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Convergence and Disparity of Intra-ASEAN and Global ASEAN Trade Balance

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ABSTRACT

This study aims to analyze whether the trade balances of each ASEAN 6 member country, in both intra- and global trade, can reach a steady state and converge among countries within the region. ASEAN 6 consists of ASEAN member countries with relatively large and developed economies. The data used is secondary panel data sourced from UNCTAD, ASYB, and BI. The analytical model will be selected by selecting the most appropriate method from the Common Fixed Effects Model (FEM) and the Random Effects Model (REM). The results showed that each ASEAN 6-member country reached a steady state in its trade balance, but at a different steady state for each member. This indicates that there is no convergent pattern in trade balances among the ASEAN 6 member countries. Even the disparity in the trade balance between these countries, both in intra- and global trade, shows divergent patterns among member countries within the region.

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INTRODUCTION

Economic integration is a concept that provides benefits, both direct and indirect, to its member countries in conducting international trade. Economic integration also encourages and facilitates the flow of investment from one country to another (Diaz, Santillan, and Araceli 2017). Many countries responded to the formation of economic integration by establishing the ASEAN Free Trade Area (AFTA) free trade bloc. Through AFTA, it is expected to increase trade and reduce the trade balance gap among ASEAN member countries. The form of integration will increase trade by fostering a pattern of convergence in trade balances among countries in the region.

Some economists hold a pessimistic view and argue that the integration of the economy or common market will lead to the dominance of one or several countries over weaker countries in a region (Ketover 2001; Ng, Har, and Tan 2009; Ozlem Onder, Deliktaş, and Karadag 2010). In research, Harvey (2010) and Ghosh and Yamarik (2006), explained that the impact of trade creation in the formation of RTAs in developing countries is still fragile,

even (Estiphanos G 2002) states that there is no trade creation and trade diversion occurs in the integration process in the Region (Burmansyah 2014).

However, the fact shows that integration has an impact on the surplus in the trade balance of ASEAN's 6 countries (Wana Ismail and Wong Koh King 2013; Ahmad 1996; D'Aloia and Gugler 2024). This difference in benefits is based on the large amount of foreign investment entering various ASEAN 6 countries, and the global financial crisis in 2008, where trade relations were strong with the United States and Europe, in addition to other countries in Asia.

In addition, each ASEAN 6 member country will experience a trend in the pattern of convergence levels or not, in its trade balance will depend on initial economic conditions and economic openness to international trade. On the other hand, macroeconomic variables and external factors are also expected to affect the trade balance. Some empirical research results show that 2 (two) sectors are strongly suspected of affecting the trade balance, namely the monetary or financial sector, namely variable currency exchange rates (Ben-David and Loewy 1998; Covi 2021; Kennedy 2013), inflation (Dufrénot, Mignon, and Naccache 2012; Ean, Mansor, and Ling 2020; Ghatak 2021; Habibullah, Chong, and Din 2017; Ishikawa 2021; Mwakanemela 2014; Nguetse Tegoum, Nakelse, and Ngwesse 2013; Okodua and Olayiwola 2013; Paprotny 2021; Wang et al. 2011) and two The real sector is a variable of foreign direct investment (Kennedy 2013; Mwakanemela 2014) and Gross Domestic Income (Amalia and Fitrijanto 2022; Anthony 2016; Jayanthakumaran and Lee 2009; Jayasuriya 2017; Kaukab and Surwandono 2021), as well as other factors that can affect the development of a country's trade balance.

The convergence view and measurement in this study are based on several expert opinions including Solow who explained that convergence in the economies of 2 countries depends on initial differences. Each of these economies will approach its stable state or towards its stability. Next Ben David (1996) and Young, Higgins, and Levy (2007), define beta convergence (β) when there is a partial negative relationship between a country's income level and its initial income level, while sigma (σ) convergence is defined when the dispersion of per capita income between economic groups of countries decreases. When the economies of countries are identical, convergent β possible, causing economies to approach the same equilibrium position. On the other hand, when the economy is not homogeneous, only converging β conditionally is possible, whereby the economy grows towards a different equilibrium. Likewise, Petrakos and Artelaris (2009) Outlines three convergences in the neoclassical paradigm: convergence β unconditional, Convergence β conditional, and Convergence σ dan Dufrenot, Mignon, and Naccache (2012), defines β convergence as the negative correlation between a level and its growth rate.

