative NPV that cause over investment.

2.5 Diversification, Capital Structure, Profitability, and Free Cash Flow Dynamic Relation

There are several findings from prior research regarding the relationship between diversification, capital structure, and profitability especially in the banking sector. These diverse findings are simply categorized into two, namely diversification discount and diversification premium (Jouida, 2018). Jouida concluded that diversification in banks could increase profitability by a combination of diversification of business lines and diversification of customer regions (Jouida, 2018). Other researchers also found that diversification can increase bank profitability, with and without changes in return on assets and return on equity. (Meslier, Tacneng, & Tarazi, 2014).

La Rocca *et al.* (2009) argue that diversification discounts must be analyzed further related to future cash flow and asset returns. La Rocca *et al.* (2009) explain that companies with low value when diversifying have the potential to have far greater returns compared to large diversifying companies. They say that company size also needs to be considered a control variable.

On the opposite side, Driffield, Mahambare, & Pal (2006) found that diversification is backward with bank performance. Berger *et al.* (2006) also argue that more focused concentration is better than diversifying portfolios. Some researches whose subjects focus on banks state that banks with business activities are in a focus, it will be easier to achieve the cost efficiency until an increase in higher profitability is achieved. suggest that income diversification does not affect the net operating income of banks because non-interest income in banks is very volatile and has a very small nominal value compared to income from interest. Berger *et al.* (2006) said that diversification can reduce company performance due to several reasons such as over investment or wasteful spending, subsidies on segments that have low performance.

3. METHODOLOGY

3.1 Data

The data used in this analysis was collected from Thomson and Reuters data stream. The number of samples in this study were 100 banks in ASEAN-5 (Indonesia,

Malaysia, Thailand, Vietnam and the Philippines) with the largest total assets during the second quarter period of 2018. ASEAN regions were chosen because ASEAN consisted of countries that had relatively same characteristics, able to maintain a stable economic condition, and also praised the world for its success through two major crises namely the 1998 Asian financial crisis and also the global economic meltdown as a result of subprime mortgages in 2008 (PwC, 2018). ASEAN also named as a sixth largest economic region in the world (PWC, 2017). So, the authors see that ASEAN is an attractive economic area for research. In this study, Indonesia was represented by 25 banks, 24 as many as the Philippines, then Malaysia was represented by 19 banks in the study sample, Thailand was represented by 19 banks in the sample, and also Vietnam as many as 13 banks.

3.2 Variables

Diversification, measure a difference between interest income and non-interest income. Measurement of diversification level calculates the movement towards non-interest income where the higher the value of diversification, the bank will be increasingly concentrated and only focus on one source of income, namely interest income only. Shannon Entropy (SE) is a robust measurement for knowing variations in distribution at a given time and can be used for industrial concentration. The calculation of SE can be done with the following formula:

$$SE_{bt} = \sum_{i=1}^{n} r_{bti} \cdot \ln \frac{1}{r_{bti}}$$

Leverage, in accordance with the reference journal, the capital structure is measured by looking at the proportion of debt to equity. For this reason, the debt to equity ratio is used to see the effect of diversification on the bank's capital structure.

$$Leverage = 1 - \left(\frac{Book\ value\ of\ equity}{Book\ value\ of\ asset} \right)$$

Free Cash Flow, is an excess funds outside the company's obligation to manage assets and finance new projects or ongoing investments (Park & Jang, 2013). The calculation of free cash flow can be done with the following formula:

Free Cash Flow = Cash from Operation-Capital Expenditure + Net Debt Issued

Return on Asset, is a ratio to measure company profitability. There are several financial ratios that can be used to measure a company's profitability including return on assets, return on equity, return on invested capital, gross profit margin, and so on. Company profitability can be seen by calculating return on assets used to analyze whether diversification has an effect on company returns or not.

$$Return\ on\ Asset = \frac{Net\ Income}{Total\ Asset}$$

3.3 Proposed Model and Analytical Method

The data collected will be analyzed by the panel vector autoregression (PVAR) method. The VAR method was originally introduced by Sims (1980) as an alternative to multivariate simultaneous equation models that are widely used in macroeconomic research. The VAR system begins when Christopher Sims (1980) criticizes simultaneous and structural equation models which, according to him, are very subjective because in those models several variables have been defined as endogenous or exogenous variables. For this reason, Sims (1980) proposed his idea to treat all variables symmetrically as endogenous variables. Thus, it can be seen that the dynamic relationship between research variables without first specifying a variable will be treated as an independent or dependent variable.

