

Romer's Hypothesis Validation and Threshold of Trade Openness in ASEAN

Anggit Hamidi¹; Alvin Sugeng Prasetyo^{2*}

^{1,2}Program Studi S1 Ekonomi Pembangunan, Fakultas Ekonomi dan Bisnis
Universitas Trunojoyo Madura

Email: alvin.prasetyo@trunojoyo.ac.id

DOI: <https://doi.org/10.21107/bep.v3i1.18500>

ABSTRACT

The purpose of this study is to test and analyze Romer's hypothesis regarding the impact of trade openness on inflation. In addition, this study also aims to measure the threshold point of trade openness. The method used is the System GMM and the Threshold Panel for the period 2010-2021. The estimation results show that trade openness has a significant effect on inflation. The sign of the coefficient of trade openness is positive, meaning that an increase in trade openness will lead to higher inflation. These results mean that Romer's hypothesis is invalid in ASEAN. The government is expected to be able to reduce the degree of trade openness by re-establishing agreements with bilateral and multilateral countries. If the trade agreement is profitable then it is continued, if it is not profitable it is better not to continue.

Keywords: Trade Openness, Inflation, System GMM, ASEAN

INTRODUCTION

Romer (1993) points out that if no monetary policy is made beforehand, the country will experience high inflation rates. Without an initial commitment in monetary policy, unexpected monetary expansion leads to depreciation of the real exchange rate which can lead to higher inflation in a more open economy (Chhabra & Alam, 2020). The benefits of a staggering monetary expansion (i.e. the rate of inflation) will be less in a more open economy and vice versa. Romer (1993) believes that trade openness serves as a constraint on inflationary behavior, so that policy makers feel it has a beneficial impact, because it can limit the incentives given to economic actors. Incentives are limited because macroeconomic conditions are more stable due to low inflation. Rogoff (1995) also shows that a country's international trade becomes more open, so that country tends to have less inflation, because it gets less surprise from inflation.

This study analyzes the relationship between inflation and trade openness in ASEAN. This is because the degree of trade openness has increased during the AEC period. This means that the implementation of the AEC has encouraged international trade in each ASEAN region, but has also pushed inflation higher. The phenomenon of the degree of trade openness in ASEAN member countries varies. Differences in trade conditions and GDP of each ASEAN member country. Countries that support freer trade will increase trade cooperation both bilaterally and multilaterally. The degree of trade openness during the AEC experienced an increase, in fact inflation in the majority of ASEAN countries decreased, except for Myanmar, which actually experienced an increase in inflation. Low inflation

indicates that the monetary authorities and governments of each country are successful in controlling inflation.

Studies on Romer's hypothesis have been widely supported by the empirical literature. Sikdar et al. (2013) show that Romer's hypothesis exists in Bangladesh. Samimi et al (2012) show that Romer's hypothesis in developing countries does not apply, because it is vulnerable to external shocks. Nasrat (2020) shows that Romer's hypothesis in Six South Asia does not apply. Lin et al. (2017) show that Romer's hypothesis in Sub-Saharan Africa holds. Munir et al. (2015) show that Romer's hypothesis in Asia does not apply. The similarity of this research with research conducted by Romer (1993) is the same as looking at the effect of trade openness on inflation. The difference between this study and the research conducted by Romer (1993) is that this study estimates the degree of trade openness so that optimal inflation can be achieved in the ASEAN region using the Threshold Panel. It should also be noted that the location and period in this study are different from that of Romer (1993).

LITERATURE REVIEW

Over the past few decades, developing countries have increasingly liberalized foreign trade regimes. This is because of the structural adjustment program and other liberalization measures required by multilateral and bilateral trade agreements. The consequences of trade openness can affect the rate of inflation.

The inflation rate can be defined as a sustained or persistent general price increase. Another term for inflation as a continuous or continuous decline in the value of money. Trade openness is defined as the absence of barriers in trade, so that it is free to carry out international trade.