Then, Diaz, Santillan and Araceli (2017), Also explained that there are 3 (three) alternative models related to measuring the level of coditional beta convergence, related to trade in manufacturing industry products based on: the relationship between trade growth in the manufacturing industry products and its trade lag level, the relationship between the trade level of manufacturing industry products with its lag trade level and the relationship between trade growth in manufacturing industry products with trade lag growth in the manufacturing industry.

Several studies have reported differences of opinion on the effects of trade integration between countries, with impacts ranging from positive to negative. Therefore, this research is important to carry out to verify the impact of trade on the ASEAN 6 countries. This study aims to analyze the level of convergence of the trade balance of a country or several countries towards a steady state or the same or different balance position and analyze whether the trade balance gap is decreasing over time, by looking at the dispersion through the coefficient of variation (Sigma convergence).

This research was conducted in ASEAN 6 because it is one of the existing trade blocks in the Southeast Asian region. The countries are the founding members of ASEAN. The timeframe from 1998 to 2018 was chosen to cover the period after the economic crisis and before the onset of COVID-19. This is done with the aim of obtaining more consistent research results under normal economic conditions across all ASEAN countries. In analyzing the level of trade balance convergence and its influence on macroeconomic variables, as well as trade balance disparities among ASEAN 6 countries, reliable data are needed. This research uses data from annual reports sourced from UNCTAD, ASYB, Bank Indonesia, and Statistics Indonesia which provide economic information on each ASEAN 6 member country in 1998-2018.

METHODS

Types of Research and Data Sources

This study will analyze the impact of macroeconomic variables on the position of the steady state and the level of trade balance convergence, as well as the development of trade balance disparity. The data used is panel data, a combination of time-series and cross-sectional *data*. The research variables consist of independent variables, namely: the exchange rate of the dollar against the rupiah (ER), consumer price index (CPI), national income (GDP), foreign investment (FDI), and the global financial crisis (Dummy08). While the dependent variable is the trade balance of ASEAN member countries 6. The data used is secondary data. sourced from the *ASEAN Statistical Yearbook (ASY), United Nations Conference on Trade End Development (UNCTAD*), Bank Indonesia (BI), and Statistics Indonesia (BPS).

Analysis of Models

The analysis models in this study are simple linear regression, multiple linear regression, and linear trends during 1998-2018. Before analyzing, the right panel regeneration model will be selected such as Common, FEM, or REM. Furthermore, classical assumptions were tested on the selected model.

To analyze the level of trade balance convergence can be done in 2 (two) ways, namely: beta convergence (betha unconditional dan betha conditional) and Sigma convergence. Unconditional betha convergence model based on levels according to the theory of Barro and Sala-I-Martin (1992) and Bucio Pacheco, López Herrera, and Santillán Salgado (2018) that is: $\widehat{TB_{i,t}} = \beta_0 + \beta_1 TB_{it-1} + \varepsilon_{it}$; where: $TB_{i,t}$= Trade balance of member countries ASEAN 6; TB_{it-1}= Previous year's trade balance; β_0= Konstanta; β_1= Koefisien regresi; ε_{it} = Residu.

Mathematically, conditions of *steady state* with $0 < \beta_1 < 1$, can be described. When growth is zero ($GTB_{i,t}$ = 0), dimana $TB_{i,t} = TB_{i,t-1}$, hence the condition *steady state* $TB_{i,t} = \beta_0 + \beta_1 TB_{i,t-1}$ atau $TB_{i,t} - \beta_1 TB_{i,t-1} = \beta_0$, jadi $TB_{i,t} = TB_{i,t-1} = \frac{\beta_0}{(1-\beta_1)}$

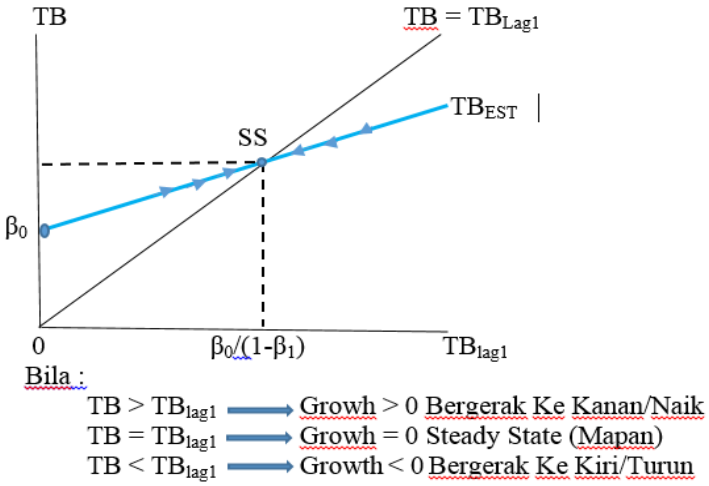

Figure 1. Steady State Conditions of Trade Balance on the Level Method

When each ASEAN 6 member country conducts intra and global trade between the six countries in the region and outside the Southeast Asian region has the same level of steady state, then the countries tend to merge in the trade balance and their region and vice versa, if the steady state is different, it tends to diverge in the trade balance for each in the region.