The outline of the objectives in this study is to study the interaction patterns between four research variables, namely bank diversification, free cash flow, return on assets, and data leverage. This research was conducted because the conclusions from the previous research were still inconclusive and bidirectional causal relations so that the relationship between variables needed to be further examined. In general, the vector autoregression equation can be expressed in the equation below:

$$Y_{it} = Y_{it-1}A_1 + Y_{it-2}A_2 + \cdots +$$
$$Y_{it-p+1}A_{p-1} + Y_{it-p}A_p + X_{it}B + u_i + e_{it} \text{ (1)}$$

i (1,2,.....,100), t (period 1,,.......,32)

Information:

Y_{it} : vector of profitability as measured by Return on Asset

X_{it} : vector from diversification of income

u_{it}: vector of capital structure measured by leverage

e_{it}: ideosyncratic errors

3.4 Data Analysis Method

The first step that needs to be done in the VAR analysis is to do a unit root test. This test is used to fulfill the assumption that all data is stationary. Data called stationary if mean, variance, and auto-covariance show a constant pattern (Gujarati & Porter, 2008). According to Gujarati (2008) stationary testing can be done by observing the unit root test using the Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) approaches. The second stage in data analysis in this study is to determine the optimal lag. Determining the lag length is one of the crucial parts in the VAR estimation. Determining the optimal number of lags can use several criteria that have been recommended by AIC (Akaike Information Criterion), SC (Schwarz Information Criterion), and HQ (Hannan-Quinn Information Criterion) while considering the adjusted R2 value in the VAR system.

The third step is cointegration test. Because the purpose of this research is to form a new model that can explain the dynamic and overall relationship in the four research variables, it is necessary to do a cointegration test to find out whether there will be a balance or stability of results in the long term so that the dynamics of the relationships between the variables in the study can be drawn be a conclusion or new research model. One way to do cointegration tests is to use Johansen's Cointegration Test on Eviews 9.0 software.

The next step is the Granger Causality Test. This test is conducted to see the direction of cause and effect relationships (causality) in a vector autoregression model. This test aims to answer the research problems related to the research gap and bidirectional causal relations that have been presented in the first part of this final work. The Granger Causality Test also considers the optimal lag length. And the last step is testing the Vector Autoregression Panel. Vector autoregression tests are carried out when there is no cointegration between variables or the stability of relations between variables in the future. This test will look at the direction of influence of the relationship between the two research variables. The significance of the lag of a variable on other variables can be seen from the comparison of the value of t statistic with t count.

4. RESULT

4.1 Descriptive Statistics

Table 1 Descriptive Statistics

	DIV	FCF	LEV	ROA
Mean	0.596704	55329408	0.787343	0.007154

Median	0.623183	20207605	0.868873	0.003679
Maximum	0.999622	6.84E+08	0.990351	0.524138
Minimum	0.001765	-4.74E+08	0.010249	0.071198
Std. Dev.	0.251862	1.05E+08	0.186301	0.015452
Skewness	-0.298722	2.032330	1.701988	17.36458
Kurtosis	2.089736	10.18556	5.200152	491.4699
Jarque-Bera	158.0694	9087.155	2190.363	31974533
Prob	0.000000	0.000000	0.0000000	0.0000000
Sum	1909.454	1.77E+11	2519.497	22.89361
Obs	3200	3200	3200	3200

Mean is average value of data distribution or center point tendency value. From calculation of descriptive statistics E-views 9.0. it can be seen that the average of the diversification variable is 0.5967. Diversified numbers range from a range of values from 0 to 1, a value of 0 indicates that the company is highly concentrated while the greater the approach to 1 means that the bank is increasingly diversified. Free cash flow is measured in units of USD, so that on average the 100 largest banks in ASEAN in the last 32 quarters have a cash flow of $ 55,329,408 per period. Leverage also shows that the proportion of debt in the banking capital structure is very high reaching 78.73% of total financing. On average, the bank's profitability ratio in ASEAN is still low at 0.715%, indicating that the effectiveness of banks in ASEAN in generating profits by utilizing their total assets is still low because some measures say that at least the ideal ROA is at 1.5%.

