DETERMINATION OF FINANCIAL STABILITY INDEX BETWEEN SOUTHEAST ASIAN COUNTRIES (ASEAN 6) AND ITS INTRACORRELATION

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Abstract

The Economic crisis has impacted the disruption of the stability of a country's financial system, including ASEAN countries. In Indonesia, there is a Financial System Stability Committee (KSSK) whose duties are to coordinate monitoring and maintaining financial system stability. KSSK has the authority to set the criteria and indicators for assessing financial system stability conditions concerning the financial system's stability. The second authority is to evaluate the condition of financial system stability based on input from each member of the Financial System Stability Committee, along with supporting data and information. As an economic area with history, ASEAN countries certainly have a relationship, either strong or weak. This study conducted calculations of the financial stability index (Aggregate Financial Stability Index) built from the Morris framework (2010) consisting of sub-index Financial Development Index, Financial Vulnerability Index, Financial Soundness Index, World Economic Climate Index. The calculation results showed that in ASEAN 6, there were fluctuations in financial stability, and there were variations in the correlation of financial stability. Therefore, improving the financial stability in Indonesia needs to consider the existence of financial stability in other countries.

Keywords: Aggregate Financial Stability Index, Financial Development Index, Financial Vulnerability Index, Financial Soundness Index, World Economic Climate Index

1. INTRODUCTION

The economic crisis in mid-1997 that began in Thailand spread to neighboring countries in Asia resulted in economic instability. The impact of the 1997/1998 economic crisis was so far-reaching on the real and financial sectors. In addition, the economic and financial crisis requires a significant amount of recovery costs, although International Monetary Fund has taken over some policies setting in Indonesia.

An infectious economic and financial crisis is inevitable because of economic globalization, where interdependence and depending on other economies is increasingly widespread. Economic instability will occur more often, so this condition must be tackled together as a preventive measure to prevent the crisis from happening again.

The Government of Indonesia established the Financial System Stability Committee, abbreviated as KSSK, which organizes the prevention and handling of financial stability to improve the resilience of Indonesian economies. KSSK members consist of:
1. The Minister of Finance as the coordinator of concurrent members with voting rights;
2. Governor of Bank Indonesia as a member with voting rights;
3. Chairman of the Board of Commissioners of the Financial Services Authority as a member with voting rights; and

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4. Chairman of the Board of Commissioners of the Deposit Guarantee Agency as a member with voting rights.

One of KSSK's tasks is to coordinate in the framework of monitoring and maintenance of Financial Stability. Concerning the situation of financial stability, first, KSSK has authority to set the criteria and indicators for assessing the condition of financial stability. Second, assessing the condition of financial stability, based on supporting data and information, along with input from each member of the Financial System Stability Committee.

Several factors that affect the financial stability and economic system stability assessment indicators also need to be reviewed. The authors used the Aggregate Financial Stability Index (AFSI) as a proxy for financial stability in this study. In connection with the authority of the KSSK, research is needed to conduct a calculation of the financial system stability index embodied in the Aggregate Financial Stability Index (AFSI). Concerning intra-ASEAN trade and financial relations, it is necessary to calculate AFSI and analyze its correlation between ASEAN-6 countries (Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam) to see the extent of the interdependence of financial stability intra-ASEAN countries.

The results of this study can be utilized to look at the stability of each country's financial system and at least be a consideration to improve the financial stability among countries. Concerning the study, which countries have a strong financial stability correlation so that they can design the cooperation agreement to improve their financial stability.

2. LITERATURE STUDY

Bank Indonesia defines a financial system consisting of financial institutions, financial markets, financial infrastructure, and non-financial and household companies, which interact in funding and or provision of economic growth financing (www.bi.go.id).

(Schinasi, 2004) states that a stable financial system if it is able to facilitate (not inhibit) economic performance and eliminate financial imbalances that arise endogenously. A stable financial system as a system, always makes adjustments towards balance, after being exposed to the influence of shocks from within and from outside. It can carry out traditional functions related to efficient allocation of resources, to correct price distortions and ensure adequate payment systems and settlement systems, as functions that contribute to overall economic growth and well-being (Albulescu & Goyeau, 2010)

In Jordan, Samer. A.M. Al (Al-Rjoub, 2021) uses Financial Stability Index (FSI) to prove that the banking sector has been consciously resilient against shocks and negative economic conditions in Jordan. FSI is intutitively attractive as it could enable policy makers to monitor the banking sector's resilience to shocks and can help in anticipating the source of financial stress to the system.

AFSI Calculation Model

Aggregate Financial Stability Index (AFSI) is an aggregate index developed by (Albulescu, 2008) to analyze the stability of the Romanian financial system and in 2010, Morris built AFSI for the stability of jamaica's financial system. AFSI method is a separate technique that can be used to complement other methods. AFSI provides the possibility for users to compare the level of financial system stability in different periods and between different financial systems, observe the dynamics of changes in the stability level of a financial system, and allow forecasting related to the stability of a financial system. Another advantage of the AFSI method is that it uses a simple way of calculating and easy access to statistical data. In general, the data is quite available, more transparent, and very helpful in defining the stability of a country's financial system (Albulescu & Goyeau, 2010)

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(Morris, 2010) states that the Aggregate Financial Stability Index (AFSI) has 4 (four) sub-indices as follows:

Financial Development Index (FDI)

Financial Development Index or development index shows that the greater the value of the index, the more financial is growing. This sub-index consists of four indicators. The first indicator is the percentage of total market capitalization to Gross Domestic Product (GDP) which is the percentage between the value of capital in the market or the value of the capital market against GDP. This indicator describes the development and size of the capital market. The larger this indicator indicates that investment is increasing.

The next indicator is the percentage of domestic credit to GDP which describes the level of intermediation of financial institutions in this case commercial banks and People's Credit Banks (BPR) which are quite dominant. The higher this indicator shows that financial institutions are better at bridging between owners of excess funds (surplus units) and parties who need funds (unit deficit) and increasing domestic investment.

The third indicator is the difference between the interest rate on the loan and the interest rate spread. This indicator illustrates the potential benefits of financial institution intermediation services. However, the larger this indicator also illustrates that financial institutions are increasingly inefficient.

The last indicator is the bank concentration which is the assets of the three largest banks as part of all commercial bank assets. The concentration of banking in Indonesia is quite high after the 1998 crisis because of the number of banks that do mergers. According to Morris (Morris, 2010) the increase in this indicator illustrates the improvement of the efficiency of the banking sector.