The measurement of the level of convergence of beta *conditional trade balance will be used one of the models developed* (Bucio Pacheco, López Herrera, and Santillán Salgado 2018), that is $trade_{it} = \alpha_i + \gamma \cdot trade_{it-1} + \beta_i' X_{it} + u_{it}$; where X_{it} is a control variable. If it matches expectations, the value of β1 is a positive fraction ($0 < \beta_1 < 1$), Then *steady state* conditions will be achieved in its trade balance (convergent). But if $\beta_1 > 1$ there is no convergence, since its trade balance will not reach a *steady state*. Mathematically the model of the convergence equation is beta conditional:

$$TB_{it} = \beta_{0i} + \beta_{1i} TB_{i,t-1} + \beta_{2i} ER_{it} + \beta_{3i} CPI_{it} + \beta_{4i} GDP_{it} + \beta_{5i} FDI_{it} + \beta_{6i} Dummy_{it} + \boldsymbol{\varepsilon_{it}}$$

Where: β_0 = constant; $\beta_{1\text{-}6,i}$ = Regression coefficient of each variable; TB_{it} = Trade balance of ASEAN member countries; $TB_{i,t-1}$ = Trade balance with the previous year; ER_{it} = The exchange rate of the US dollar against the currencies of ASEAN member countries 6; CPI_{it} = Consumer Price Index of ASEAN member countries; GDP_{it} = Gross Domestic Product; FDI_{it} = Stock of foreign investment; Dummy08 = 0 for before the global economic crisis and 1 after the global economic crisis and ε_{it} = Residue; i =Countries; t =Time; $t-1$ =Time Lag 1.

In sigma convergence analysis according to Onder et. et.al. (2007), those who perform a linear regression of CV values against time trends are: $CV_t = \gamma_0 + \gamma_1 T + \varepsilon_{it}$; Where: $CV_t = \frac{S_t}{\bar{X}_t}$ x100; CV_t = Coefficient of variation; γ_0 = Konstanta; γ_1 = Regression coeefficient; T = Time and ε_{it} = Residu. If the value of the regression coefficient over time ($\pi 1 < 0$ or negative is significant, then the trade balance disparity between ASEAN member countries decreases or tends to converge. But vice versa if ($\pi_1 > 0$ or significant positive), then the disparity increases or tends to diverge.

FINDINGS AND DISCUSSION

Unconditional Beta Convergence Analysis of ASEAN Member States 6

The relationship between the previous year's and the current year's trade balances, excluding other variables, can indicate whether the trade balance is convergent or divergent for each ASEAN 6 member country.

Based on the *Redundant Effects* test on the intra-ASEAN trade balance 6, the F-Stat probability is 0.0570, which is greater than α = 0,05; therefore, the common model is more appropriate than the *Fixed Effect Model (FEM).* The global trade balance of ASEAN 6 and the global trade balance of ASEAN 6 show a probability FStat of 0,0002, which is smaller than α = 0,05; hence, it is concluded that *the Fixed Effect Model (FEM)* is more precise than *the Common Model.*

Mathematically, the result of the conditional beta convergence equation can be expressed as follows for the intra-ASEAN 6 trade balance and in total for the ASEAN 6 trade balance, respectively as follows:

Intra-ASEAN Trade Balance 6
$TB_{Intra\ ASEAN\ 6}$ = 867,719 + 0,90625 TB_{lag1}
Prob ***(0,0572)* (0,0000)******
R^2 = 0,9183, R^2_{Adj} = 0,9143

As for the total trade balance (intra and extra) for ASEAN member countries 6
$TB_{Global\ ASEAN\ 6}$ = 3.034,844 +0,74530 TB_{lag1}
Prob ***(0,0000)** (0,0000)******
R^2 = 0,8578, R^2_{Adj} = 0,8506

The equation shows that ASEAN 6 member countries have different linear regression equations, with positive regression coefficients (0 < β1 < 1) between the previous year's trade balance and the current year's trade balance. The size of the trade balance at the establishment level in the *unconditional beta* model indicates that, in the intra-ASEAN 6 trade balance, each member country will converge to an almost identical steady-state position. This shows the convergence of trade balances between countries in the region in intra-ASEAN 6 trade. However, the trade balance between the ASEAN 6 countries does not create convergence in the region. The absence of convergence in the trade balance is due to the different initial economic conditions, both GDP and GDP per capita, and diversity in economic openness in international trade in each ASEAN member country 6.

