Evaluation of Banking Sector Development under the ASEAN Economic Community

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Abstract
This study examines the differences in the growth of banking business in ASEAN before and after the entry into force of the ASEAN Economic Community (AEC). The variables studied are assets, third party funds and credit. The research period is growth in 2013 to 2014 (before AEC) and in 2016 to 2017 (after AEC). Data processing begins by reducing the three variables (assets, third party funds and credit) into a new variable using the Principal Component Analysis (PCA) and then doing a different test using the Wilcoxon signed rank test. The results showed that there was no difference in banking business growth between before and after the entry into force of the AEC. Therefore the banking sector has not been able to take advantage of the free market conditions in ASEAN, so it must continue to increase the opportunity to expand market networks in all ASEAN member countries in order to be able to improve its performance.

Introduction
At present some countries have agreed to establish unlimited relationship cooperation. Therefore, many countries feel the success of the development of these conditions. The opening of world trade and the expanding development of information technology will affect the world of national banking and economic growth. Regional and international free trade is the beginning of the start of the era of economic globalization.

ASEAN countries are involved in a process to turn ASEAN into a real economic community by the end of 2015. Originally built as a political alliance to limit the spread of communism in Southeast Asia, ASEAN has gradually become a diplomatic organization to manage issues and expand trade areas with the inclusion of Vietnam, Cambodia and Laos and their opening to the market economy.

Based on the International Monetary Fund (IMF) Regional Economic Outlook (April, 2014), this report highlights ASEAN as an increasing and promising region in the world with a population of 616 million people. ASEAN integration will drive growth because the market will become larger, and 10 member countries, which act as an ASEAN entity, have a stronger voice in the international community.

The ASEAN Economic Community (AEC) opens opportunities for a number of economic sectors in the Southeast Asia region to get a wider market size and greater investment opportunities. The implications of the implementation of the ASEAN Economic Community (AEC) make the economy of a country fully integrated into the global economy to prepare for the free market in capital, goods and services, investment and labor.

One sector that influences AEC is the banking industry, because its role as an intermediary for financial institutions is increasingly important and needed to smooth the performance of the company. The banking sector as an intermediary institution has a large role in moving the real sector [1]. Banks are the most important financial institutions that affect the economy both micro and macro [2]. The role of banks in creating competitive products and services is vital. Banks that have a function as intermediary institutions are expected to be able to provide credit to productive sectors with competitive interest rates, especially in some ASEAN countries with very low interest rates such as Singapore, Malaysia and Thailand.

Each Bank strives to achieve high growth every year, because the growth of the company provides an overview of the Bank's development [3]. With the increasingly complex banking business activities arising because of the benefits of the existence of the ASEAN economic community, it will encourage the growth rate of the banking industry. Kasmir states that growth is the company's ability to maintain its economic position in the midst of economic growth and its business sector [3].

From the reasons described above, it is only natural that with the presence of AEC 2015 it is expected that banks in ASEAN will experience growth from various banking indicators. In the ASEAN free market, the global competition in the inter-state banking market runs very tightly so that efforts to encourage the efficiency of the banking sector that is highly competitive must continue to be carried out by each country so as not to lag behind other countries.

In measuring the growth rate of banks can use the growth ratio. Growth ratio is a comparison between the same post or indicator in two periods, and the post or indicator used is moving [4]. Thus the banking growth analysis plays an important role in providing information about banking growth seen from the indicators before and after the entry into force of the ASEAN Economic Community (AEC). So that the growth ratio can assess the growth rate as evaluating material and future planning.

The results of Coluzzi, et al research show that financing is relevant in explaining company growth in four of the five countries analyzed [5]. Meanwhile Pardede and Azhar found that company growth can increase corporate profits [6]. Purnamawati tested the comparison of ASEAN banking financial performance after the Global crisis [7]. The results showed Trading Volume Activity, Abnormal Return, and stock prices did not experience significant changes before and after stock split.

To find out the impact of the implementation of the AEC on the growth of banks in ASEAN, it is necessary to conduct research that will illustrate the success of banks in dealing with the ASEAN economic community through testing growth differences based on variables commonly used to assess banking growth.

Method

Population and Sampling

This research will be carried out at commercial banks in ASEAN member countries which are in the Top 500 Banking Brands 2014 category and carry out their business activities in 2014 - 2017 with the scope of research which is about the analysis of comparative growth before and after the enactment of the ASEAN economic community.