The higher the openness of trade, the more a country will face more adverse shocks that come from outside. This is in line with the opinion of Frankel & Cavallo (2004), namely that trade openness makes countries vulnerable to crisis. Therefore, trade openness can have an impact on the inflation rate.

The relationship between inflation and openness has become a topic that is often analyzed in empirical studies. This section first outlines the channels through which trade openness affects inflation. Economic theory suggests several explanations for the hypothesized relationship between openness and inflation. The main explanations are summarized as follows:

1. Effect through greater availability of cheaper imports

Increased access to cheaper foreign goods (due to the removal or reduction of trade barriers, such as tariffs and quantitative restrictions) lowers the cost of a consumption basket that is likely to consist of imported goods as the economy becomes more open. In addition, the prices of domestically produced goods may decline not only because of competition from cheaper foreign final goods, but also because of lower

production costs due to lower input prices. This includes imports between cheaper and lower nominal wage demands, the latter arising from lower consumption bundle costs. The higher the proportion of imports in the consumption basket, the greater the use of imported intermediate goods, and the higher the level of flexibility in nominal wages and substitution between domestically produced and imported goods, the greater the expected disinflationary effect. In addition, as economies become more open and integrated into world markets, the threat of global competition weakens the market power of firms and workers, putting downward pressure on domestic inflation (Rogoff, 2003).

2. Effect via induced efficiency, productivity gains, and output growth

Increased openness is said to reduce allocation inefficiency and increase productivity and economic growth. The heightened competition resulting from greater openness is expected to increase the allocation of resources among various sectors of the economy as countries move to engage in activities in which they have a comparative advantage and as the composition of inputs used changes. Greater openness can promote productivity growth if, among other things, it facilitates the transfer of technical knowledge, encourages innovation, and promotes dynamic efficiency (Grossman & Helpman, 1991; OECD, 1998; Edwards, 1998). Faster productivity growth, other things being equal, will put downward pressure on the inflation rate.

3. Effect through influencing discretionary monetary policy

A prominent explanation for the long-run disinflationary effect of openness is its alleged impact on policymakers' incentives to pursue expansionary monetary policy, assuming that their temptation to do so is the primary determinant of inflation. Using the dynamic inconsistency model of optimal monetary policy, Romer (1993) shows that economies that are less open have a greater incentive to pursue expansionary policies and, as a result, experience higher equilibrium inflation. This link is analyzed in terms of the enlarged Phillips curve of the policymaker's expectations and objective functions where output enters positively and inflation negatively. The effect is transmitted through a decrease in the relative price of domestic goods and a depreciation in the real exchange rate. Induced real depreciation is shown to reduce output gains and to produce, for a given increase in domestic output, higher inflation. Therefore, in the absence of a pre-commitment to monetary policy (under discretionary policy), a more open economy will have less incentive to adopt an expansionary policy and thus will have lower equilibrium inflation than a less open economy. Lane (1997) obtains similar results for small

economies, which cannot influence international relative prices, under the assumption of monopolistic competition and nominal price rigidity in the non-traded goods sector.

4. Effect through fiscal (budgetary) responses:

The fiscal consequences of openness as a linking mechanism between inflation and inflation can operate through several channels (Edwards and Tabellini, 1991; Romer, 1993). The smaller and more open an economy is, the greater the proportion of income from a given tariff structure and, as a result, the less important seigniorage is as a source of income, leading to lower inflation rates. In addition, the elasticity of demand for the domestic currency with respect to inflation can increase with the degree of openness because residents will increase their access to foreign currency instead, thereby lowering the optimal tax rate on the domestic currency — the inflation rate. Since a country's policy choices determine its trade openness (in addition to its size), an economy that is less open will have higher average inflation to the extent that protectionist policies and accompanying measures lead to larger budget deficits.