Financial Vulnerability Index (FVI)

Financial Vulnerability Index shows that the lower the value of the index, the more vulnerable the financial system and vice versa. The Financial Vulnerability Index consists of eight indicators. The first economic indicator grouped into this sub-index is inflation. Inflation shows an increase in the price of goods in general. The increase in this indicator can be interpreted as a decrease in the value of money against goods that can decrease the level of public confidence in the currency so that the public tends to hold in the form of goods or other currencies. The second indicator is the percentage surplus or deficit of the government's balance of expenditure to GDP. In the event of a budget deficit to cover, the government can print money or debt. The debt can be sourced from the issuance of bonds or foreign loans. Some of each alternative has considerable risks. The third indicator is the percentage of the current account against GDP. The current account deficit can lead to reduced foreign exchange reserves and reduce its contribution to GDP. The fourth indicator is the Real Effective Exchange Rate (REER), which is domestic currencies' actual exchange rate performance against foreign currencies in general in the international economy. The fluctuating changes in this indicator show that the economy through exchange rate adjustments has undergone a significant correction (Albulescu & Goyeau, 2010). The fifth indicator is the percentage of private credit to total credit. This indicator illustrates the proportion of private sector funding through credit for investment and is also potentially bad credit. The sixth indicator is the percentage of loans against deposits. The increase in this indicator shows that it is easier and more efficient for financial institutions to carry out their intermediation functions. The seventh indicator is the percentage of deposits against the money supply. The increase in this indicator illustrates the tendency of people to save money in financial institutions rather than for consumption activities. The last indicator compares the percentage of reserves against deposits with the percentage of money held by the public against the money supply. This indicator

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reflects the preparation of financial institutions in anticipating massive withdrawals of deposits by the public.

Financial Soundness Index (FSI)

Financial Soundness Index shows that the greater the value of the index, the better the banking sector. FSI consists of five index building indicators.

The first indicator is the percentage of bad loans against total banking credit. Increasing the index will disrupt the liquidity of the banking sector. The second indicator is the Capital Adequacy Ratio (CAR), describing the level of banking capitalization that is a condition of capital adequacy against weighted liquidity risks. The improvement of this indicator illustrates the readiness of banks to overcome liquidity risks. The third indicator is the percentage of capital against total assets. This indicator shows the proportion of capital to all assets owned by the banking sector. The higher this indicator indicates the more liquid and healthier the banking sector. The fourth indicator is Bank Return on Asset (ROA), which measures the rate of return of the banking sector. The larger this indicator reflects greater profits within the banking sector. The fifth indicator is bank Z-Score, which is the level of banking health that describes the possibility of banks can survive not going bankrupt.

World Economic Climate Index (WECI)

World economic climate index developed by the Center for Economic Studies & Research Institute "CESifo" shows the condition of the world economy using the perception of business condition related to investment opportunities. The increase in these indicators illustrates the increasingly better global economic climate. WECI shows that the greater the value of the index, the better global economic conditions. The data used is data in the annual period. The limited availability of data for some individual indicators led to adjustments, so that the data used is data from 2005 to 2017 which is the data with the most available time interval.

3. RESEARCH METHODS

The data used in this study obtained from various sources in 2005-2018, that can be accessed through the CESifo website, International Monetary Fund (IMF) and World Bank. There are several steps to calculate AFSI. It is collecting and grouping data on each sub-index starting from 2005 to 2018. The next step is to normalize the indicator. The normalization method makes indicator values range from "0" to "1". The value "0" is the worst value and "1" is the best stability condition. So, the greater index shows the better condition of financial stability. The formula for empirical normalization methods is as follows:

$$Iitn = \frac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)} \qquad (1)$$

$Iitn$ = the value of an individual indicator that has been normalized
Iit = value of individual indicator i at t
Min(Ii)= minimum value of individual indicator i during the observation period
Max(Ii)= maximum value of individual indicator i during the observation period

After normalizing the data, to obtain the value of sub-index by summing the normalization values of all individual indicator and divided by the total individual indicators in the sub-index. To get AFSI is done by summing the normalization value of all individual indicator with the total individual indicators of index constituents.

Mathematically the four sub-indices and AFSI can be written as follows:

Financial Development Index (FDI)

$$\overline{Dt} = \frac{\sum_{I=1}^{4} Dit}{4} \tag{2}$$

Notation in the equation above shows the value of the financial development index which is the average value of all its constituent indicators in period t. $\sum D_{it}$ is the sum of all index constituent indicators in period t.

Financial Vulnerability Index (FVI)

$$\overline{Vt} = \frac{\sum_{I=1}^{8} Vit}{8} \tag{3}$$

Financial vulnerability index is the average value of all its constituent indicators in the t-period. $\sum V_{it}$ is the sum of all index constituent indicators in period t

Financial Soundness Index (FSI)

$$\bar{St} = \frac{\sum_{I=1}^{5} Sit}{5} \tag{4}$$

The equation above shows the value of the banking sector health index and is the average value of all its constituent indicators in period t. $\sum S_{it}$ is the sum of all index constituent indicators in period t.

World Economic Climate Index (WECI)

$$\overline{Wt} = \frac{\sum_{I=1}^{3} Wit}{3} \tag{5}$$

The equation above shows the global economic conditions index value and is the average value of all WECI constituent indicators in period t. $\sum W_{it}$ is the sum of all index constituent indicators in period t.

Aggregate Financial Stability Index (AFSI)

$$AFSI = \frac{\sum_{I=1}^{4} Iit}{20} \tag{6}$$

$\sum I_{it}$ is the sum of all index constituent indicators in period t, where

$$\sum_{i=1}^{4} Iit = \sum_{i=1}^{4} Dit + \sum_{i=1}^{8} Vit + \sum_{i=1}^{5} Sit + \sum_{i=1}^{3} Wit \tag{7}$$

Therefore

$$AFSI = \frac{4\overline{Dt}}{20} + \frac{8\overline{Vt}}{20} + \frac{5\bar{St}}{20} + \frac{3\overline{Wt}}{20} \tag{8}$$

Or it can be written as follows:

$$AFSI = (9) 0{,}2\,\overline{Dt} + 0{,}4\,\overline{Vt} + 0{,}25\,\bar{St} + 0{,}15\,\overline{Wt}$$

The process of forming an index uses equally large weighting for each index building indicator. Van den End (2006) shows in the composition of the preparation of aggregate stability indexes the same weighting and different weights in econometric validation will produce small differences. So to make it simpler to use the same weighting method on each indicator. However, each sub-index has a different weight depending on the number of constituent indicators.

