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IMPACT OF GLOBAL COMMODITY PRICES ON THE STOCK MARKET OF SOUTHEAST ASIA COUNTRIES

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SUMMARY OF ECONOMICS PH.D'S THESIS

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CHAPTER 1. INTRODUCTION

1.1 Introduction

Economies have experienced good periods of growth as a result of stock market swings. Empirical studies focusing on the relationship between stock prices and macroeconomic factors for both developed and emerging economies by Christopher MB et al. (2001), Abugri BA (2008), Robert J. & Luc S. (2009), Hosseini S. et al (2011), Rimantas R. & Roma V. (2014), Khan MN et al (2015), Kang W. et al (2018)), Lukman O.& Dauda Y. (2019) concluded that the stock market not only reacts to fundamental changes in domestic macroeconomics but also is influenced by global macro factors. such as world stock indexes, oil prices, gold prices, global commodity prices, etc., but the sign and direction of impact may not be the same for all studies. Thereby, it is shown that global commodity prices and changes in global economic factors can be a channel to the stock markets of countries (Mensi et al., 2014).

The impact of commodity prices on the stock market has been the subject of open macroeconomics research for a long time (Creti A. et al., 2013). Supply and demand shocks that cause commodity prices to explode have sparked new forms of debate in international economics. There is consensus in the literature on the importance of commodity prices to the world economy. Commodity price shocks affect the stability of export earnings in developing countries, input costs for production in industrialized countries, the distribution of world capital flows, and the speed of production. national economic growth and also the stock market (Hegerty S.W., 2015). Policymakers are interested in the link between commodity prices and macroeconomic objectives (whether they are net exporters or major importers of commodities). Stock market participants, such as portfolio managers and traders, are also interested in the substitutability of commodities and securities, so hedging strategies are design (Rossi B., 2012).

The relationship between commodity prices and stock markets is well established in the empirical literature. Specifically, Lee and Ni (2002) have linked oil price shocks to the rise in stock prices of the petroleum and chemical industries in the US. Bastianin, A et al. (2016) show that oil prices have a significant effect on G7 stock markets and argue that supply and demand shocks are both important in explaining G7 stock prices. Studies by Creti et al. (2013), Drechsel and Tenreyro (2018), Kang et al (2020) also show that commodity price shocks and stock market volatility have a relationship. systems and affect real economic activity.

Studies in each Southeast Asian country that address the stock market's response to changes in domestic commodity prices often use the consumer price index as a proxy, like Indonesia (Karim et al., 2014). ; Surbakti et al., 2016), Malaysia (Hussein and Mgammal, 2012; Ahmad et al., 2014; Khong Y. et al., 2017), Philippines (Federick P., 2016; Ho and Odhimabo, 2018), Singapore (Ramin and Tiong, 2000; Linda and Abu, 2016; Boon Leng Mark et al., 2017), Thailand

(Joseph, 2013; Boonyanam N. et al., 2014), Vietnam (Paresh K. and Seema, 2010 ; Huynh Thanh Binh, 2012; Nguyen Minh Kieu, 2013; Huynh Thi Cam Ha, 2014; Nguyen Thu Thuy and Kadom S., 2018; Le Minh Huong and Jian Z., 2019). Besides, there is also empirical evidence that in addition to the influence of domestic macro factors, the Southeast Asian stock market is also affected by world commodity prices such as gold price. (Ismail MT, 2017; Ehsan H. et al., 2013), oil prices (Alam, 2013; Fatemeh R., 2016; Sugeng W. et al., 2017; Robiyanto R., 2018), or both gold and and oil prices (Hossenidost, E. et al., 2013). However, these are individual commodities and up to now, no research has been found to study the factors of global commodity prices with components including agricultural prices, energy prices and metals prices to the stock price index. Southeast Asia stock.

Therefore, this study was conducted to clarify the impact of the global commodity price index, along with its components and other macroeconomic variables, on the stock markets of six selected Southeast Asian countries. selected (including Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam).