Sikdar et al., (2013) conducted a study on the relationship between inflation and trade openness in Bangladesh. The method used is VECM with the period 1976-2010. The estimation results show that Romer's hypothesis is confirmed in Bangladesh. Samimi et al., (2012) using panel data regression from 1990 to 2009 found that Romer's hypothesis does not apply in developing and developing countries. This means that developing and developing countries are vulnerable to external shocks. Nasrat (2020) shows that Romer's hypothesis in Six South Asia does not apply. Lin et al. (2017) show that Romer's hypothesis in Sub-Saharan Africa holds. Munir et al. (2015) show that Romer's hypothesis in Asia does not apply. The results of several studies show that there are still differences in the estimation results. Therefore, this study fills that gap.

Elhassan (2020) proves Romer's hypothesis related to inflation and trade openness in the country of Sudan using the NARD method in 1970-2018. Romer's hypothesis in Sudan does not apply, meaning that the Sudanese state is vulnerable to external shocks. Afari et al (2021) conducted research in sub-Saharan Africa using the ARDL method for the period 1985-2017. The estimation results show that the Romer hypothesis in sub-Saharan Africa is not valid. Chhabra & Alam (2020) used the ARDL method (1974-2016) in India to identify the Romer hypothesis. The estimation results show that Romer's hypothesis is not valid.

Ada et al., (2014) conducted a study between inflation and trade openness using the VECM method for the period 1970-2010. The estimation results show that Romer's hypothesis in Nigeria is valid. Aliyev & Gasimov (2014) used VAR (1996-2012) to analyze the relationship

between inflation and trade openness in the South Caucasus Economies. The estimation results show that the Romer hypothesis in the South Caucasus Economies holds true. Furthermore, Salimifar et al (2015) used the ARDL method (1973-2010) to test and analyze the relationship between inflation and trade in Iran. The estimation results show that the Romer hypothesis in Iran is valid

Mosayeb and Muhammad (2009) conducted research on inflation in Iran. The method used is ARDL. The estimation results show that the exchange rate has a significant effect on inflation in Iran in the long run, while economic growth has no significant effect on inflation, while in the short term the exchange rate and real GDP have a significant effect on inflation. Wanaset (2009) conducted a research on inflation in Thailand. The variables used are nominal interest rates and economic growth using the VAR analysis tool. From this research, it can be concluded that interest rates, real GDP, money supply have a significant effect on inflation in Thailand. Susmiati et al., (2021) examined the effect of the rupiah exchange rate on the inflation rate. The method used is multiple linear regression analysis. The estimation results show that partially the rupiah exchange rate has a significant positive effect on the inflation rate, while simultaneously the rupiah exchange rate has a significant effect on inflation in Indonesia.

Ningsih and Kristiyanti (2018) conducted a study to determine the effect of interest rates and exchange rates on inflation in Indonesia for the 2014-2016 period. Data analysis using multiple linear regression analysis method. The results of the F test show that interest rates and exchange rates simultaneously have a positive and significant effect on inflation. The results of the t-test indicate that the interest rate variable has no significant and positive effect on inflation, and the exchange rate variable partially has a positive and significant effect on inflation.

METHODOLOGY

This research approach uses a quantitative research method approach with econometric tools. Econometric analysis aims to explain the phenomenon of causal statements that aim to test a theory which is carried out based on the calculation of the regression results that have been carried out previously. The method used in this study is Dynamic Panel. The use of dynamic panels because the data used is panel data and can see the effect of the previous period. The cross section is the countries in ASEAN.

The Arellano-Bond GMM estimation method produces unbiased, consistent and efficient estimates. Generalized Method of Moment (GMM) is a method of estimating the expansion parameters of the moment method. The moment method cannot be used if the number of instrument variables is greater than the number of parameters to be estimated. GMM equates the condition moment of

the population with the condition moment of the sample. The GMM method is one method that can overcome the condition of the data by violating the assumptions in the regression analysis. GMM is obtained by minimizing the number of weighted squares of the sample condition moments. GMM estimation is also known as dynamic panel regression.