4. RESULTS AND DISCUSSION

The table of data grouping in the preparation of sub-indices can be seen in Table IV.1 as follows

Table 1. *Aggregate Financial Stability Index* (AFSI)

Financial Development Index (FDI)		**Source**
Market Capitalization / GDP	Percent (%)	World Bank
National Currency Credit/GDP	Percent (%)	World Bank
Interest Rate Spread	Percent (%)	World Bank
World Bank Concentration	Percent (%)	World Bank
Financial Vulnerability Index (FDI)		
Inflation, consumer prices	Percent (%)	World Bank
General Balance, Deficit or Surplus/GDP	Percent (%)	World Bank
Current Account / GDP	Percent (%)	World Bank
Real Effective Exchange Rate (change)	Percent (%)	World Bank
Non Governmental Credit / Total Credit	Percent (%)	World Bank
Loan/Deposits	Percent(%)	World Bank
Deposits /M2	Percent(%)	World Bank
(Reserves / Deposits) / (Note&coin / M2)	Percent (%)	World Bank
Financial Soundness Index (FSI)		
Nonperforming Bank loans to gross loans	Percent (%)	World Bank
Bank Capital Adequacy Ratio (CAR)	Percent (%)	World Bank
Bank Capital to total assets	Percent (%)	World Bank
Bank Return on Assets (ROA)	Percent (%)	World Bank
Bank Z-Score	Percent (%)	World Bank
World Economic Climate Index (WECI)		
World Inflation, Consumer Prices	Percent (%)	IMF
World GDP Growth	Percent (%)	IMF
Economic Climate Index	*Index Number*	*CESifo*

To show the steps, the calculation step will be presented examples of empirical steps of AFSI calculation in Indonesia to provide a comprehensive picture of the calculation. An example of a calculation to be displayed is the FDI sub index.

Table 2. Market Capitalization of Listed Companies (% of GDP) Indonesia

COUNTRY	YEAR (n)	MARKET CAPITALIZATION OF LISTED COMPANIES (% OF GDP) (Iit)
INDONESIAN	2005	28.4845
INDONESIAN	2006	38.0959
INDONESIAN	2007	48.9784
INDONESIAN	2008	19.3561
INDONESIAN	2009	39.8350
INDONESIAN	2010	47.7276
INDONESIAN	2011	43.6865
INDONESIAN	2012	46.6539
INDONESIAN	2013	37.9906
INDONESIAN	2014	47.3866
INDONESIAN	2015	41.0373
INDONESIAN	2016	45.6892
INDONESIAN	2017	51.2778

Min $(Ii) = 19.3561$(Theminimum value of the individual indicator of the percentage of market capitalization against Indonesia's GDP during the observation period was 2008)

Max $(Ii) = 51.2778$(Themaximum value of individual indicators of the percentage of market capitalization against Indonesia's GDP during the observation period is 2017)

Table 3. Calculation of Normalization of Market Capitalization of Listed Companies (% of GDP) Indonesia

Year	Formula		Normalization Results
2005	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2005 = \dfrac{28.4845 - 19.3561}{51.2778 - 19.3561}$	$Iitn\ 2005 = 0.2860$
2006	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2006 = \dfrac{38.0959 - 19.3561}{51.2778 - 19.3561}$	$Iitn\ 2006 = 0.5871$
2007	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2007 = \dfrac{48.9784 - 19.3561}{51.2778 - 19.3561}$	$Iitn\ 2007 = 0.9280$
2008	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2008 = \dfrac{19.3561 - 19.3561}{51.2778 - 19.3561}$	$Iitn\ 2008 = 0.0000$
2009	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2009 = \dfrac{39.8350 - 19.3561}{51.2778 - 19.3561}$	$Iitn\ 2009 = 0.6415$
2010	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2010 = \dfrac{47.7276 - 19.3561}{51.2778 - 19.3561}$	$Iitn\ 2010 = 0.8888$
2011	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2011 = \dfrac{43.6865 - 19.3561}{51.2778 - 19.3561}$	$Iitn\ 2011 = 0.7622$

Year	Formula		Normalization Results
2012	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\,2012 = \dfrac{46.6539 - 19.3561}{51.2778 - 19.3561}$	$Iitn\,2012 = 0.8552$
2013	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\,2013 = \dfrac{37.9906 - 19.3561}{51.2778 - 19.3561}$	$Iitn\,2013 = 0.5838$
2014	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\,2014 = \dfrac{47.3866 - 19.3561}{51.2778 - 19.3561}$	$Iitn\,2014 = 0.8781$
2015	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\,2015 = \dfrac{41.0373 - 19.3561}{51.2778 - 19.3561}$	$Iitn\,2015 = 0.6792$
2016	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\,2016 = \dfrac{45.6892 - 19.3561}{51.2778 - 19.3561}$	$Iitn\,2016 = 0.8249$
2017	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\,2017 = \dfrac{51.2778 - 19.3561}{51.2778 - 19.3561}$	$Iitn\,2017 = 1.0000$

Table 4. National Currency Credit/GDP (%) Data Indonesia

COUNTRY	YEAR (n)	NATIONAL CURRENCY CREDIT/GDP (%) (Iit)
INDONESIAN	2005	46.2049
INDONESIAN	2006	41.6594
INDONESIAN	2007	40.5802
INDONESIAN	2008	36.7702
INDONESIAN	2009	35.6418
INDONESIAN	2010	33.2846
INDONESIAN	2011	35.5566
INDONESIAN	2012	39.3252
INDONESIAN	2013	42.1045
INDONESIAN	2014	42.3979
INDONESIAN	2015	42.4149
INDONESIAN	2016	43.0875
INDONESIAN	2017	42.1166

$\text{Min}(Ii) = 33.2846$ (The minimum value of *the National Currency Credit* individual indicator against Indonesia's GDP during the observation period was 2010)
$\text{Max}(Ii) = 46.2049$ (The maximum value *of the National Currency Credit* individual indicator against Indonesia's GDP during the observation period was 2005)

Table 5. Calculation of Normalization *of National Currency Credit* Data on Indonesia's GDP

Year	Formula		Normalization Results
2005	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\,2005 = \dfrac{46.2049 - 33.2846}{46.2049 - 33.2846}$	$Iitn\,2005 = 1.0000$
2006	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\,2006 = \dfrac{41.6594 - 33.2846}{46.2049 - 33.2846}$	$Iitn\,2006 = 0.6482$
2007	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\,2007 = \dfrac{40.5802 - 33.2846}{46.2049 - 33.2846}$	$Iitn\,2007 = 0.5647$

Year	Formula	Calculation	Result
2008	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2008 = \dfrac{36.7702 - 33.2846}{46.2049 - 33.2846}$	$Iitn\ 2008 = 0.2698$
2009	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2009 = \dfrac{35.6418 - 33.2846}{46.2049 - 33.2846}$	$Iitn\ 2009 = 0.1824$
2010	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2010 = \dfrac{33.2846 - 33.2846}{46.2049 - 33.2846}$	$Iitn\ 2010 = 0.0000$
2011	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2011 = \dfrac{35.5566 - 33.2846}{46.2049 - 33.2846}$	$Iitn\ 2011 = 0.1758$
2012	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2012 = \dfrac{39.3252 - 33.2846}{46.2049 - 33.2846}$	$Iitn\ 2012 = 0.4675$
2013	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2013 = \dfrac{42.1045 - 33.2846}{46.2049 - 33.2846}$	$Iitn\ 2013 = 0.6826$
2014	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2014 = \dfrac{42.3979 - 33.2846}{46.2049 - 33.2846}$	$Iitn\ 2014 = 0.7053$
2015	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2015 = \dfrac{42.4149 - 33.2846}{46.2049 - 33.2846}$	$Iitn\ 2015 = 0.7067$
2016	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2016 = \dfrac{43.0875 - 33.2846}{46.2049 - 33.2846}$	$Iitn\ 2016 = 0.7587$
2017	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2017 = \dfrac{42.1166 - 33.2846}{46.2049 - 33.2846}$	$Iitn\ 2017 = 0.6836$