1.2 Study objectives and question

- Study objectives

The main objective of the thesis is to study the impact of global commodity prices, components and other macroeconomic variables on stock market price indexes of Southeast Asian countries. From the above general objective, the thesis is carried out to achieve the following specific objectives:

- Assess the impact of global commodity prices on stock market price indexes of Southeast Asian countries.
- Assess the impact of global commodity prices on the stock market price index of each Southeast Asian country including Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam.
- Assess the impact from the components of global commodity prices including agricultural prices, energy prices, metal prices on stock market price indexes of Southeast Asian countries.

- Study questions

This study is set up to stick to the main objective of the thesis and provide answers to the following core questions:

- How do global commodity prices affect the stock market index of Southeast Asian countries?
- How do global commodity prices affect the stock market index of each Southeast Asian country including Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam?
- How do agricultural prices, energy prices and metal prices affect the stock market indexes of Southeast Asian countries?

1.3 Subject and scope of the study

1.3.1. Subject of the study

Global commodity prices, other macroeconomic variables, stock market price indexes in selected Southeast Asian countries including Indonesia, Malaysia, Singapore, Philippines, Thailand, Vietnam, price impact both global commodities and macroeconomic factors to the Southeast Asian stock market price index.

1.3.2. Scope of the study

Studying the impact of global commodity prices on stock markets in six Southeast Asian countries, namely Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam, focusing on stock price indexes, over the period from January 2007 to December 2020.

1.4 Methodology

To achieve the stated research objectives, the thesis uses qualitative methods combined with quantitative research.

- ***Qualitative analysis method:*** perform description, synthesis, comparison, combined with the use of tables to interpret data on global commodity prices, other macro factors and stock markets. securities in Southeast Asian countries.

- ***Quantitative analysis method:*** implement the method for DGMM panel data. Simultaneously, the MG and PMG estimates are also used to measure the impact of global commodity prices and their components on the Southeast Asian stock market price index in the long and short term.

1.5 Contributions

1.5.1 Theoretical contributions

Firstly, on the basis of synthesis of previous studies, the topic focuses on perfecting the theoretical basis of the impact of commodity prices on the stock market. Therefore, the topic can become a theoretical reference for future studies.

Secondly, the approach of previous studies on the individual impact of global commodity prices, components and other macroeconomic factors on the stock market, also the author briefly reviews a systematic way. From there, give an overview of the research situation related to the topic in the world to come to identify the gap of the research problem.

Thirdly, this thesis considers the factors that have not been mentioned in previous studies in Southeast Asian countries, namely global commodity prices, the composition of global commodity prices including agricultural prices, Energy, metal prices and global stock indexes in the analysis affect the stock market price index.

1.5.2 Empirical contributions

The study of factors affecting the stock market, including global commodity prices, provides useful information for stock market managers in choosing directional factors to monitor, from that promptly make decisions for the management of the stock market.

With this study, the author makes some policy suggestions as well as proposes some specific recommendations in the issuance and implementation of policies for the stock market of Southeast Asian countries and each country in the region. the group. In fact, the stock markets of Southeast Asian countries have commonalities, but there are also some specific characteristics of each market, so appropriate policy implications for each country are necessary. .

This study examines the relationship between the effects of commodities such as agriculture, energy, metals on the stock market, and further analyzes whether the characteristics of different commodities have an insurance effect. risk or safe haven strategies for stock market portfolio strategies or not. The results can provide reference information for investors to make appropriate and accurate portfolio decisions.