Conditional Beta Convergence Analysis of ASEAN Member States 6

The beta conditional convergence *model is an* unconditional *beta convergence* model that includes macroeconomic variables as control variables and describes the characteristics of each ASEAN 6 member country. The factors that can affect the development of a country's export-import (trade balance) are several fundamental macroeconomic variables and external variables, including ASEAN 6 member countries' currency exchange rates against the United States dollar (ER), inflation or consumer price index (CPI), national income (GDP), foreign investment (FDI) and the occurrence of the global financial crisis (Dummy08).

Based on the *conditional* beta *convergence* equation with various models is shown in table 1.

Table.1 Results of Convergence Regression of Beta Conditional Trade Balance

	Intra ASEAN 6		***ASEAN 6***	
Variabel	***Common***	***Fixed***	***Common***	***Fixed***
C	2.072,798	7.851,850	9.985,136	22.926,08
	(0,4863)	***(0,0043)****	***(0,0353)****	***(0,0041)****
Tblag1	0,923103			0,664124
	(0,0000)*	0,8809472	0,922057	***(0,0000)*****
ER		***(0,0000)****	***(0,0000)****	0,866472
	-0,273497			(0,4862)
CPI	(0,1618)	0,284878	0,012902	-265,4915
	-21,36652	(0,6545)	(0,9676)	***(0,0358)****
GDP	(0,5726)	-115,2947	-96,20727	-0,008242
	-0,002954	***(0,0022)****	***(0,0606)****	(0,5316)
FDI	(0,4425)		-0,002396	0,010671
	0,004529	-0,011552	(0,6221)	***(0,0349)****
Dummy'08	(0,1292)	***(0,0475)****	0,006086	1.623,184
	-447,5025	0,003587	***(0,0918)****	(0,1029)
	(0,7046)	***(0,4445)***	-264,1842	
		416.2294	(0,7509)	
		(0,2158)		
R-square	0,914056	0,924777	0,838259	0,873000
Adjusted R-square	0,909722	0,917519	0,830104	0,860746
SE of Regression	4.308,678	3.994,522	7.812,838	7.267,777
F-Statistics	210,9359	127,4090	102,7905	71,23997
F Prob	***(0,0000)****	***(0,0000)****	***(0,0000)****	***(0,0000)*****

Source: Processing Results

The results of *the Redundant Fixed Effect test* show that the *Fixed Effect Model (FEM)* is more appropriate to use compared to the *common model* with probability values for the intra-ASEAN 6 trade balance being F_{Stat} = 0,0079 < α = 0,05 and for the total trade balance for ASEAN 6 member countries are F_{Stat} = 0,0001 < α = 0,05. Therefore, the FEM model is better than the Common model in both. Furthermore, choosing FEM or *REM* refers to Gujarati, where if T (*time series) is* greater than N (number of cross-*section* units), then FEM is more suitable for use than REM models.

The Fixed Effect Model (FEM) *equation model* was successively obtained:
For intra-ASEAN trade balance 6:

$TB = 7.851,65 + 0,88TB_{lag1} + 0,28ER - 15,29CPI + 0,01GDP + 0,05FDI + 416,23D$
Prob ***(0,0043)**** ***(0,0000)**** *(0,6545)* ***(0,0022)**** ***(0,0475)**** (0,4445) (0,2158)
R^2 = 0,9247 R^2_{Adj} = 0,9175
F_{-Prob} = 0,0000

As for the total trade balance for ASEAN member countries 6:

$TB = 22.926,08 + 0,66TB_{lag1} + 0,87ER - 265,49CPI - 0,01GDP + 0,01FDI + 1.623,18D$
Prob ***(0,0041)**** ***(0,0000)**** *(0,4863)* ***(0,0358)**** (0,5316) ***(0,0349)**** (0,1029)
R^2 = 0,8730 R^2_{Adj}= 0,8607
F_{-Prob} = 0,0000

The results of the FEM regression show different constants for the two equations, and the regression coefficients are positive and fractional (0 < β1 < 1). This means that each

of the ASEAN 6 member countries will experience convergence in their trade balances. Therefore, it shows that the level of stability or *steady-state* position is not the same (different), which means that it does not have a convergent pattern of trade balance in intra-ASEAN 6 trade or between ASEAN 6 countries in total trade in the region. The magnitude of the level of stability or (steady state) for the 6 ASEAN countries can be in the following table 2.