Table 6. Interest Rate Spread (%) Indonesia

COUNTRY	YEAR (n)	INTEREST RATE SPREAD (%) (Iit)
INDONESIAN	2005	5.9717
INDONESIAN	2006	4.5683
INDONESIAN	2007	5.8858
INDONESIAN	2008	5.1058
INDONESIAN	2009	5.2200
INDONESIAN	2010	6.2350
INDONESIAN	2011	5.4725
INDONESIAN	2012	5.8483
INDONESIAN	2013	5.3933
INDONESIAN	2014	3.8525
INDONESIAN	2015	4.3258
INDONESIAN	2016	4.7224
INDONESIAN	2017	4.5550

Min $(Ii) = 3.8525$ (minimum value of *indonesia's individual interest rate indicator* during the observation period is 2014)

Max $(Ii) = 6.2350$ (maximum value of *indonesia's individual interest rate indicator* during the observation period is 2010)

Table 7. Calculation of Normalization *of Indonesia's Interest Rate Spread* Data

Year	Formula		Normalization Results
2005	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2005 = \dfrac{5.9717 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2005 = 0.8895$
2006	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2006 = \dfrac{4.5683 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2006 = 0.3005$
2007	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2007 = \dfrac{5.8858 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2007 = 0.8534$
2008	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2008 = \dfrac{5.1058 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2008 = 0.5261$
2009	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2009 = \dfrac{5.2200 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2009 = 0.5740$
2010	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2010 = \dfrac{6.2350 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2010 = 1.0000$
2011	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2011 = \dfrac{5.4725 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2011 = 0.6800$
2012	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2012 = \dfrac{5.8483 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2012 = 0.8377$
2013	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2013 = \dfrac{5.3933 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2013 = 0.6467$
2014	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2014 = \dfrac{3.8525 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2014 = 0.0000$
2015	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2015 = \dfrac{4.3258 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2015 = 0.1987$
2016	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2016 = \dfrac{4.7224 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2016 = 0.3651$
2017	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2017 = \dfrac{4.5550 - 3.8525}{6.2350 - 3.8525}$	$Iitn\ 2017 = 0.2949$

Table 8. Data Bank Concentration (%) Indonesia

COUNTRY	YEAR (n)	BANK CONCENTRATION (%) (Iit)
INDONESIAN	2005	42.8416
INDONESIAN	2006	42.3698
INDONESIAN	2007	42.3483
INDONESIAN	2008	42.9648
INDONESIAN	2009	44.1135
INDONESIAN	2010	42.3148
INDONESIAN	2011	41.3665
INDONESIAN	2012	40.6038
INDONESIAN	2013	38.4077

INDONESIAN	2014	40.3356
INDONESIAN	2015	39.7019
INDONESIAN	2016	39.8376
INDONESIAN	2017	40.6930

Min (Ii) = 38.4077(minimum value of individual indicators of Indonesian *bank concentration* during the observation period is 2013)
Max (Ii) = 44.1135(maximum indicator of individual bank concentration during *the* observation period is 2009)

Table 9. Calculation of Normalization of *Bank Concentration* Indonesia Data

Year	Formula		Normalization Results
2005	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2005 = \dfrac{42.8416 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2005 = 0.7771$
2006	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2006 = \dfrac{42.3698 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2006 = 0.6944$
2007	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2007 = \dfrac{42.3483 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2007 = 06906$
2008	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2008 = \dfrac{42.9648 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2008 = 0.7987$
2009	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2009 = \dfrac{44.1135 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2009 = 1.0000$
2010	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2010 = \dfrac{42.3148 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2010 = 0.6848$
2011	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2011 = \dfrac{41.3665 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2011 = 0.5186$
2012	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2012 = \dfrac{40.6038 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2012 = 0.3849$
2013	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2013 = \dfrac{38.4077 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2013 = 0.0000$
2014	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2014 = \dfrac{40.3356 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2014 = 0.3379$
2015	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2015 = \dfrac{39.7019 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2015 = 0.2268$
2016	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2016 = \dfrac{39.8376 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2016 = 0.2506$
2017	$Iitn = \dfrac{Iit - \text{Min}(Ii)}{\text{Max}(Ii) - \text{Min}(Ii)}$	$Iit\ 2017 = \dfrac{40.6930 - 38.4077}{44.1135 - 38.4077}$	$Iitn\ 2017 = 0.4005$

Furthermore, the *Financial Vulnerability Index* (FVI) sub-index, the Individual Indicator of the Financial *Soundness Index* (FSI) sub-index, and the individual indicator of the World Economic Climate *Index* (WECI) sub-index follow the same steps as FDI. The overall calculation results for AFSI are presented in the following table.

Table 10. Aggregate Results Of Each Individual Indicator Of FDI, FVI, FSI, WECI, and AFSI Aggregate Index