1.6 The structure of the thesis

To solve the research objectives of the topic, the thesis includes 5 chapters:

- Chapter 1: Introduction
- Chapter 2: Theoretical framework and research overview
- Chapter 3: Research Methodology.
- Chapter 4: Research results and discussion
- Chapter 5: Conclusion and policy implications

CHAPTER 2. LITERATURE REVIEW

2.1 The theory of commodity prices and the stock market

2.1.1 The theory of commodity prices

2.1.1.1 Definition of commodity prices

KMarx has given the definition of price "Price is the monetary expression of the value of a commodity". Price here is the price of goods, the price that is accepted by society. Commodity value is social value, measured by the socially necessary labor time to produce a commodity, not the individual value of individual producers (Allen Oakley, 1984). Besides, there have been different views on pricing based on the approaches of each sector. Maurice Mandell (1985) defined price as the conversion value of a product to the customer at a point in time. According to Peter D. Bennett (1995), price is the formal value indicating the quantity of goods or services required to obtain a certain quantity of a good or service. Philip Kotler (2001) argues that price is the amount charged for a product or service, or the sum of the values that consumers pay for the benefit of having or using the product or service.

This study uses global commodity prices, which reflect the IMF's global all-commodity price index (2015 - 2019). Global commodity prices are divided into three basic groups: agricultural prices, energy prices, and metal prices (Philipp K. et al., 2014; Nikonenko U., 2020). The IMF's Agricultural Price Index tracks the spot prices of 22 of the most commonly traded internationally traded agricultural commodities, divided into three main groups: foodstuffs (cereals including wheat, rice, and maize; and vegetable oils). ; meat; seafood, sugar and other foods such as apples, bananas, legumes, fishmeal, milk, tomatoes), beverages (coffee, tea, cocoa) and agricultural materials (wood, cotton, wool, rubber, hide). Energy prices are calculated from crude oil, natural gas, and coal. Metal prices include base metals (steel, aluminum, cobalt, copper, iron ore, lead, nickel, uranium, zinc) and precious metals (gold, silver, palladium, platinum).

2.1.1.2 The theory of fluctuating commodity prices

Frankel (1986, 2008) developed the theory of commodity price movements. Based on Dornbusch's (1976) variable exchange rate hypothesis, Frankel (1986, 2008) developed a commodity volatility model to explain why commodity prices cross the long-run equilibrium in response to economic policy changes. The theory assumes that the commodity market is divided into producer stability with little volatility and flexibility for goods whose rapidly changing prices are able to react instantaneously to economic shocks macro.

2.1.1.3 Storage theory

The mainstay of storage theory is a concept known as Basis which is defined as the difference between the futures price and the spot price (Fama and French, 1987).

According to Fama and French (1987), the basis is explained by three factors, which are changes in interest rates, storage costs and favorable opportunity profits. In which, profit from favorable opportunity reflects the forecast of the market regarding commodity futures. If consumers have high reserves, there is little chance of future scarcity, then profits will be low, whereas low inventories lead to high profits. From here, the marginal opportunity cost profit [C(t, T)] can be incurred since some inventories such as wheat and soybeans are used in the production of intermediate goods such as flour and soybean oil. Or will the profit from the marginal opportunity cost [C(t, T)] of those goods derive from their economic or potential value and actual contribution to production in the economy.

The original theory of storage was made by Holbrook Working (1933). Later, there were studies that contributed new insights into the overall storage model to better explain the determination of commodity prices and their volatility, inventory investment, production growth, and so on. countries and the stability of financial markets (French, 1986; Hazuka, 1984; Hansen and Hodrick, 1980; Working, 1948, 1949; Telser, 1958, 1967; Brennan, 1958; Kaldor, 1939).

2.1.1.4 Risk premium theory

The commodity market-related risk premium theory was developed by researchers to explain the impact of risk aversion when determining commodity prices (Hur S. K. et al. 2018). Standard theory assumes that the existence of uncertainty leads to a risk premium in commodity prices or commodity futures prices if investors are risk averse. According to Sallinen et al. (2011), if an investor is risk averse, accepts risk by buying a commodity or futures contract of a certain commodity, that investor will be based on the base return. That is the risk premium. According to the mainstream corporate finance literature, risk can be appropriately segregated into systematic and unsystematic risk (Waemustafa and Sukri, 2016; Brown et al., 1988; Damodaran, 1999).

