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Causality Between Stock Value, Foreign Direct Investment, Economic Growth, and Electric Energy Consumption in the Group of Emerging Market Countries in ASEAN

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Abstract
This study aims to examine the causal relationship between stock value, foreign direct investment, economic growth, and consumption of electrical energy in the Emerging Market Countries group in ASEAN. The data used is panel data from 2000-2020. This study uses the Vector Error Correction Model (VECM) method. The variables in this study are Stock Value, Foreign Direct Investment, Economic Growth, and Electrical Energy Consumption. The results of the study conclude that between the stock value there is only one-way causality, namely foreign investment directly affects the stock value. Between economic growth and the stock value, there is only one-way causality, namely economic growth affects the stock value. Between the stock value and the consumption of electrical energy, there is only one-way causality, namely the consumption of electrical energy affects the stock value. Between the foreign direct investment and economic growth, there is only one-way causality, namely economic growth affects foreign direct investment. Between the foreign direct investment and the consumption of electrical energy, there is no one-way or two-way causality in these variables. Between economic growth and consumption of electrical energy, there is no one-way or two-way causality in these variables.

Keywords: Stock Value, Foreign Direct Investment, Economic Growth, Electric Energy Consumption.

1. Introduction

Emerging Market Countries are a group of countries that are classified as countries with a low economy to a medium level of income per capita. Countries that are included in the group of Emerging Market countries in the ASEAN region include Thailand, Indonesia, the Philippines, and Malaysia. The economy of emerging market countries is predicted to have the potential for natural resources, tourism, and a large population that will affect economic growth in Asia and the world.

Adequate functioning of the stock market represents a significant condition for the evolution of the financial sector and has an important contribution to sustainable economic development thus turning the national economy into an attractive one for foreign investors (Carp, 2012).

Investment has an important role in economic growth and development in developing countries (Hoang, 2010). A lot of investment or in the sense of increasing investment in a country has an impact on that country's capital which will increase and can be used to improve such infrastructure. So that the role of investment is important to increase economic growth in a country.

The influx of FDI encourages greater electricity consumption. Energy consumption directly contributes to the growth of economic capacity, and energy utilization leads to greater growth and will increase the overall development of the country's economy (Hao, 2018).

2. Methods

Economic growth creates demand for financial services as a development tool, (Bhattarai, 2021). Investors who will invest through the capital market will see the economic growth of a country as a factor of consideration in investing. Countries that have good economic growth will become investors' destination countries. The added value and output generated by the addition of foreign capital will have an impact on economic growth.

Energy consumption directly contributes to economic growth, and energy utilization leads to greater growth and will enhance the country's overall economic development (Hao, 2018).

Foreign direct investment will be used to expand existing operations, build new factories, and expand factory capacity which will increase energy demand and lead to increased economic growth (Bekhet, 2011). So an increase in foreign investment will increase electricity consumption as a result of the addition of the number of factories or industries built by foreign investors.

The amount of electricity consumption is directly related to the economic growth of a country. Energy consumption plays an important role in promoting and sustaining economic growth, especially for industrialization in developing countries (Khatun, 2015). The increasing development and dynamic economic growth, which is characterized by increased production output and various other economic activities, will be accompanied by an increase in population, causing an increase in energy needs, especially electrical energy.

In this study, the data used is panel data. This study uses the Vector Error Correction Model (VECM) analysis tool. VECM is a Vector Autoregressive (VAR) designed to be used on non-stationary data that is known to have a cointegration relationship.

The VAR model of this research variable is:

$$IHS_t = \sum_{i=0}^{n} \alpha i IHS_{t-i} + \sum_{i=0}^{n} \beta i FDI_{t-i} + \sum_{i=0}^{n} \beta i PE_{t-i} + \sum_{i=0}^{n} \beta i KE_{t-i} + U1_t.$$

$$FDI_t = \sum_{i=0}^{n} \alpha i FDI_{t-i} + \sum_{i=0}^{n} \beta i IHS_{t-i} + \sum_{i=0}^{n} \beta i PE_{t-i} + \sum_{i=0}^{n} \beta i KE_{t-i} + U2_t$$

$$PE_t = \sum_{i=0}^{n} \alpha i PE_{t-i} + \sum_{i=0}^{n} \beta i IHS_{t-i} + \sum_{i=0}^{n} \beta i FDI_{t-i} + \sum_{i=0}^{n} \beta i KE_{t-i} + U3_t$$

$$KE_t = \sum_{i=0}^{n} \alpha i KE_{t-i} + \sum_{i=0}^{n} \beta i IHS_{t-i} + \sum_{i=0}^{n} \beta i FDI_{t-i} + \sum_{i=0}^{n} \beta i PE_{t-i} + U4_t$$