COUNTRY	YEAR	FDI	FVI	FSI	WECI	AFSI
INDONESIAN	2005	0.7381	0.3264	0.3492	0.7129	0.4724
INDONESIAN	2006	0.5575	0.5187	0.4287	0.7928	0.5451
INDONESIAN	2007	0.7592	0.3746	0.3162	0.7900	0.4992
INDONESIAN	2008	0.3986	0.4392	0.1070	0.5794	0.3691
INDONESIAN	2009	0.5995	0.4069	0.3043	0.0679	0.3689
INDONESIAN	2010	0.6434	0.5800	0.3578	0.6636	0.5497
INDONESIAN	2011	0.5341	0.5462	0.3807	0.6282	0.5147
INDONESIAN	2012	0.6363	0.4369	0.4607	0.4766	0.4887
INDONESIAN	2013	0.4783	0.4431	0.5042	0.4788	0.4707
INDONESIAN	2014	0.4803	0.4563	0.5111	0.5225	0.4847
INDONESIAN	2015	0.4528	0.5083	0.5668	0.4393	0.5015
INDONESIAN	2016	0.5498	0.5006	0.6818	0.3706	0.5362
INDONESIAN	2017	0.5947	0.4896	0.7480	0.5360	0.5822
MALAYSIA	2005	0.6128	0.5552	0.2901	0.7129	0.5241
MALAYSIA	2006	0.7185	0.6562	0.2458	0.7928	0.5866
MALAYSIA	2007	0.7338	0.5845	0.2051	0.7900	0.5503
MALAYSIA	2008	0.4592	0.5664	0.2551	0.5794	0.4691
MALAYSIA	2009	0.7843	0.3776	0.3912	0.0679	0.4159
MALAYSIA	2010	0.6913	0.4629	0.4018	0.6636	0.5234
MALAYSIA	2011	0.3615	0.5121	0.6123	0.6282	0.5244
MALAYSIA	2012	0.3828	0.4361	0.4968	0.4766	0.4467
MALAYSIA	2013	0.4445	0.4976	0.3428	0.4788	0.4455
MALAYSIA	2014	0.3983	0.5561	0.3912	0.5225	0.4783
MALAYSIA	2015	0.4099	0.4896	0.3685	0.4393	0.4359
MALAYSIA	2016	0.4010	0.5451	0.4361	0.3706	0.4629
MALAYSIA	2017	0.4735	0.6101	0.6421	0.5360	0.5797
PHILIPPINES	2005	0.2445	0.4175	0.7198	0.7129	0.5028
PHILIPPINES	2006	0.2639	0.5249	0.7686	0.7928	0.5738
PHILIPPINES	2007	0.5939	0.4475	0.6315	0.7900	0.5741
PHILIPPINES	2008	0.3810	0.3964	0.1014	0.5794	0.3470
PHILIPPINES	2009	0.5751	0.3510	0.3027	0.0679	0.3413
PHILIPPINES	2010	0.6173	0.4184	0.5177	0.6636	0.5198
PHILIPPINES	2011	0.3240	0.5034	0.6386	0.6282	0.5201
PHILIPPINES	2012	0.3475	0.5647	0.8153	0.4766	0.5707
PHILIPPINES	2013	0.4981	0.6074	0.4935	0.4788	0.5378
PHILIPPINES	2014	0.6684	0.5846	0.4038	0.5225	0.5468
PHILIPPINES	2015	0.6713	0.5853	0.3530	0.4393	0.5225
PHILIPPINES	2016	0.6514	0.4353	0.2883	0.3706	0.4320
PHILIPPINES	2017	0.8379	0.5373	0.2909	0.5360	0.5356

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SINGAPORE	2005	0.4082	0.2599	0.7430	0.7129	0.4783
SINGAPORE	2006	0.1953	0.3478	0.7562	0.7928	0.4861
SINGAPORE	2007	0.3037	0.4163	0.0307	0.7900	0.3534
SINGAPORE	2008	0.3908	0.5315	0.2768	0.5794	0.4469
SINGAPORE	2009	0.5254	0.3054	0.6022	0.0679	0.3880
SINGAPORE	2010	0.6052	0.4220	0.7051	0.6636	0.5657
SINGAPORE	2011	0.5685	0.5944	0.3599	0.6282	0.5357
SINGAPORE	2012	0.6757	0.5995	0.6052	0.4766	0.5977
SINGAPORE	2013	0.6175	0.5661	0.2638	0.4788	0.4877
SINGAPORE	2014	0.6672	0.5717	0.2353	0.5225	0.4993
SINGAPORE	2015	0.5713	0.4663	0.2920	0.4393	0.4397
SINGAPORE	2016	0.5596	0.5052	0.3483	0.3706	0.4566
SINGAPORE	2017	0.7073	0.4899	0.4368	0.5360	0.5270
THAILAND	2005	0.3522	0.4158	0.5118	0.7129	0.4717
THAILAND	2006	0.1443	0.4933	0.2753	0.7928	0.4139
THAILAND	2007	0.3771	0.5654	0.2650	0.7900	0.4863
THAILAND	2008	0.2094	0.4969	0.3169	0.5794	0.4068
THAILAND	2009	0.4845	0.2751	0.4492	0.0679	0.3294
THAILAND	2010	0.4804	0.4655	0.4844	0.6636	0.5029
THAILAND	2011	0.4239	0.5954	0.3625	0.6282	0.5078
THAILAND	2012	0.5973	0.5013	0.4281	0.4766	0.4985
THAILAND	2013	0.5964	0.4601	0.4809	0.4788	0.4954
THAILAND	2014	0.8659	0.4494	0.5816	0.5225	0.5767
THAILAND	2015	0.6276	0.4809	0.6395	0.4393	0.5437
THAILAND	2016	0.6185	0.4900	0.7246	0.3706	0.5564
THAILAND	2017	0.6392	0.5205	0.7993	0.5360	0.6163
VIETNAMESE	2005	0.5000	0.3195	0.6600	0.7129	0.4997
VIETNAMESE	2006	0.4877	0.4405	0.7018	0.7928	0.5681
VIETNAMESE	2007	0.5518	0.4148	0.7571	0.7900	0.5840
VIETNAMESE	2008	0.4084	0.6199	0.5221	0.5794	0.5471
VIETNAMESE	2009	0.4213	0.3509	0.3230	0.0679	0.3155
VIETNAMESE	2010	0.4051	0.3510	0.3860	0.6636	0.4175
VIETNAMESE	2011	0.4230	0.5490	0.4590	0.6282	0.5132
VIETNAMESE	2012	0.4421	0.5688	0.4496	0.4766	0.4998
VIETNAMESE	2013	0.5005	0.4895	0.4404	0.4788	0.4778
VIETNAMESE	2014	0.4707	0.4892	0.3030	0.5225	0.4440
VIETNAMESE	2015	0.5265	0.4239	0.2825	0.4393	0.4114
VIETNAMESE	2016	0.4803	0.4642	0.2591	0.3706	0.4021
VIETNAMESE	2017	0.5426	0.4935	0.2413	0.5360	0.4466

The Aggregate Financial Stability Index(AFSI) calculated in the study showed a decline in the aggregate index value of some countries when shocks to financial system stability such as the crisis occurred in 2008. If a country's aggregate index is high then the stability of the country's financial system is more stable, but if a country's aggregate index is low then the stability of its financial system is unstable.
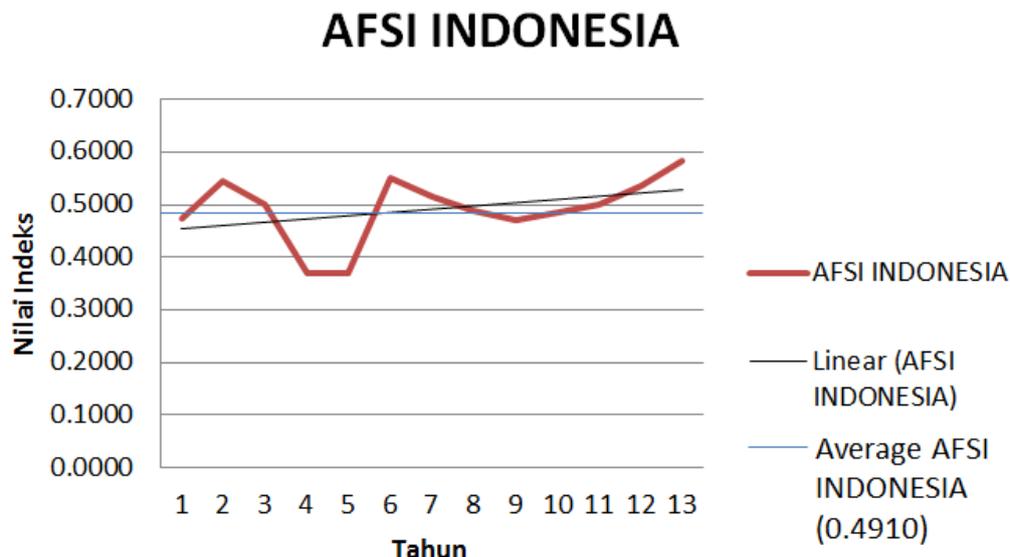
Figure 1. Aggregate *Financial Stability Index*(AFSI) Data Indonesia
2005-2017 (Year 1 = 2005)