Table.2 Steadiness Level Position (Steady State) ASEAN Trade Balance **6**

ASEAN Member State	***Intra ASEAN 6 (Million $)***	***Level of Maturity***	***ASEAN 6 (Million $)***	***Level of Maturity***
Brunei Darussalam	-1.168	4	2.188	5
Indonesia	-9.371	3	10.073	3
Malaysia	9.421	3	25,865	2
Philipina	-13.111	6	-17.756	6
Singapura	39.554	1	30.918	1
Thailand	14.981	2	2.1988	4

Source: Processing Results

Graphically the level of stability of the intra-ASEAN 6 trade balance and the total trade balance of ASEAN 6 member countries, can be seen in Figure 1 and Figure 2 below:

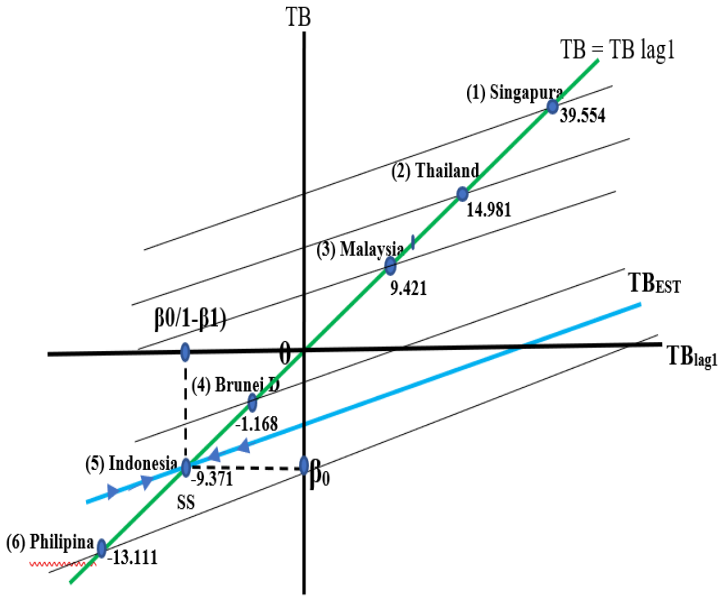

Figure 2. *Steady State* of Intra-ASEAN Trade Balance 6

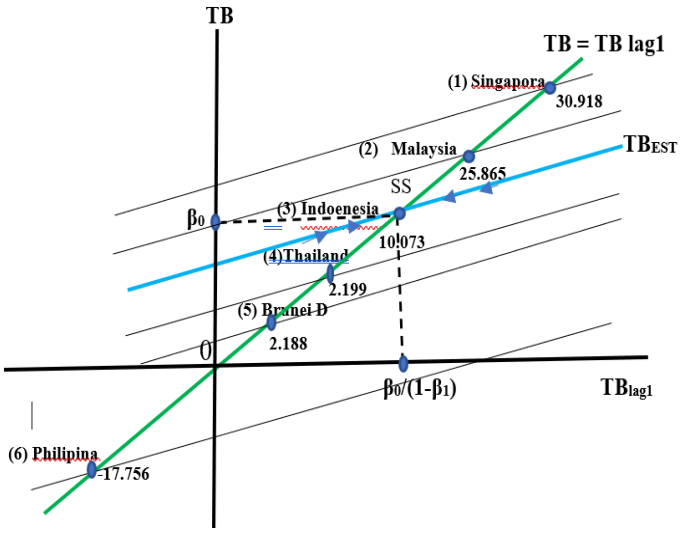

Figure 3. *Steady State* Trade Balance of ASEAN Member States 6

Based on Figure 1 and Figure 2, the *steady state* position of Indonesia's trade balance will be a deficit of -9,371 million $ ranking 5th in intra-ASEAN trade 6. However, the stability position of Indonesia's trade balance in total occupies the 3rd position of 10,073 million $. While the largest level of trade balance stability is occupied by Singapore, which is one of the developed countries in Southeast Asia, which relies on the trade sector in its economy.