Where:
IHS = Stock Price
FDI = Foreign Direct Investment
PK = Financial Development
PE = Economic Growth
KE = Energy Consumption

3. Results & Discussion

3.1 Causality of Stock Value and Foreign Direct Investment

The results showed that foreign direct investment had a significant effect on the stock price. While the stock price has no significant effect on foreign direct investment. So it can be concluded that there is a one-way causality between the stock price and foreign direct investment in Emerging Market countries in ASEAN.

These results are consistent with Rajapakse (2018), which found that foreign direct investment affects the stock price in Sri Lanka, while the stock price does not affect foreign direct investment. In the long term, foreign direct investment also influences trading in the Sri Lankan stock market.

3.2 Causality of Stock Value and Economic Growth

The results of the study show that economic growth has a significant effect on the stock price. While the stock price has no significant effect on economic growth. So it can be concluded that there is a one-way causality between the stock price and the economic growth of Emerging Market countries in ASEAN.

This result is in line with the results of Carp (2012) who found that economic growth affects the stock market and investment. High economic growth will encourage the development of the stock market and investment.

3.3 Causality of Stock Value and Electrical Energy Consumption

The results showed that the consumption of electrical energy had a significant effect on the stock price. While the stock price has no significant effect on the consumption of electrical energy. So, it can be concluded that there is a one-way causality between the stock price and the electricity consumption of emerging market countries in ASEAN.

This result is not in line with the results of research conducted by Ersoy (2013) which explains that the consumption of electrical energy does not affect the stock price, but it is the increase in the stock price that affects the consumption of electrical energy through an increase in economic growth.

3.4 Causality of Foreign Direct Investment and Economic Growth

The results showed that foreign direct investment had a significant effect on economic growth. Meanwhile, foreign direct investment has no significant effect on economic growth. So it can be concluded that there is a one-way causality between foreign direct investment and the economic growth of emerging market countries in ASEAN.

This study is also in line with research conducted by Oseni (2011) which looked at the impact of foreign direct investment and the development of stock values in Ghana. Cointegration analysis also reveals that there is a long-term relationship. Other results explain that foreign direct investment has a significant effect on economic growth.

3.5 Causality of Foreign Direct Investment and Electric Energy Consumption

The results showed that the consumption of electrical energy had no significant effect on foreign direct investment and foreign direct investment had no significant effect on the consumption of electrical energy. So it can be concluded that there is no one-way or two-way causality between foreign direct investment and electricity consumption in emerging market countries in ASEAN.

This study is in line with research conducted by Long (2018) where the results of his research see causality based on the Toda-Yamamoto method, there is no two-way causality relationship between foreign direct investment and electricity consumption in Vietnam. This study is not to the research conducted by Kumari (2018) which found that there is a two-way causality relationship between foreign direct investment and consumption of electrical energy.

8. Conclusions

The stock price does not affect foreign direct investment, but foreign direct investment affects the stock price. There is only a one-way causality relationship, namely foreign direct investment to the stock price. The stock price does not affect economic growth, but economic growth affects the stock price. There is only a one-way causal relationship, namely economic growth to the stock price. The stock price does not affect the consumption of electrical energy, but the consumption of electrical energy affects the stock price. There is only a one-way causality relationship to the stock price. Foreign direct investment does not affect economic growth, but economic growth affects foreign direct investment. There is only a one-way causal relationship, namely economic growth to foreign direct investment. Foreign direct investment does not affect the consumption of electrical energy and consumption of electrical energy also does not affect foreign direct investment. There is no one-way or two-way causal relationship between foreign direct investment and electricity consumption. Economic growth does not affect the consumption of electrical energy and consumption of electrical energy also does not affect economic growth. There is no one-way or two-way causal relationship between economic growth and consumption of electrical energy.Appendix

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