2.1.2 Theory of the stock market

2.1.2.1 Definition of stock market and stock market index

The stock market in the world has been established and operated for hundreds of years and is an indispensable part of the financial market. The stock market includes the stock market, the bond market and the derivatives market (Cecchetti, 2006). In which, the stock market is the place to buy, sell and exchange issued shares. The bond market is a market in which medium and long-term debt instruments are traded, allowing the transfer of capital from lenders to borrowers. Derivatives market is a market for buying and selling derivative contracts such as futures contracts, options contracts, swap contracts with the main purpose of transferring risk.

There are different definitions of the stock market. According to The Longman Dictionary of Contemporary English (1985), a stock market is an organized market where securities are traded according to established rules. According to The American Heritage Dictionary of The English Language (1971), the stock market is the place where stocks are bought and sold.

According to Bodie (2013), stock price index, stock trading volume and value are important indicators reflecting the stock market's performance. In which, the stock price index is an index that reflects the change of stock prices at a point in time compared to a certain base time. Stock price indexes are the most important type of market information and are often used by investors in stock investment analysis. Each stock market has built its own stock price index system, which can be calculated for all stocks in the market of a country or for each industry or industry group.

2.1.2.2 Efficient market hypothesis (EMH)

Eugene F. Fama gave the original definition of an efficient market and suggested that stock market prices follow a random walk (Fama, 1965). The first person to define the term efficient market hypothesis, alongside the spread of market efficiency from the weak to the strong form, was Harry Roberts (Roberts, 1967). However, EMH became more widespread with Fama's classification of empirical findings (Fama, 1970) in which the market is said to be efficient when all relevant information about the security itself is possible. are fully reflected in their prices.

Therefore, markets are classified into three distinct levels of efficiency: (i) weak-form efficient markets, (ii) moderately efficient markets, and (iii) strongly efficient markets.

EMH believes that competition between investors - who always want to maximize their profits - ensures that all information will be fully reflected in stock prices, so investors cannot earn money. obtain extraordinary returns by predicting future stock market trends. However, the studies of Gan, Lee and Zhang (2006), Mukhejee and Naka (1995), Rahman, Sidek and Tafri (2009), Narayan, K.P. and Narayan, S. (2010) contradict the conclusion of EMH. These studies confirm that macroeconomic factors clearly influence earnings and stock price index volatility.

2.1.2.3 Random walk theory of stock prices

The results of the work of economist Kendall M. (1973) on stock prices in the market confirm that stock prices change randomly and unpredictably. In other words, the change in the stock price in the market is a "random walk". According to Kedall, if stock prices are predictable and he uses his method to predict stock prices in the near future, then investors will immediately look for ways to achieve consistent returns. tend to buy stocks when they can predict that the stock price will trend up and conversely sell stocks when they predict it will trend down.

Thus, according to this theory, when the stock market is efficient, stock prices will be influenced by many factors such as macro and micro variables. However, the studies of Mukhejee and Naka (1995), Gan C. et al. (2006), Rahman A. A. et al. (2009), Narayan P. K. et al (2014) contradicted this conclusion. These studies confirm that commodity prices and macro factors clearly influence earnings and stock price index volatility. Thus, many empirical studies have shown that in many countries the stock market is inefficient, therefore, stock prices do not really reflect the reality of the market due to the influence of many other factors. to stock prices.

2.1.2.5 Behavioral finance theory

The foundations of normative financial theory include the arbitrage theory of Merton Miller and Franci Modigliani, the Portfolio Theory of Harry Markowitz (Nobel 1990), the CAPM Asset Pricing Model by John Litner and William Sharpe (Nobel 1990) and the option pricing theory of Fischer Black, Myron Scholes and Robert Merton (Nobel 1997) are both based on the assumption of rational people. However, reality shows that the theories and normative models cannot explain the phenomena in the stock market. Behavioral finance theory with the basic principle that "the market is not always right and investors are not always rational" has created a great counterpoint to the efficient market theory - the principle of fundamentals of normative financial theory.