Dynamic panel data regression is a regression method that adds a dependent variable lag to serve as an independent variable (Baltagi, 2005). The dynamic panel data model is used to describe the relationship between economic variables, which in fact are dynamic in nature. The relationship between economic variables is basically a dynamic one, namely that the variables are not only influenced by variables at the same time but are also influenced by variables at the previous time. This dynamic panel model can be seen from the presence of the dependent variable lag between the regressor variables. Therefore, the dynamic panel data model is more suitable for use in economic analysis. In fact, many of the relationships among economic variables are dynamic. Panel data analysis can be used on dynamic models in relation to dynamic of adjustment analysis. This dynamic relationship is characterized by the presence of a dependent variable lag among the regressor variables.

The GMM approach is a popular one. There are at least two underlying reasons, first, GMM is a common estimator and provides a more useful framework for comparison and assessment. Second, GMM provides a simple alternative to other estimators, especially the maximum likelihood. The GMM estimator is also not free from weaknesses. The weaknesses of this method are: (i) the GMM estimator is asymptotically efficient in large sample sizes but less efficient in finite sample sizes; and (ii) this estimator sometimes requires a number of programming implementations so that a software that supports the application of the GMM approach is needed.

From the estimation results of the FD-GMM it will be seen whether the instrument used is valid. If it does not meet, it will continue to use the SYS-GMM approach to overcome the problem of instrument validity in the FD-GMM approach. Testing the validity of the instrument on the FD-GMM approach, the Sargan test can be used. Sargan test for overidentifying restriction is an approach to detect instrument validity problems. The null hypothesis for this test states that there is no problem with the validity of the instrument (valid instrument) in the sense that the instrument is not correlated with the error in the FD-GMM equation. In this test there is a chi-square probability value, where if the probability value is below the 1%, 5% or 10% significance level, the model is said to be invalid or the null hypothesis (H_0) is rejected. If the probability value is above the 1%, 5% or 10% significance level, then the model is said to be valid or the null hypothesis (H_0) is accepted.

Autocorrelation test using Arellano-Bond statistics. In this test there is a probability value of z , where if the probability value is below the significance level of 1%, 5% or 10% then H_0 is rejected, which indicates that there is an autocorrelation in the model so it is invalid. On the other hand, if the probability

value is above the significance level of 1%, 5% or 10%, then H0 is rejected, which indicates that there is no autocorrelation in the model so it is valid. Estimating the parameters of the dynamic panel data model will be used first the first difference generalized method of moments (FD-GMM) method. Furthermore, the results obtained will also be tested for the level of significance and the sign of each estimated coefficient obtained. The sign of this coefficient will be analyzed to see its relevance to the theory. Then from the estimation results will also be analyzed to answer the objectives and research hypotheses.

Single-threshold models:

$$Y_{it} = \mu + X_{it}(q_{it} < \gamma)\beta_1 + X_{it}(q_{it} \geq \gamma)\beta_2 + u_i + e_{it}$$

The q_{it} variable is the threshold variable, and is the threshold parameter by dividing the equation into two regimes with coefficients 1 and 2. The u_i parameter is the individual effect, while the e_{it} is the nuisance.

RESULT AND DISCUSSION

Inflation becomes a serious problem over a period of time. This is because inflation in ASEAN is caused by many factors. These factors are either caused economically or can be caused by external factors other than the economy. The estimation results show that trade openness has a significant effect on inflation. The sign of the coefficient of trade openness is positive, meaning that an increase in trade openness makes inflation higher. The coefficient of trade openness is 0,205, meaning that an increase in trade openness by 1 percent will encourage an increase in inflation of 0.205 percent. Furthermore, based on the findings of the estimation results, trade openness becomes a variable that plays a role in influencing inflation in the ASEAN region.