Indonesia's Aggregate Financial Stability Index(AFSI) from 2005 to 2017 experienced fluctuating movements with trends that tend to increase due to the influence of individual indicators constituents of   *the Aggregate Financial Stability Index*(AFSI). From chart.6, *aggregate financial stability index (AFSI)*was lowest in2009 at 0.3689 and highest in 2017 at 0.5822. Indonesia's *Aggregate Financial Stability Index (AFSI)*is below average in2005, 2008, 2009, 2012, 2013, and 2014. Then, *Indonesia's Aggregate Financial Stability Index*(AFSI) showed a trend of increasing value and was in the fourth highest position compared to Singapore and Vietnam.
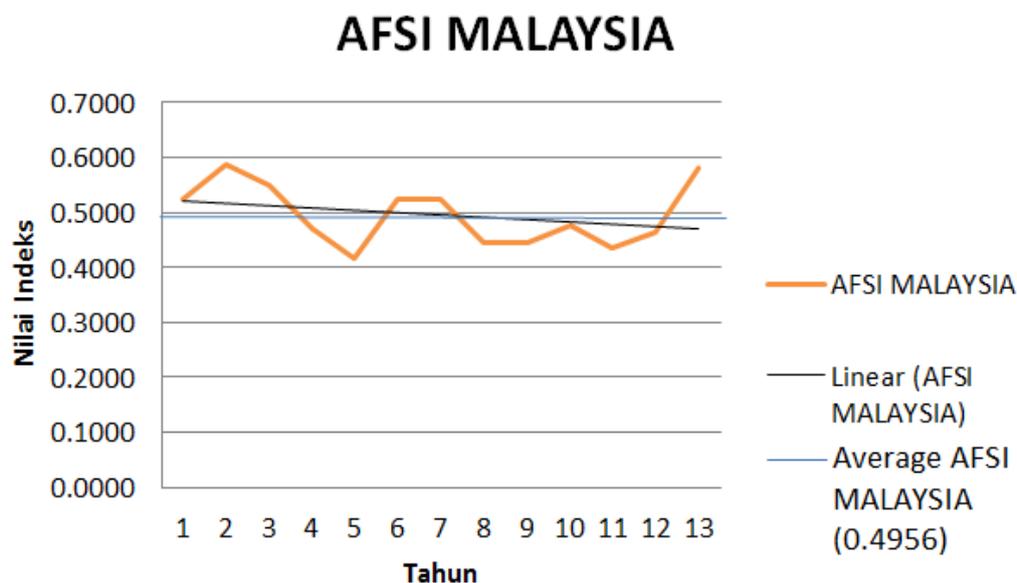
Figure .2. Aggregate *Financial Stability Index*(AFSI) Data Malaysia
2005-2017

Aggregate Financial Stability Index(AFSI) Malaysia from 2005 to 2017 experienced fluctuating movements with trends that tend to decrease due to the influence of individual

indicators constituent *aggregate financial stability index*(AFSI). From the chart.7 above, *the Aggregate Financial Stability Index (AFSI)*was the lowest in2009 at 0.4159 and the highest in 2006 at 0.5866, with the average for the 13-year observation period of 0.4956, Malaysia's *Aggregate Financial Stability Index (AFSI)*below theaverages of 2008, 2009, 2012, 2013, 2014, 2015 and 2016 showing instability. Then, *the Aggregate Financial Stability Index (AFSI)*Malaysiashowed a slight trend of decline in value and was in the second highest position compared to Indonesia, Singapore, Thailand, and Vietnam.
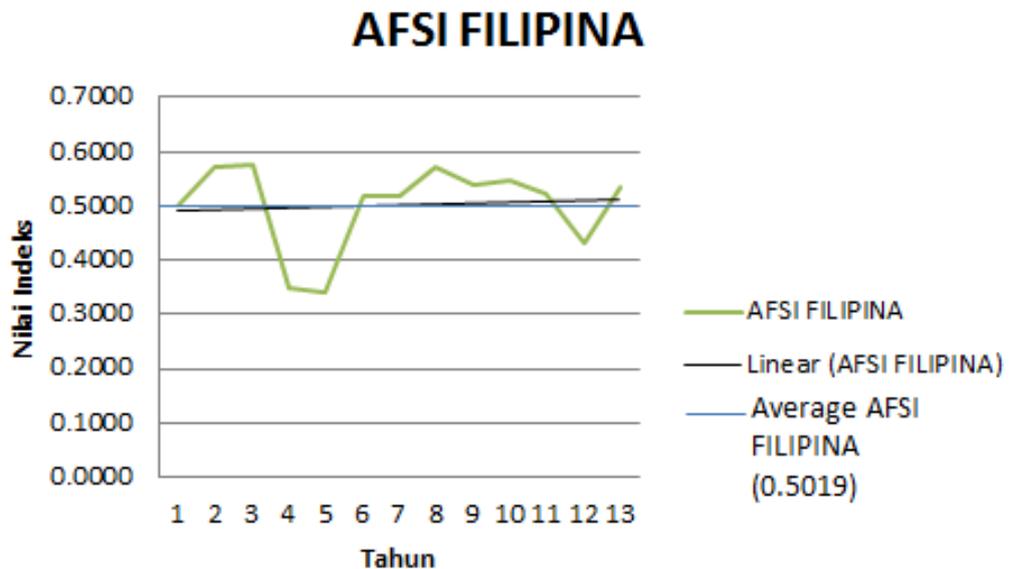
Figure 3. *Aggregate Financial Stability Index*(AFSI) Data Philippines 2005-2017