Macroeconomic Developments and Financial Crisis for Trade Balance of ASEAN Member States 6

The results of the conditional beta model equation show simultaneously the previous year's trade balance (TBlag1), exchange rate (ER), inflation (CPI), national income (GDP), foreign investment (FDI), and the global economic crisis (Dummy08) have a significant influence on the trade balance of ASEAN member countries. Two macro variables that have a significant influence on the intra-ASEAN trade balance 6 are partial inflation (CPI) and national income (GDP), while exchange rates and foreign direct investment (FDI) have no significant effect. The exchange rate does not have a significant influence since the commodities traded are relatively the same among ASEAN 6 countries and their partner countries generally enter into hedging agreements. Furthermore, FDI does not have a significant effect because most of it is directed toward producing commodities for the domestic market.

Changes in inflation (CPI) have a significant negative effect on the trade balance. This result follows the theory of (Paul Samuelson and Nordhaus 2019; Steven Pressman 2008). And also with research from (Mwakanemela 2014). Where inflation significantly influences the trade balance. Furthermore, national income (GDP) has a unidirectional and significant influence on the intra-ASEAN trade balance 6. Thus, an increase in GDP can have reciprocal impacts on both export and import activities in each ASEAN 6 country. This is following the theory of (Colander et al. 2018; Dornbusch, Fischer, and Startz 2011; Paul Samuelson and Nordhaus 2019). These results are in line with research by (Yuen-Ling, Wai-Mun, and Geoi-Mei 2008) which shows that domestic income and foreign income can affect a country's imports and exports.

In the ASEAN 6 global trade balance, it shows that inflation (CPI) also affects and foreign investment (FDI) has a partial effect on the ASEAN 6 global trade balance following

research conducted (Bucio Pacheco, López Herrera, and Santillán Salgado 2018; Kennedy 2013; Mohammad 2010).

However, changes in the exchange rate of ASEAN 6 countries against the United States dollar do not have a major effect on the trade balance of its member countries. Likewise, the global financial crisis (dummy08) has a positive but not significant influence on the trade balance in intra-ASEAN 6 trade and ASEAN 6 global trade. This is because the global financial crisis in intra-trade led to a slight increase in intra-ASEAN 6 trade, despite a decrease in demand from countries outside ASEAN 6. As for ASEAN 6 global trade is caused by the decline in ASEAN goods exports but also accompanied by a greater decline in imports from ASEAN 6 countries. In addition, there is a shift in ASEAN 6 trading partners, which were originally dominated by the United States and European countries, Japan and China. However, after the global financial crisis, ASEAN's 6 trading partners were dominated by China and Japan, which exceeded the role of the United States and Europe, followed by Korea, India, and Australia. Thus, if the macroeconomic variables of ASEAN member countries change, they can affect the level of stability or steady-state conditions of each country.

Sigma Convergence Analysis of Trade Balance of ASEAN Member States

The results of the sigma convergence equation of the intra-ASEAN 6 trade balance and total trade balance of ASEAN 6 member countries are as follows:

For intra-ASEAN trade balance 6
$CV_{intra\ ASEAN\ 6}$ = 187,0465 + 4,4227T
Prob (0,0001) *** R^2 = 0,5403 R^2_{Adj} = 0,5161
As for the global trade balance of ASEAN member countries 6
$CV_{intra\ ASEAN\ 6}$ = 203,8865 + 19,55879T
Prob (0,0068) *** R^2 = 0,3262 R^2_{Adj} = 0,2908

The results of the trade balance both intra and globally between ASEAN 6 member countries, there will be convergence if the dispersion of the trade balance tends to shrink over time, which is shown by the decreasing *Coefficient of Variation*. The value of the coefficient of variation in the trade balance between ASEAN member countries 6 during the period 1998-2018 shows that each year fluctuates but tends to increase. This shows an increasing dispersion or disparity so that the trade balance gap between ASEAN 6 countries, both in intra-trade and in global trade, is getting bigger. This shows the divergent trade balance patterns among ASEAN's 6 countries.

The divergent trade balance pattern among ASEAN 6 countries can be caused by several factors, including intra-ASEAN 6 trade, which remains low on average, at only around 24.38% of international trade. Its export products are still homogeneous (not complementary), so that mutual competition exists among most member countries. In the end, there is trade competition not only within intra-ASEAN 6 trade but also among ASEAN 6 member countries competing in extra-ASEAN markets. In addition, the share of intra-ASEAN 6 foreign investment in total foreign investment remains low. FDI flows by transnationals and multinational corporations play a major role in increasing trade integration, so the benefits of investment in the region are uneven for ASEAN 6 member countries. The orientation of ASEAN 6 cooperation is primarily *outward-looking* and provides freedom in the relations of its members with various regions and with their trading partners. In addition, ASEAN 6 countries through the establishment of AFTA entered into a free Trade Agreement (FTA), with their trading partners, such as ACFTA, AJCEP, AKFTA, and AANZFTA, but each ASEAN 6 member is also allowed to trade cooperation with its trading partners, thus opening opportunities for more economically developed members.