Tabel 1
System GMM Romer Hypotesis

Variabel	Nilai
LnINF(-1)	0,57043*** (0,01754)
To	0,20539** (0,02231)
Sargan	0,177
Hansen	0,342
AR(1)	0,215
AR(2)	0,344

*, **, *** significant at level 10%, 5%, and 1%

The coefficient of the effect of trade openness on inflation has a positive

sign. This means that Romer's hypothesis is not valid in developing countries. The estimation results are in line with the research of Samimi et al (2012), Nasrat (2020), and Kurihara (2013), and Munir et al (2015). Their results also show that Romer's hypothesis does not apply in developing countries and Asian countries. According to Romer (1993), trade openness brings positive externalities for developing countries, because it is able to reduce inflation, so that trade openness is disinflationary, so countries with increasingly free trade openness can reduce macroeconomic instability. Although Romer's hypothesis is invalid, it can be seen that ASEAN countries are vulnerable to external shocks, in this case shocks through trade transmission. This condition is worrying, because the economy which is vulnerable due to external shocks will threaten ASEAN countries to be left behind.

The results of this estimation panel threshold are used to determine the threshold for trade openness. The results are presented as follows:

Table 2
Single Threshold Panel

<i>Threshold</i>	<i>Threshold Value</i>	<i>Prob</i>
Single Threshold	49,3	0,0000*

, **, *** significant at level 10%, 5%, and 1%

Table 2 shows that the relationship between inflation and trade openness in ASEAN is not linear. The existence of the threshold test found that the threshold value for trade openness in the ASEAN region was 49.3. The test is significant at the 1 percent level of significance. Here are the estimation results:

Table 3
Threshold Model in ASEAN

DependenVariabel: Inflation	parameter	prob
Single Threshold		
to < 49,3	-0,41218	0,000***
to ≥ 49,3	-0,01345	0,782

, **, *** significant at level 10%, 5%, and 1%

Trade openness has a negative and significant effect on inflation when it is below the threshold value of 49.3 percent, but when it is above the threshold value of 49.3 percent, trade openness in the ASEAN region has a negative but not significant effect on inflation. This result means that inflationary pressure due to international trade openness can be reduced if it is below the 49.3 percent threshold.

The estimation results show that the ASEAN region's inflation lag has a significant effect on inflation itself, so it can be analyzed related to inflation

persistence. Inflation persistence is the rate at which inflation returns to its natural value when a shock occurs which causes inflation to move away from its natural value. The high degree of persistence of the ASEAN region indicates the slow rate of inflation to its natural level. On the other hand, the low level of persistence of the ASEAN region indicates the rapid rate of inflation to return to its natural level. The shock referred to among others can be in the form of government policies implemented by each ASEAN country government, disruption of production distribution, pandemics, natural disasters, and weather changes.

The inflation lag coefficient is 0,57, meaning that an increase in the inflation lag by 1 percent will encourage an increase in inflation by 0.57 percent, *ceteris paribus* assumption. This coefficient is the degree of inflation persistence in the ASEAN region, so that inflation persistence in the ASEAN region is still relatively high. The reason is classified as high because the persistence coefficient is close to 1 (one). The meaning of the word persistent itself can be defined as a tendency to persist.

The high degree of inflation persistence is thought to be related to the shocks that have influenced inflation developments in the ASEAN region in general. The effect of shocks or shocks on inflation is difficult to neutralize which makes it difficult for inflation to return to its natural level. The phenomenon of inflation persistence in the ASEAN region becomes very important to be carried out in order to support the formulation of effective monetary policy. This is because the effectiveness of monetary policy in the ASEAN region can support sustainable economic growth in order to improve people's welfare. High inflation in the ASEAN region will have a negative impact on the economy. People's purchasing power will decline and business actors will be filled with high uncertainty. The implications of persistent inflation will also be felt at the regional level of each country, so the government needs to pay attention to be able to play an active role in controlling inflation.

CONCLUSIONS

The estimation results show that Romer's hypothesis is not valid in ASEAN. This is because trade openness has a positive impact on inflation. This means that an increase in trade openness can encourage an increase in inflation. This condition also means that ASEAN countries are easily shaken by external shocks. The result of the threshold panel also shows that it is 49.3 for the threshold value, so that inflation can be reduced if the degree of trade openness of ASEAN countries is below 49.3. Therefore, the governments of each ASEAN country can provide effective and efficient inflation control policies. Inflation control policies need coordination between the fiscal authorities and the monetary authorities, so that the policies taken do not contradict each other.