The banks that match the required categories are 21 banks with the following details:

Table 1. Commercial Banks in ASEAN (Top 500 Banking Brands Category 2014)

No	Bank Names	Country
1	Bank Mandiri	Indonesia
2	Bank Rakyat Indonesia (BRI)	Indonesia
3	Bank Central Asia (BCA)	Indonesia
4	Bank Negara Indonesia (BNI)	Indonesia
5	Bank Danamon	Indonesia
6	RHB Bank Berhad	Malaysia
7	AmBank	Malaysia
8	CIMB	Malaysia
9	MayBank	Malaysia
10	Public Bank Berhad	Malaysia
11	Kasikorn Bank	Thailand
12	Siam Comercial Bank	Thailand
13	Bank Of Ayudhya	Thailand
14	Bangkok Bank	Thailand
15	Krung Thai Bank	Thailand
16	Thanachart Bank	Thailand
17	Tamilnad Mercantile Bank	Thailand

18	Bank Of The Philippine Island	Filipina
19	DBS Bank	Singapura
20	Oversea-Chinese Banking Corporation (OCB)	Singapura
21	United Overseas Bank (UOB)	Singapura

Operationalization of Variable

In order for this research to be carried out as expected, it is necessary to understand the various elements that form the basis of scientific research contained in the operationalization of research variables. In more detail the operationalization of research variables is as follows:

a. Asset growth, calculated by formula:
$$A_GR = \frac{TA(n)-TA(n-1)}{TA\ (n-1)} \text{ X } 100\% \quad (1)$$
b. Credit growth, calculated by formula
$$C_GR = \frac{TC(n)-TC(n-1)}{TC\ (n-1)} \text{ X } 100\% \quad (2)$$
c. Third party fund growth, calculated by formula:
$$TPF_GR = \frac{TTPF(n)-TTPF(n-1)}{TTPF\ (n-1)} \text{ X } 100\% \quad (3)$$

Technique of Data Analysis

Principal Component Analysis (PCA)

Principal Component Analysis (PCA) is a variable reduction technique that has similarities with Factor analysis techniques. The main purpose of PCA are:

a. To reduce some of the many variables into a number of variables in a smaller number called the principal components (principal components) which have variants that are almost the same as the original variables
b. To detect the relationship between variables with the aim of making the classification of these variables based on the similarity of characteristics in the Factor Analysis using the MSA (Measure of Sampling Adequacy) value parameter on a certain correlation matrix

In PCA, the reduction of the number of variables into a smaller group of variables is done by rotating the maximum variant (varimax). This rotation is a way to maximize variance value into new variables called factors in Factor Analysis and components in PCA

According to Sarwono (2017: 35) to do an analysis with PCA, the steps are as follows:

Kaiser-Meyer-Olkin (KMO) dan Barlett Test

Regarding whether or not a factor analysis is feasible, it is necessary to do the Kaiser-meyer-olkin test (KMO) and the Barlett test. If the KMO value ranges from 0.5 to 1, the factor analysis is worth using. However, if the KMO value is less than 0.5, the factor analysis is not feasible. While the Barlett Test is used to test whether the variables involved are correlated.

Anti Image Matriks

The Anti Image Correlation section, especially on the correlation number marked a (diagonal direction from top left to bottom right). The MSA (measure of sampling adequay) ranges from 0 to 1, with the following criteria:

- MSA = 1, the variable can be predicted without error by other variables.
- MSA> 0.5, variables can still be predicted and can be analyzed further.
- MSA <0.5, variables cannot be predicted and cannot be analyzed further, or excluded from other variables

Communalities

Communalities indicate how many variances can be explained by the factors that are formed.

Total Variance Explained

In factor analysis there are several components which are variables. Each factor represents the variables analyzed. The ability of each factor to represent the variables analyzed is indicated by the magnitude of the variance described, which is called eigenvalue. Eigenvalue shows the relative importance of each factor in calculating the variance of the three variables analyzed. The eigenvalue arrangement is always sorted from the largest to the

smallest, with the criteria that the eigenvalue number below 1 is not used in calculating the number of factors formed.

Componen Matriks
Matrix Components are tables that contain the loading factor (correlation value) between the analysis variables and the formed factors.

Component Score Coefficient Matriks
After obtaining the factors formed through the reduction process, it is necessary to find the equation so that it can be calculated manually by each factor. The equation created is similar to multiple linear regression, only in the equation of the factor there are no constants. After the results of the multicollinearity-free PCA components are obtained, these components are regressed or analyzed their effect on the dependent variable using linear regression analysis.