The median is the middle value when a data set is sorted from the smallest value to the largest value. When a data set is symmetrical about its distribution mean, we can be sure the mean and median values are relatively the same. Median also has advantages compared to the mean, namely the median calculation is not affected by the existence of extreme values in the data because what is seen is only the location of the center. After the median, table 1 also presents maximum and minimum data. The maximum indicates the top and minimum extreme values are the lowest extreme values. Maximum diversification is owned by Bangkok Bank PCL while minimum diversification is owned by Kasikorn Bank PCL. Minimum ROA is owned by Bank Panin Dubai Syariah Tbk in 2017 quarter 2. Negative return is due to the negative growth of bank third party funds in that year by 12.05% which causes non-operating revenue to reach a negative value of 2.4 trillion rupiah. Leverage in all observations of this study has an average of 0.787343. The highest value is owned by Bank BRI Syariah PT Tbk in 2011 with the proportion of debt 8 times the equity. This is quite worrying because the high debt ratio has also increased the bankruptcy risk of the company.

4.2 Stasionary (Unit Root Test)

Table 2 Augmented Dickey-Fuller Test

Variable	ADF Statistics	Mackinnon Critical Value			Prob
		1%	5%	10%	
Div	-9,79626	-3,4322	-2,8622	-2,5671	0,0000
Log(FCF)	-5,27251	-3,4332	-2,8627	-2,5674	0,0000

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	ADF	1%	5%	10%	Prob.
Leverage	-6,04821	-3,4322	2,8622	-2,5671	0,0000
ROA	-19,4004	-3,4322	2,8622	-2,5671	0,0000

In an Augmented Dickey Fuller Test (ADF Test), there are two criteria that can be used as a basis for rejecting or accepting the research hypothesis. First is when the ADF t-statistic is greater than the critical value MacKinnon, then H0 is rejected so that the conclusion is that there is no unit root or it can be concluded that the data is stationary. Conversely, when the value of the t-statistic ADF is greater than MacKinnon critical value with a significance level of α = 1%, 5%, and 10%, then H0 is rejected and H1 is accepted. The second criterion that can be used as a data stationarity parameter is to compare the probability of calculating with the critical value α = 10%. When the calculated probability is smaller than the critical value, it can be concluded that the data is stationary. The ADF test results in Table 4.2 show that all variables at the test level of 1%, 5%, and 10% have been statistically significant to reject H0 and accept H1. Thus it can be concluded that all variables are stationary at the level, so that they can be continued at the next testing stage.

4.3 Lag Length Tests

Table 3 Lag Length Criterion Test

Lag	LogL	LR	AIC	SC	HQ
0	2421.074	NA	-2.685638	-2.673426	-2.681130
1	6435.865	8007.277	-7.128739	-7.067677	-7.106199
2	6875.270	874.4168	-7.599189	-7.489278	-7.558617
3	7214.260	673.0830	-7.958067	-7.799307	-7.899462
4	7371.630	311.7630*	-8.11514*	-7.90753*	-8.038508*

Optimal lag length is obtained by searching for LR (Likehood Ratio) with the greatest value and looking for the smallest value of testing of Final Prediction Error, AIC (Akaike Information Criterion), SC (Schwarz Information Criterion), and HQ (Hannan-Quinn Information Criterion) . Based on the results shown in table 4.3 above, it can be concluded that Eviews software recommends that for the five criteria LR, FPE, AIC, SC, and HQ, the optimal lag length is in lag 4. Furthermore, information about the optimal lag length will be used in causality testing and PVAR estimation.

4.4 Cointegration Test

Table 4 Cointegration Test of The Model

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.188889	546.2572	47.85613	0.001
At most 1 *	0.042011	129.6507	29.79707	0.000
At most 2 *	0.014979	44.24184	15.49471	0.000
At most 3 *	0.007114	14.20742	3.841466	0.002

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.188889	416.6065	27.58434	0.001
At most 1 *	0.042011	85.40883	21.13162	0.000
At most 2 *	0.014979	30.03442	14.26460	0.001
At most 3 *	0.007114	14.20742	3.841466	0.002

Based on table 4, it can be concluded that there is no cointegration between diversified variables, free cash flow, leverage, and ROA in the long run. This conclusion is obtained because the maximum eigenvalue statistics and trace statistics are smaller than the critical values at the significance level $\alpha = 10\%$. Based on the econometric analysis above, it can be concluded that statistically the observed data is different from the null hypothesis. So the decision is to accept H0 and reject H1, that is, there is no cointegration between variables in the long run. Probability calculations also show the same results, namely by accepting H0 because all have a probability with a value of less than $\alpha = 10\%$.