The ASEAN 6 region is more of a competitive and economically liberalizing region than an effort to develop a regional market or its own intra-ASEAN 6 market *(inward looking).*

Implications

Fellow ASEAN 6 member countries should strive to increase intra-ASEAN 6 trade through cooperation and to attract more intra-ASEAN 6 foreign investment, thereby providing substantial benefits to all member countries. This is expected to encourage member countries to increase exports of goods rather than increase imports of goods. In the long run, each country in intra-ASEAN 6 trade and ASEAN 6 global trade must be improved and dynamic with a higher trade balance value in achieving its steady state, and at the same time must be accompanied by a decreasing trade balance gap all the time for each member country. The results of this research are expected to be one of the inputs to efforts to realize ASEAN's vision and mission.

CONCLUSION

Differences in initial economic conditions (GDP and GDP per capita) and economic openness (ratio of exports and imports to GDP) in trade, as well as macroeconomic fundamental variables (inflation, GDP, and FDI), cause ASEAN 6 member countries to achieve *stable state* trade balances that vary in magnitude, so as not to show a pattern of convergence of trade balances between ASEAN 6 countries in the region. Even though the research on the disparity in trade balance between ASEAN 6 countries is increasing significantly. This shows a divergent pattern in the trade balances among ASEAN countries. This divergent pattern of the trade balance can arise from initial economic conditions, differences in trade openness, the development of trade openness, and macroeconomic fundamentals. However, divergent patterns can also be caused by the condition of trade supporting facilities and factors as well as the orientation of ASEAN 6 trade cooperation, both in intra-ASEAN 6 and extra-ASEAN trade. Another cause may be that foreign investment from outside ASEAN 6 (extra ASEAN 6 FDI) is more dominant in supporting trade activities in the ASEAN 6 region than intra-ASEAN 6 FDI.

To reduce the trade balance gap between ASEAN 6 member countries, and increase intra-ASEAN 6 and extra-ASEAN 6 trade volumes, as strive to create an attractive region for investment, each ASEAN 6 country must strive for commitment to increasing trade cooperation and improving trade supporting facilities and infrastructure, as well as providing facilities and incentives for foreign investment that can encourage export products from ASEAN 6 member countries.

AUTHOR CONTRIBUTIONS

Conceptualization, A.S. and Y.R.; Methodology, A.S. and A.M.R.; Software, X.X.; Formal Analysis, X.X.; Investigation, X.X.; Resources, X.X.; Data Curation, X.X.; Writing, A.S. and Y.R.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

REFERENCES

Ahmad, B. (1996). Bilateral trade and per capita income convergence of selected South Asian countries and among their major trade partners. *The Pakistan Development Review, 35*(4), 503–517.

Amalia, F., & Fitrijanto, A. (2022). Regional disparity and social-economic convergence in new autonomous regions in Banten Province. *The Indonesian Journal of Planning and Development, 7*(2), 60–68. https://doi.org/10.14710/ijpd.7.2.60-68

Barro, R. J., & Sala-i-Martin, X. (1992). Convergence. *Journal of Political Economy, 100*(2), 223–251. https://doi.org/10.1086/261816

Ben-David, D. (1996). Trade and convergence among countries. *Journal of International Economics, 40*(3–4), 279–298. https://doi.org/10.1016/0022-1996(95)01405-5

Ben-David, D., & Loewy, M. B. (1998). Free trade, growth, and convergence. *Journal of Economic Growth, 3*(2), 143–170. https://doi.org/10.1023/A:1009701618062

Bucio Pacheco, C., López Herrera, F., & Santillán Salgado, R. J. (2018). Pricing a bivariate option with copulas. *International Journal of Bonds and Derivatives, 4*(1), 74–95. https://doi.org/10.1504/IJBD.2018.089805

Burmansyah, E. (2014). *Rezim baru ASEAN: Memahami rantai pasokan dan Masyarakat Ekonomi ASEAN*. Pustaka Sempu.

Covi, G. (2021). Trade imbalances within the Euro area: Two regions, two demand regimes. *Empirica, 48*(2), 371–401. https://doi.org/10.1007/s10663-020-09477-3

D'Aloia, F., & Gugler, P. (2024). Impact of COVID-19 on the economic growth of ASEAN countries: Convergence or divergence? *International Journal of Global Business and Competitiveness, 19*, 1–17. https://doi.org/10.1007/s42943-024-00098-2

Dornbusch, R., Fischer, S., & Startz, R. (2011). *Macroeconomics* (11th ed.). McGraw-Hill.