Wilcoxon Signed Rank Test
According to Riadi the Wilcoxon test is widely used to test the difference in treatment given to the object of the study by considering the direction and relative relative difference of the two pairs [8]. In addition to considering the direction of difference, also consider the difference by looking for differences in the difference. The strength of measurement in the Wilcoxon test is that each subject controls itself. The steps to test the hypothesis are as follows:

a. Formulate Ho and Ha
   Ho: μ1 = μ2 : There is no significant difference between banking sector business growth before and after the AEC
   Ha : μ1 ≠ μ2 : There is a significant difference between the banking sector business growth before and after the AEC.

b. Determine the z value

$$Z = \frac{T - [\frac{1}{4N(N+1)}]}{\sqrt{\frac{1}{24N(N+1)(2N+1)}}}$$

   where:
   N = A lot of data changes after being treated differently
   T = Number of ranks of negative difference values (if the number of positive differences is more than the number of negative differences)
   T = Number of ranks of positive difference values (if the number of negative differences is more than the number of positive differences).

c. Critical Area
   H_0 is rejected if the absolute value of Z counts above> Z 2 / α

d. Decision Making
   The basis for making decisions to accept or reject Ho in the Wilcoxon signed rank test are:
   If probability (Asymp.Sig) <0.05 then H_0 is rejected and Ha is accepted.
   If probability (Asymp.Sig)> 0.05 then H_0 is accepted and Ha is rejected.

Result and Discussion

From the results of the study obtained data on the business growth of the banking sector before and after the entry into force of the ASEAN economic community. Data is obtained from processed products based on annual reports of commercial banks that become research populations that have been published on each of the commercial bank's official websites. The data will be used to analyze the business growth of the ASEAN banking sector before and after the entry into force of the ASEAN Economic Community.

To calculate the banking sector business growth of data that has been collected, then the following formula is used:

$$\boldsymbol{Growth\ ratio} = \frac{\boldsymbol{value(n) - value(n-1)}}{\boldsymbol{value\ (n-1)}}$$

To find out the Banking Sector Business Growth in Commercial Banks in ASEAN that Enter the Top 500 Banking Brands Category 2014 Before the AEC can be explained as follows:

Table 2. results of data processing Banking Sector Business Growth in Commercial Banks in ASEAN (Top 500 Banking Brands Category 2014)

No	Bank Names	Before AEC			After AEC		
		Δt_ Asset	Δt_ Credit	Δt_ TFP	Δt_ Asset	Δt_ Credit	Δt_ TFP
1	Bank Mandiri	-0,102	-0,005	-0,080	-0,059	0,007	-0,060
2	BRI	-0,186	-0,001	-0,159	-0,020	-0,027	-0,012
3	BCA	-0,022	0,006	-0,036	-0,032	0,061	-0,023
4	BNI	0,144	0,067	0,105	-0,009	-0,084	0,009
5	Bank Danamon	-0,101	-0,097	-0,091	0,096	0,073	0,069
6	RHB Bank Berhad	-0,105	0,042	-0,110	-0,108	0,018	-0,033
7	AmBank	-0,032	-0,039	-0,030	0,008	0,035	0,060
8	CIMB	-0,002	0,098	0,053	-0,010	-0,085	-0,002
9	MayBank	-0,036	0,097	-0,023	0,001	-0,037	0,019
10	PBB	-0,079	0,090	-0,013	-0,005	-0,040	0,001
11	Kasikorn Bank	0,026	0,027	-0,019	-0,092	0,007	-0,006
12	SCB	-0,038	0,005	-0,042	-0,012	-0,008	-0,039
13	Bank Of Ayudhya	0,381	0,260	0,153	0,005	-0,042	0,131
14	Bangkok Bank	-0,035	0,021	-0,048	0,007	-0,006	0,019
15	KTB	-0,103	0,011	-0,149	0,106	0,079	0,126
16	Thanachart Bank	-0,003	-0,081	-0,013	0,091	0,062	0,048
17	TMB	-0,020	0,068	0,048	0,108	0,063	0,092
18	BPI	0,045	0,064	-0,105	-0,036	-0,037	-0,031
19	DBS Bank	-0,057	0,001	-0,076	0,023	0,007	-0,010
20	OCBC	-0,213	-0,024	-0,250	0,059	0,038	0,023
21	UOB	-0,049	0,012	-0,061	-0,021	-0,042	0,007

Step 1: Principal Component Analysis (PCA)