Behavioral finance theory is a combination of psychology and finance, formed and developed quite late compared to the standard financial theories. Since the 1880s, when the French psychologist Gabriel Tarde began to study the application of psychology and economic science, it was not until the 1980s that the applications of psychology in finance made a significant

development. tell. With the background studies of Kahneman and Tversky (1979), Thaler R. (1985), and especially Robert Shiller (2005) accurately predicted the collapse of the global stock market not long after.

2.1.3 Theory of impact of commodity prices on the stock market

2.1.3.1 The spillover effect of global commodity prices on domestic commodity prices

According to Samuelson (1952), domestic prices are linked to world market prices mainly through commercial transactions. When domestic prices are linked to international prices of the same good, fluctuations in international prices also have effects on domestic prices. The degree of variation is expressed in cross-price elasticity of demand, expressed as a percentage change in domestic commodity prices relative to a percentage change in international commodity prices.

2.1.3.2 Theory of spillover effects

Theoretically, spillovers determine the speed of information flow from one market to another (Shen et al., 2018), and the direction of spillover represents the direction of information flow. Specifically, if market A has a spillover of volatility to market B, then information about market A (such as shocks and price movements) will be transmitted to market B, contributing to on price movements in the market B. On the other hand, from the point of view of modern financial theory, volatility represents the risk of an asset. Thus, the essence of volatility spillovers is the transmission of risk across markets.

Through volatility spillovers, many previous studies have shown that there is an increased correlation between both markets, making commodities a safe-haven hedge for investing in the stock market. This is an issue of interest to many researchers, policy makers, producers, academics, media and consumers (Olson et al., 2014). When the stock market goes through a period of uncertainty, commodities are considered a safe haven relative to stocks (Sensoy, 2013). Investors are very interested in commodity market volatility to find out the direction of commodity and stock prices (Choi and Hommoudeh, 2010). Mixed portfolios provide a higher level of hedging for both emerging and developed markets, leading to increased participation by those looking to mitigate risk by trading both stocks and shares. bonds and commodities (Boako, G. and Alagidede P., 2016).

2.2 Overview of previous studies

2.2.1 The impact of global commodity prices on the stock market price index.

Considering the influence of global commodity prices and macro factors on stock markets, researchers have addressed individual countries (Nabila N., 2016; Gaderi S. & Shahrazi M. ., 2020) or for groups of countries (Robert J. & Luc S., 2009; Khan et al., 2015; Kang W. et al., 2018; Lukman O. & Dauda Y., 2019; Basher et al. events, 2019). Among them, there are stock markets that respond immediately to changes in global commodity prices, but there are also stock markets that can avoid external shocks.

2.2.1.1 Impact of agricultural prices on the stock market.

Girardi, D. (2015), Baldi L. et al (2016), Hernandez J. A. et al (2020) conducted a study on the effect of agricultural prices on the stock market. Use different regression methods, in different stages and contexts. The results show that there is a correlation between changes in agricultural prices and the stock market.

2.2.1.2 Impact of energy prices on the stock market.

Ulrich O. (2009) focuses on assessing the impact of energy prices on the European stock market, the sample period analyzed from January 2002 to August 2007, by OLS estimation and GARCH method. Ergun U. and Ibrahim, A. (2013) investigate the impact of global energy prices, global crude oil prices, and global natural gas prices on ISE100 stock price index volatility, with row datasets months spanning 6 years from 2005 to 2011 using the VAR model. Cong, R.G. and Shen, S. (2013) study the interaction between energy price shocks and the Shanghai stock market, using the ADF test and the multivariable vector autoregression method VAR for the weekly dataset. January 2000 to December 2010. Mohammad ZH (2017) covers the transmission of international energy prices to different sectors of the Australian stock exchange from January 2003 to May. December 2015. In addition, Felix CA et al. (2019), Manal A. and Tamat S. (2020), Ahmed MY and Sarkodie SA (2021) also investigated the influence of energy prices on the stock market as well. . Studies show that there is an effect of energy prices on the stock market.