The Philippine Aggregate Financial Stability Index(AFSI) from 2005 to 2017 experienced fluctuating movements with trends that tend to increase due to the influence of individual indicators constituents of *the Aggregate Financial Stability Index* (AFSI). From the chart above, *the Aggregate Financial Stability Index (AFSI)* was the lowest in 2009 at 0.3413 and the highest in 2007 at 0.5977, with the average for the 13-year observation period of 0.5019. The Philippine Aggregate Financial *Stability Index* (AFSI) below the averages of 2008, 2009, and 2016 showing instability. Then, *the Philippine Aggregate Financial Stability Index (AFSI)* showed a slightly increasing trend in value and was at the highest position compared to Indonesia, Malaysia, Singapore, Thailand, and Vietnam.
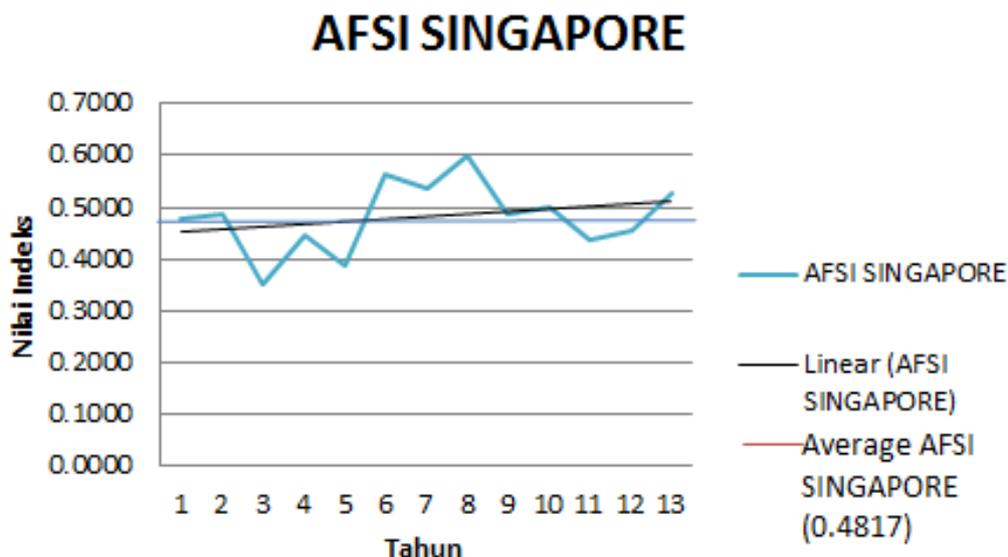
Figure 4. *Aggregate Financial Stability Index*(AFSI) Singapore
2005-2017

Aggregate Financial Stability Index (AFSI) Singapore from 2005 to 2017 experienced fluctuating movements with trends that tend to increase due to the influence of individual indicators constituent. From the chart above, *the Aggregate Financial Stability Index (AFSI)* was the lowest in 2007 at 0.3534 and the highest in 2012 at 0.5977, with the average for the 13-year observation period of 0.4817. S*ingapore's Aggregate Financial Stability Index (AFSI)* below averages of 2005, 2007, 2008, 2009, 2015 and 2016 showing instability. Then,   *the Aggregate Financial Stability Index (AFSI)* Singapore showed a slightly increasing trend in value and was at the second lowest position compared to Indonesia, Malaysia, Singapore, and Thailand.
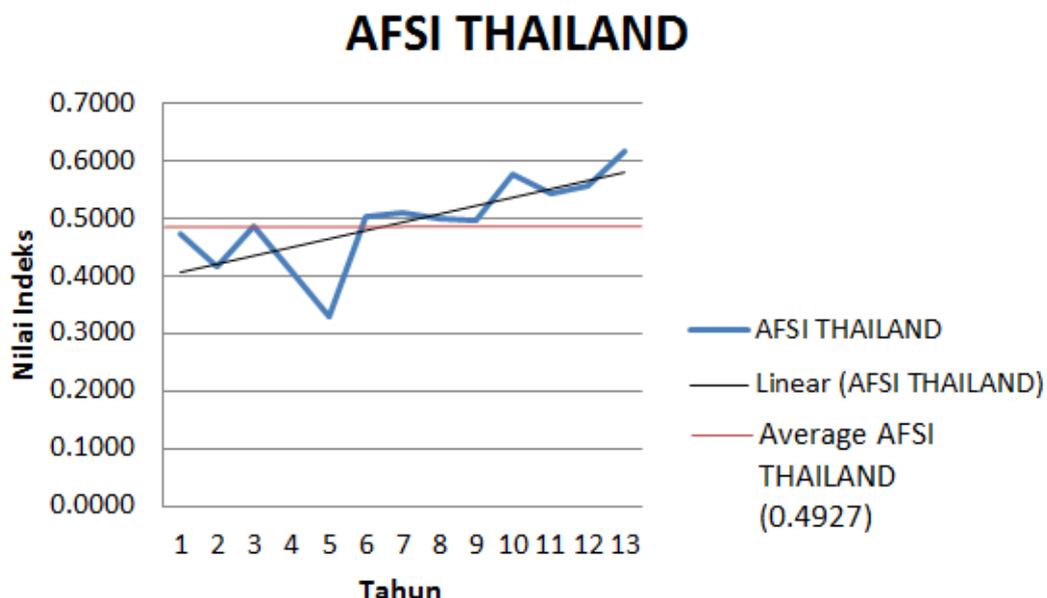
Figure 5. Aggregate *Financial Stability Index*(AFSI) Thailand
2005-2017

Thailand's Aggregate Financial Stability Index(AFSI) from 2005 to 2017 experienced fluctuating movements with trends that tend to increase due to the influence of individual

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indicators constituents of the *Aggregate Financial Stability Index* (AFSI). From the chart above, *the Aggregate Financial Stability Index (AFSI)* was the lowest in 2009 at 0.3294 and the highest in 2017 at 0.6163, with an average for the 13-year observation period of 0.4927. Thailand's *Aggregate Financial Stability Index (AFSI)* is below average in 2005, 2006, 2007, 2008, and 2009. Then, *the Aggregate Financial Stability Index (AFSI)*of Thailand showed a trend of increasing value and was at the highest position compared to Indonesia, Thailand, and Vietnam.
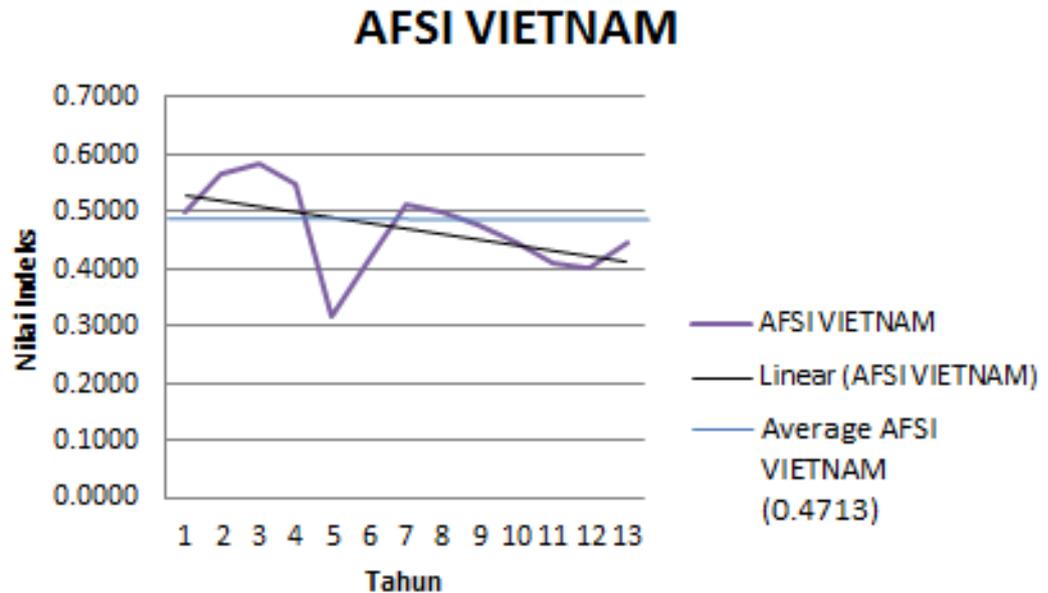
Figure 6. *Aggregate Financial Stability Index*(AFSI) Vietnam
2005-2017