After going through various stages in principal component analysis testing, it was produced that the data was free from multicollinearity problems. All of these data are reduced to form 4 new multicollinearity-free equations as follows:

A new equation before the enactment of AEC

$$\xi_1 = 0{,}382X_1 + 0{,}359X_2 + 0{,}369X_3$$
$$\xi_2 = 0{,}117X_1 - 0{,}235X_2 + 0{,}073X_3$$

A new equation after the enactment of AEC

$$\xi_1 = 0{,}440X_1 + 0{,}393X_2 + 0{,}377X_3$$
$$\xi_2 = (-0{,}09)X_1 + 0{,}346X_2 - 0{,}267X_3$$

From the new equation, new data is formed after it is processed into each equation in the following table:

Table 3. New Equations Reduced by Principle Component Analysis (PCA)

No	Bank Names	Before AEC	After AEC
1	Bank Mandiri	-0,071	-0,048
2	BRI	-0.131	-0,024
3	BCA	-0,020	-0,003
4	BNI	0,118	-0,029
5	Bank Danamon	-0,106	0,096
6	RHB Bank	-0,067	-0,056
7	AmBank	-0,037	0,040

8	CIMB	0,053	-0,034
9	MayBank	0,011	-0,005
10	PBB	-0,004	-0,015
11	Kasikorn Bank	0,013	-0,041
12	SCB	-0,029	-0,024
13	Bank Of Ayudhya	0,295	0,042
14	Bangkok Bank	-0,024	0,009
15	KTB	-0,092	0,126
16	Thanachart Bank	-0,034	0,082
17	TMB	0,034	-0,107
18	BPI	-0,000	0,041
19	DBS Bank	-0,050	0,009
20	OCBC	-0,184	-0,049
21	UOB	-0,037	0,021

The new data above will be re-tested using the normality test to determine whether the data is normally distributed or not in order to proceed to further research

Table 4. Normality Test the Data

		Before AEC	**After AEC**
N		21	21
Normal Parameters[a,b]	Mean	-17.2273	10.4091
	Std. Deviation	94.475	53.255
Most Extreme Differences	Absolute	0.193	0,185
	Positive	0.193	0,185
	Negative	-0.103	-0,106
Test Statistic		0.193	0,185
Asymp. Sig. (2-tailed)		0,033	0,049

The Kolmogrov Smirnov results in table 4 show that the factors tested show the numbers 0.033 and 0.049, with a significance level below 0.05, then it can be concluded that the data is not normally distributed.

Step 2: Wilcoxon Signed Rank Test

After testing the normality and the data stated to be abnormal, then the "wilcoxon signed rank test" was tested.

Table 5. Wilcoxon Test

Z	-1.304
Asymp. Sig. (2-tailed)	.192

Based on table 5 above, it is known that the significance value is 0.192, greater than 0.05, it is concluded that there is no significant difference between the banking sector business growth before and after the entry into force of the AEC. This result is in line with several previous studies, namely Gunawan (2015) which examined the differences in financial performance of banks in ASEAN to face AEC. The results showed that there were no differences in financial performance between DBS Bank, CIMB Bank, Bank Mandiri, and Kasikorn Bank. Another study is Hasan (2015) which analyzes the ASEAN banking integration framework (ABIF) for banking performance in ASEAN. The results of this study indicate that there is no significant difference in the ratio of CAR, RORA, NPL, and LOA of banking in the five countries. The ASEAN banking integration framework (ABIF) is a guide to the operational framework for ASEAN countries in implementing the principles and processes of banking integration under the framework of the ASEAN economic community.

According to the data obtained that all data that is the object of research consisting of assets, third party funds and credit has increased every period for all banks in each country in ASEAN, but this increase did not grow larger. So that statistically the results of data processing show that there is no significant growth. Growth shows an increase in the increase (delta) of each variable studied. The results of this study indicate that since the entry into force of the AEC, banks have not been able to increase their performance in a relatively short period of time.

Banks need to prepare a longer time to be able to gain market share in other countries so that more customers are owned. Therefore, to ensure the success of the AEC in increasing the growth of the banking business in ASEAN, it must be re-examined with a longer period of time.

Conclusion

The ASEAN Economic Community (AEC) has been in effect since 2015 and the business sector utilizes this condition to increase market share for the purpose of improving its performance. Unlike the banking sector which does not show significant growth. The results showed that there was no significant growth between before and after the entry into force of the ASEAN economic community. This is an assessment that the business sector in banks still requires a long time to feel the benefits of the free market in ASEAN.

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