4.5 Granget Causality Test

Table 5 Granger Causality Testing

Null Hypothesis:	Obs	F-Statistic	Prob.
DIV does not Granger Cause LEV	3200	0.91609	0.4535
LEV does not Granger Cause DIV*		3.27217	0.0110
LOGFCF does not Granger Cause LEV	3200	0.75462	0.5549
LEV does not Granger Cause LOGFCF		1.13705	0.3372
ROA does not Granger Cause LEV*	3200	12.9977	2.E-10
LEV does not Granger Cause ROA*		47.5250	1.E-38
LOGFCF does not Granger Cause DIV*	3200	4.68876	0.0009
DIV does not Granger Cause LOGFCF		1.17964	0.3178
ROA does not Granger Cause DIV	3200	0.27582	0.8937
DIV does not Granger Cause ROA*		3.78777	0.0045
ROA does not Granger Cause LOGFCF*	3200	11.5450	3.E-09
LOGFCF does not Granger Cause ROA		1.51762	0.1944

The criteria that can be used to analyze the Granger causality testing is to look at the probability value. H0 is rejected when the probability value in the Granger Causality Test is less than the test level $\alpha = 10\%$. Based on table 5, there are six relations out of a total of twelve possible relationships found. First is the leverage variable affecting diversification proven by the probability value (0.0110 <0.1000) so that the decision taken is to reject H0 and accept H1. The second is that the return on assets variable significantly affects the leverage of the bank with a confidence level of 90%. This conclusion is obtained by reviewing the probability value in the reception area which is below 0.1000, so that the decision taken is to reject H0 and accept H1. Third, leverage significantly influences return on assets. This illustrates the bidirectional relationship between return on assets and leverage that influence each other.

Next is the fourth causality relationship, namely the effect of free cash flow on diversification. The conclusion obtained from the Granger Causality Test is that there is a statistically significant difference with null hypothesis because its profitability is below a predetermined alpha of 0,0009 so the decision is to accept H0 and reject H1. Fifth, significant diversification influences return on assets in banks in ASEAN as evidenced by probability values (0.0045 <0.1000) so that the decision taken is to reject H0 and accept H1. Sixth, is the effect of return on assets on the log of a bank's free cash flows.

There are several combinations of relationships between variables that are not proven statistically, namely the relation

between diversification and leverage, bank free cash flow with leverage, then diversification in free cash flow, then return on assets to diversification. Finally, is free cash flow against returns on assets. The following is a graphical illustration of the results of the study using the Granger Causality Test which shows a causality relationship between significant research variables:
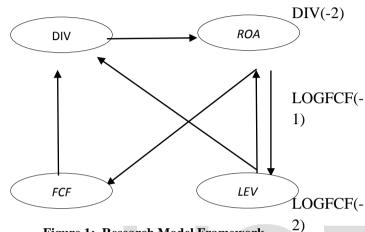

Figure 1: Research Model Framework

4.6 Panel Vector Autoregression

In the vector autoregression model, the variable X will be predicted based on the movement of the variable X in the past (lag variable C) plus information related to the movement of the predictor variable in the past (lag predictor variable). Vector autoregression tests are carried out when there is no cointegration between variables or the stability of relations between variables in the future. This test will look at the direction of influence of the relationship between the two research variables. The significance of the lag of a variable on other variables can be seen from the comparison of the value of t statistic with t count.