Vietnam's *Aggregate Financial Stability Index* (AFSI) from 2005 to 2017 experienced a fluctuating movement with a trend that tends to decline due to the influence of individual indicators. From the chart above, *the Aggregate Financial Stability Index (AFSI)* was the lowest in 2009 at 0.3155 and the highest in 2007 at 0.5840, with the average for the 13-year observation period of 0.4713. V*ietnam's Aggregate Financial Stability Index (AFSI)* below averages in 2009, 2010, 2014, 2015, 2016 and 2017 showing instability. Then, *Vietnam's Aggregate Financial Stability Index* (AFSI) showed a downward trend in value and was at the lowest positions compared to the other 5 ASEAN countries (Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam).

Based on the calculation of AFSI 6 ASEAN countries, we calculate the AFSI data correlation between countries, to find the relations between each country's AFSI. This simple statistical calculation is important to see how close the financial stability relationship between countries is.

Table 11. Aggregate *Financial Stability Index* (AFSI) Correlation Matrix

		AFSI INDONESIA	AFSI MALAYSIA	AFSI FILIPINA	AFSI SINGAPORE	AFSI THAILAND	AFSI VIETNAM
AFSI INDONESIA	Pearson Correlation	1	.633*	.722**	.453	.716**	.126
	Sig. (2-tailed)		.020	.005	.120	.006	.682
	N	13	13	13	13	13	13
AFSI MALAYSIA	Pearson Correlation	.633*	1	.496	.142	.220	.561*
	Sig. (2-tailed)	.020		.085	.644	.471	.046
	N	13	13	13	13	13	13
AFSI FILIPINA	Pearson Correlation	.722**	.496	1	.396	.535	.446
	Sig. (2-tailed)	.005	.085		.181	.059	.127
	N	13	13	13	13	13	13
AFSI SINGAPORE	Pearson Correlation	.453	.142	.396	1	.396	.026
	Sig. (2-tailed)	.120	.644	.181		.180	.933
	N	13	13	13	13	13	13
AFSI THAILAND	Pearson Correlation	.716**	.220	.535	.396	1	-.037
	Sig. (2-tailed)	.006	.471	.059	.180		.904
	N	13	13	13	13	13	13
AFSI VIETNAM	Pearson Correlation	.126	.561*	.446	.026	-.037	1
	Sig. (2-tailed)	.682	.046	.127	.933	.904	
	N	13	13	13	13	13	13

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Based on Table IV.11, several states can be stated regarding the stability relationship of the intra-country financial system as follows.

- AFSI Indonesia is strongly correlated, significant and in line with AFSI Malaysia, Philippines and AFSI Thailand, If AFSI Malaysia, Philippines and AFSI Thailand experience an increase or decrease in stability, then Indonesia also experienced the same. If Malaysia, the Philippines and Thailand increase the stability of their financial systems, then the stability of Indonesia's financial system also increases.
- AFSI Indonesia is quite strong, insignificant and in line with AFSI Singapore, (AFSI Indonesia increases / stabilizes when AFSI Singapore increases / stabilizes, AFSI Indonesia decreases when AFSI Singapore decreases).
- AFSI Indonesia is very weak, insignificant and in line with AFSI Vietnam. (AFSI Indonesia increases/stabilizes when Vietnamese AFSI increases/stabilizes, and AFSI Indonesia decreases when VIETNAMESE AFSI decreases, but very weak relations).
- AFSI Malaysia is strongly correlated, insignificant and in line with Philippine.
- AFSI Malaysia correlates very weakly, insignificantly, and unidirectionally with AFSI Singapore and AFSI Thailand, (When AFSI Singapore or AFSI Thailand increases/stabilizes, then AFSI Malaysia increases/stabilizes, and vice versa but very weak in relationship).
- AFSI Malaysia is strongly, significantly and in line with AFSI Vietnam. If AFSI Malaysia experiences instability, then AFSI Vietnam can be affected by such instability (AFSI Malaysia increases / stabilizes when AFSI Vietnam increases / stabilizes, AFSI Malaysia decreases when AFSI Vietnam decreases).
- Philippine AFSI is strongly correlated, insignificant and in line with AFSI Singapore and AFSI Vietnam, (If AFSI Singapore or AFSI Vietnam increases/ stabilizes, then Philippine AFSI increases/stabilizes. If AFSI Singapore or AFSI Vietnam decreases, then THE Philippine AFSI decreases).

- Philippine AFSI is strongly correlated, insignificant and in unidirectional with Thailand's AFSI, (Philippine AFSI increases/stabilizes when Thai AFSI increases/stabilizes, Philippine AFSI decreases when Thai AFSI decreases).
- AFSI Singapore correlates quite strongly, insignificantly and in unidirectionally with AFSI Thailand, (AFSI Singapore increases/stabilizes when THAI AFSI increases/stabilizes, AFSI Singapore decreases when THAI AFSI decreases).
- AFSI Singapore is very weak, insignificant and in the same direction as AFSI Vietnam. (AFSI Singapore increases/stabilizes as VIETNAM AFSI increases/stabilizes, and AFSI Singapore decreases when AFSI Vietnam declines, but very weak relations).
- Thai AFSI correlates very weakly, insignificantly and in the opposite direction with AfSI Vietnam, (Thai AFSI increases/stabilizes when Vietnamese AFSI decreases, and Thai AFSI decreases when Vietnamese AFSI increases/stabilizes, but very weak relations).

5. CONCLUSIONS

Overall, in the observation period, the asean-6 country's financial system stability index is volatile or unstable. In addition, the correlation between AFSI in 5 ASEAN countries showed results that varied even insignificant. Based on these findings, financial sector stability control authorities need to make efforts to further improve the stability of the financial system and monitor against escalation of instability in other countries' financial systems, especially those with strong and significant correlations.

The weight of AFSI calculation using the proportion of sub-index indicators to total sub-indices needs to be reviewed again by looking at their contribution both theoretically and statistically sub index and AFSI as a whole.

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