Dufrénot, G., Mignon, V., & Naccache, T. (2012). The slow convergence of per capita income between developing countries: Growth resistance and growth tragedy. *Review of Development Economics, 16*(3), 470–489. https://doi.org/10.1111/j.1467-9361.2012.00673.x

Ean, T. G., Mansor, S. B. A., & Ling, S. W. S. (2020). Regional economic integration and income inequality in selected ASEAN countries. *International Journal of Academic Research in Business and Social Sciences, 10*(2), 648–664. http://dx.doi.org/10.6007/IJARBSS/v10-i2/6953

Ghatak, S. (2021). Convergence potentials in SAARC and ASEAN economies. *The Journal of Indian and Asian Studies, 2*(1), 2150004. https://doi.org/10.1142/S2717541321500040

Ghosh, S., & Yamarik, S. (2006). Do regional trading arrangements harm the environment? An analysis of 162 countries in 1990. *Applied Econometrics and International Development, 6*(2), 15–36.

Habibullah, M. S., Chong, C. Y., & Din, B. H. (2017). Developing and developed ASEAN-10 economies: Converge or diverge? *International Journal of Economics and Management, 11*(Special Issue 3), 623–640.

Harvey, D. (2010). *Social justice and the city* (Revised ed.). University of Georgia Press.

Ishikawa, K. (2021). The ASEAN Economic Community and ASEAN economic integration. *Journal of Contemporary East Asia Studies, 10*(1), 24–41. https://doi.org/10.1080/24761028.2021.1891702

Jayanthakumaran, K., & Lee, S.-W. (2009). Multilateralism, regionalism and income convergence: ASEAN and SAARC. *International Journal of Economic Policy in Emerging Economies, 2*(1), 65–83.

Kaukab, M. E., & Surwandono, S. (2021). Convergence of Human Development Index: Case study of foreign direct investment in ASEAN. *Business: Theory and Practice, 22*(1), 12–17. https://doi.org/10.3846/btp.2021.12534

Mohammad, S. D. (2010). Determinants of balance of trade: Case study of Pakistan. *European Journal of Scientific Research, 41*(1), 13–20.

Mwakanemela, K. (2014). Impact of FDI inflows, trade openness and inflation on the manufacturing export performance of Tanzania: An econometric study. *International Journal of Academic Research in Economics and Management Sciences, 3*(5), 151–162. http://dx.doi.org/10.6007/IJAREMS/v3-i5/1222

Ng, Y.-L., Har, W.-M., & Tan, G.-M. (2008). Real exchange rate and trade balance relationship: An empirical study on Malaysia. *International Journal of Business and Management, 3*(8), 130–137. https://doi.org/10.5539/ijbm.v3n8p130

Okodua, H., & Olayiwola, W. K. (2013). Migrant workers' remittances and external trade balance in Sub-Saharan African countries. *International Journal of Economics and Finance, 5*(3), 134–142. https://doi.org/10.5539/ijef.v5n3p134

Önder, A. O., Deliktaş, E., & Karadağ, M. (2010). The impact of public capital stock on regional convergence in Turkey. *European Planning Studies, 18*(7), 1041–1055. https://doi.org/10.1080/09654311003744107

Paprotny, D. (2021). Convergence between developed and developing countries: A centennial perspective. *Social Indicators Research, 153*(1), 193–225. https://doi.org/10.1007/s11205-020-02488-4

Samuelson, P. A., & Nordhaus, W. D. (2019). *Economics* (19th ed.). McGraw-Hill Education.

Pressman, S. (2008). *Contemporary economics*. Routledge.

Wana Ismail, N., & Wong Koh King, C. (2013). The effects of ASEAN Free Trade Agreement (AFTA) on intra-ASEAN trade: 1986–2010. *Pertanika Journal of Social Sciences and Humanities, 21*(Special Issue), 115–124.

Wang, S., Zhang, Y., Li, Y., Chen, J., & Yang, Y. (2011). Regional disparity and convergence of China's inbound tourism economy. *Chinese Geographical Science, 21*(6), 715–722. https://doi.org/10.1007/s11769-011-0508-6

Young, A. T., Higgins, M. J., & Levy, D. (2008). Sigma convergence versus beta convergence: Evidence from U.S. county-level data. *Journal of Money, Credit and Banking, 40*(5), 1083–1093. https://doi.org/10.1111/j.1538-4616.2008.00148.x