Table 6 Panel Vector Autoregression Result

	LEV	DIV	LOGFCF	ROA
LEV(-1)	0.640759	-0.097500	0.116685	-0.009024
	[30.4852]	1.46126]	[0.29770]	[-1.34224]
LEV(-2)	0.331006	0.064780	-0.226356	-0.019281
	[15.7170]	[0.96895]	[-0.57636]	[-2.86207]
DIV(-1)	0.003324	0.501995	0.252002	0.006090
	[0.52906]	[25.1722]	[2.15113]	[3.03061]
DIV(-2)	-0.003853	0.314024	0.096429	-0.004398
	[-0.61035]	[15.6700]	[0.81914]	[-2.17798]
LOGFCF(-1)	-6.29E-06	0.005056	0.410800	-0.000392
	[-0.00611]	[1.54795]	[21.4117]	[-1.19013]
LOGFCF(-2)	0.000200	0.005595	0.464560	0.000367
	[0.19557]	[1.72622]	[24.4001]	[1.12385]
ROA(-1)	-0.153140	-0.079867	-4.158582	0.120659
	[-2.29221]	[0.37659]	[-3.33796]	[5.64600]
ROA(-2)	0.232226	0.123261	-3.899357	0.087488
	[3.60119]	[0.60213]	[-3.24262]	[4.24131]
C	0.019715	-0.040572	2.036205	0.027647
	[-1.75817]	1.13976]	[9.73744]	[7.70750]
R-squared	0.933802	0.653289	0.735443	0.182588

From table 6 above, we can analyze that the endogenous variable in this model is representing as much as R-squared which is 73.54%. Some things that can be explained in the above equation are if there is a change in cash flow in the last quarter of 1%, it will affect the value of the free cash flow in the current period by 0.4107%. Changes in the free cash flow in the previous two quarters will also

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affect the value of the free cash flow in the current period by 0.4645%. Previous one-quarter leverage also significantly affects the current value of free cash flow.

From the above equation it can be seen that the components that have a significant effect on the free cash flow are lag 1 and lag 2 from the free cash flow, then lag 1 from leverage and diversification. If it is associated with the results of the Granger Causality, the variable return on assets significantly affects free cash flow with a negative correlation. This result is in line with the research conducted by Fairfield et al., (2003) which states that free cash flow with excessive amounts in the bank indicates that banks experience underinvestment so that it is reasonable when this will have an impact on decreasing return on assets due to assets the company is not used optimally, for example for lending or used to invest in new products, and so on. Another view was also conveyed by Jensen & Meckling (1976) who said that the amount of free cash flow in the bank was feared to have an impact on managerial behavior that was more inadvertent so that it paid little attention to the principle of prudence.

The second findings is leverage has a bidirectional relation with retun on assets,that is leverage is influenced by return on assets positively. This can be explained because almost 70 to 80% of banking capital structure comes from debt so that when leverage decreases it will have an impact on the return on assets which also decreases.

A diversification function can be explained by the lag values of these variables in the past and their interactions with endogenous variables in this study such as free cash flow, leverage, and return on assets. The endogenous variable is able to explain the diversity of diversification as much as R-squared which is 65.32%. Free cash flow significantly affects the bank's diversification

value at the moment both in lags one and two. Then, diversification lags 1 and 2 also have a positive effect on the value of current diversification.

Last, from table 6 and the equation of the return on assets variable above, a return on asset function can be explained by the lag value of the variable in the past and its interactions with the endogenous variables in this study. The endogenous variable is able to explain the diversity of return on assets as much as R-squared which is 18.25%. Some things that can be explained in the above equation are if there is a change in diversification in the current period of 1%, then 0.00609% of them are influenced by diversification in the previous period, and 0.0043% is influenced by diversification in the previous two periods. The number 0.1825 is an error correction constant that tries to prove the mechanism of adjustment in the long run towards the short term.

LIMITATION

There are several limitation from this research, first, this observation only focus on countries that are members of ASEAN-5 namely Indonesia, Malaysia, Thailand, Vietnam, and the Philippines, so that they have not thoroughly examined the dynamic relationship between variables beyond this research subject. Second, the results of this study also state that there is no cointegration so that the results of this study can't be generalized for longer period. Third, the observation period in this study is limited to only 32 periods, starting from the first quarter of 2010 to the fourth quarter of 2017. Forth, The variable return on investment is only explained by 18% of the endogenous variables in this study. There is still an 82% possibility of variability from variables that can explain the return on assets value.

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CONCLUSION

Based on the analysis and discussion, some conclusions are obtained from the research which are the answers to the problems set out in chapter 1 and can confirm the theories and concepts that were presented in chapter 2. First, free cash flow has a positive effect on diversification and it determines the diversification of banking activities in ASEAN-5. Second, return on assets has a negative effect on free cash flow, this founding supported by prior research that report return on asset and free cash flow is contrary trade off. Third, leverage has a positive effect on diversification, so that higher leverage higher diversification will be. Then, diversification has a positive effect on return on assets. Last one, leverage has a positive effect on return on assets, and vice versa return on assets affects leverage.

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