REFERENCE

- Arsić, M., Mladenović, Z., & Nojković, A. (2022). Macroeconomic performance of inflation targeting in European and Asian emerging economies. *Journal of Policy Modeling*. <https://doi.org/10.1016/J.JPOLMOD.2022.06.002>
- Bems, R., Caselli, F., Grigoli, F., & Gruss, B. (2021). Expectations' anchoring and inflation persistence. *Journal of International Economics*, 132, 103516.
-

- <https://doi.org/10.1016/J.JINTECO.2021.103516>
- Bilici, B., &Çekin, S. E. (2020). Inflation persistence in Turkey: A TVPestimation approach. *The Quarterly Review of Economics and Finance*, 78, 64–69. <https://doi.org/10.1016/J.QREF.2020.04.002>
- Boehm, C. E., & House, C. L. (2019). Optimal Taylor rules when targets are uncertain. *European Economic Review*, 119, 274–286. <https://doi.org/10.1016/J.EUROECOREV.2019.07.013>
- Bowdler, C., & Malik, A. (2017). Openness and inflation volatility: Panel data evidence. *The North American Journal of Economics and Finance*, 41, 57– 69. <https://doi.org/10.1016/J.NAJEF.2017.03.008>
- Burdekin, R. C. K., Denzau, A. T., Keil, M. W., Sitthiyot, T., & Willett, T. D. (2004). When does inflation hurt economic growth? Different nonlinearities for different economies. *Journal of Macroeconomics*, 26(3), 519–532. <https://doi.org/10.1016/J.JMACRO.2003.03.005>
- Carvalho, C., Nechio, F., & Tristão, T. (2021). Taylor rule estimation by OLS. *Journal of Monetary Economics*, 124, 140–154. <https://doi.org/10.1016/J.JMONECO.2021.10.010>
- Chan, K. S., Dang, V. Q. T., & Lai, J. T. (2018). Capital market integration in ASEAN: A non-stationary panel data analysis. *The North American Journal of Economics and Finance*, 46, 249–260. <https://doi.org/10.1016/J.NAJEF.2018.04.010>
- Choi, S., Furceri, D., Loungani, P., & Shim, M. (2022). Inflation anchoring and growth: The role of credit constraints. *Journal of Economic Dynamics and Control*, 134, 104279. <https://doi.org/10.1016/J.JEDC.2021.104279>
- Everaert, G. (2014). A panel analysis of the fisher effect with an unobserved I(1) world real interest rate. *Economic Modelling*, 41, 198–210. <https://doi.org/10.1016/J.ECONMOD.2014.05.005>
- Fahmy, Y. A. F., & Kandil, M. (2003). The Fisher effect: new evidence and implications. *International Review of Economics & Finance*, 12(4), 451–465. [https://doi.org/10.1016/S1059-0560\(02\)00146-6](https://doi.org/10.1016/S1059-0560(02)00146-6)
- Freeman, M. C., Groom, B., Panopoulou, E., & Pantelidis, T. (2015). Declining discount rates and the Fisher Effect: Inflated past, discounted future? *Journal of Environmental Economics and Management*, 73, 32–49. <https://doi.org/10.1016/J.JEEM.2015.06.003>
- Fry-McKibbin, R., Hsiao, C. Y. L., & Martin, V. L. (2018). Global and regional financial integration in East Asia and the ASEAN. *The North American Journal of Economics and Finance*, 46, 202–221. <https://doi.org/10.1016/J.NAJEF.2018.04.007>
- Ghosh, A. (2014). How do openness and exchange-rate regimes affect inflation? *International Review of Economics & Finance*, 34, 190–202. <https://doi.org/10.1016/J.IREF.2014.08.008>
- Jafari Samimi, A., Ghaderi, S., Hosseinzadeh, R., &Nademi, Y. (2012). Openness and inflation: New empirical panel data evidence. *Economics Letters*, 117(3), 573–577. <https://doi.org/10.1016/J.ECONLET.2012.07.028>

- Jin, J. C. (2006). Openness, growth, and inflation: Evidence from South Korea before the economic crisis. *Journal of Asian Economics*, 17(4), 738–757. <https://doi.org/10.1016/J.ASIECO.2006.07.001>
- Kwark, N. S., & Lim, H. (2020). Have the free trade agreements reduced inflation rates? *Economics Letters*, 189, 109054. <https://doi.org/10.1016/J.ECONLET.2020.109054>
- Lin, F., Mei, D., Wang, H., & Yao, X. (2017). Romer was right on openness and inflation: Evidence from Sub-Saharan Africa. *Journal of Applied Economics*, 20(1), 121–140. [https://doi.org/10.1016/S1514-0326\(17\)30006-5](https://doi.org/10.1016/S1514-0326(17)30006-5)
- Michau, J. B. (2019). Monetary and fiscal policy in a liquidity trap with inflation persistence. *Journal of Economic Dynamics and Control*, 100, 1–28.
- Oloko, T. F., Ogbonna, A. E., Adedeji, A. A., & Lakhani, N. (2021). Fractional cointegration between gold price and inflation rate: Implication for inflation rate persistence. *Resources Policy*, 74, 102369. <https://doi.org/10.1016/J.RESOURPOL.2021.102369>
- Panopoulou, E., & Pantelidis, T. (2016). The Fisher effect in the presence of timevarying coefficients. *Computational Statistics & Data Analysis*, 100, 495–511. <https://doi.org/10.1016/J.CSDA.2014.08.015>
- Plummer, M. G. (2006). ASEAN–EU economic relationship: Integration and lessons for the ASEAN economic community. *Journal of Asian Economics*, 17(3), 427–447. <https://doi.org/10.1016/J.ASIECO.2006.04.004>
- Prasetyo, A. S. (2021a). Analisis Respon Pertumbuhan Ekonomi Indonesia Akibat External Shock Amerika Serikat dan China. *EJournal Ekonomi Bisnis Dan Akuntansi*, 8(1), 20–32.
- Prasetyo, A. S. (2021b). CONVERGENCE OF FINANCIAL DEVELOPMENT IN ASEAN BASED ON PRIVATE CREDIT AND LIQUID LIABILITIES INDICATORS. *BISMA: JurnalBisnis Dan Manajemen*, 15(1), 13–24.
- Sachsida, A., Carneiro, F. G., & Loureiro, P. R. A. (2003). Does greater trade openness reduce inflation? Further evidence using panel data techniques. *Economics Letters*, 81(3), 315–319. [https://doi.org/10.1016/S0165-1765\(03\)00211-8](https://doi.org/10.1016/S0165-1765(03)00211-8)
- Smithin, J. (2005). The Real Rate of Interest, the Business Cycle, Economic Growth and Inflation: An Alternative Theoretical Perspective. *The Journal of Economic Asymmetries*, 2(2), 1–19. <https://doi.org/10.1016/J.JECA.2005.02.001>
- Suh, S., & Kim, D. (2021). Inflation targeting and expectation anchoring: Evidence from developed and emerging market economies. *The North American Journal of Economics and Finance*, 58, 101535. <https://doi.org/10.1016/J.NAJEF.2021.101535>
- Thanh, S. D. (2015). Threshold effects of inflation on growth in the ASEAN-5 countries: A Panel Smooth Transition Regression approach. *Journal of Economics, Finance and Administrative*
-

- Science, 20(38), 41–48. <https://doi.org/10.1016/J.JEFAS.2015.01.003> Watson, A. (2016). Trade openness and inflation: The role of real and nominal price rigidities. *Journal of International Money and Finance*, 64, 137–169. <https://doi.org/10.1016/J.JIMONFIN.2016.02.002>
- Wu, J. W., & Wu, J. L. (2018). Does a flexible exchange rate regime increase inflation persistence? *Journal of International Money and Finance*, 86, 244– 263. <https://doi.org/10.1016/J.JIMONFIN.2018.05.002>