2.2.1.3 Impact of metal prices on the stock market

Lee E.K. (2014) studied the relationship between stock price indexes and metal prices and other financial variables, from January 2000 to December 2009. Partalidou X. et al. (2016) examined the effect. metal prices, along with economic and financial variables, on the Dow Jones Industrial Average (DJIA) using daily data for the sample period from March 21, 1995 to May 30, 2014. Irandoust, M. (2017) examines the effect of metal prices on stock price indexes of 10 European countries from January 2011 to September 2016. Mensi W. et al (2017) study spread between precious metals (gold, silver, palladium and platinum) and major stock markets from January 2000 to May 2016. The results of studies show that the stock market reacts to metal prices.

2.2.2 The impact of other macroeconomic factors on the stock market.

Researchers Rizwan M. S and Khan SU (2007), Abugri (2008), Khan MN et al. (2015), Nabila N. (2015), Gadan DS et al. (2018) found evidence of Global securities also play a decisive role in the domestic stock market, the degree of influence is different depending on the integration ability of each stock market.

Besides, there are not only studies in the world that consider the stock market's reaction to the fluctuations of domestic macroeconomic factors such as: exchange rate (Christopher MB et al., 2001). ; Geetha et al., 2011; Naik and Padhi, 2012; Baroian E., 2014; Rimantas R. and Roma

V., 2014; Lida N. &Abu HSMN, 2016); Economic growth (Beck T. and Levine R., 2002; Ibrahim and Aziz, 2003; Rahman et al., 2009; Charles AY, 2010; Hsing, 2011; Naik and Padhi, 2012; Trivei and Behera, 2012; Al -Mamun M., 2013; Mohd RM et al., 2013; Khan MN, et al., 2015; Pradhan RP et al., 2015, Kishorsinh NC and Tarsariya MK, 2018); Consumer Price Index (Bilson et al., 2001; Christopher MB et al., 2001; Engle and Rangel, 2008; Humpe and Macmillan, 2009; Wongpangpo P. and Subhash CS, 2002; Mahmood S. et al., 2017 ; Pradhan RP et al., 2015; Ravindra NP, 2016; Abbas G. et al., 2018); Interest (Mohd R. M. et al., 2013; Khan M. N. et al., 2015; Tibebe A., 2016; Mahmood S. et al., 2017; Rachael N. & Moses W., 2017).

2.4 Research gaps

From the research overview and theoretical framework on the impact of global commodity prices and other macroeconomic factors on the stock market, the thesis identifies: (1) Most of the studies on the relationship relationship between global commodity prices and stock markets, but considering for developed countries or groups of countries, there has not been much research in emerging market countries and there is still space for Southeast Asian countries; (2) Many previous literature mentions the separate correlation between agricultural prices, energy prices or metal prices on the stock market, but there is a lack of comprehensive research on the effects of these components for different factors. developing country; (3) Previous studies on the correlation between global commodity prices and the stock market, most of the studies used domestic macroeconomic variables such as exchange rate, inflation, and interest rates without external macro variables such as global stock indexes.

CHAPTER 3: METHODOLOGY.

3.1 Research Process

3.2 Hypotheses and models

The study establishes an empirical model by regressing panel data to estimate the impact of global commodity prices and other macroeconomic indicators on the stock market for a group of six Southeast Asian countries. The regression model for country i and at time t is represented in the following equation:

$$SI_{it} = \mu_i + \beta_1 GCPI_{it} + \beta_2 MWI_{it} + \beta_3 ER_{it} + \beta_4 CPI_{it} + \beta_5 IR_{it} + u_{it} \quad (3.1)$$

Where: SI_{it} is the stock market price index of country i at time t; μi is the intercept factor; β1-6 is the slope coefficient; GPI_{it}, WIit, CPIit, ERit, IRit are the proxy variables for global commodity prices, MSCI's global stock index, inflation rate, exchange rate, and interest rates for country i in time t; μi represents the fixed effect by country; uit is the random error of all other factors affecting the stock market index. All variables are converted to natural logarithms..

Based on research by Wang Y.M. et al (2013), Irandoust, M. (2017), Lukman O. and Dauda (2019) to estimate the long- and short-term effects of global commodity prices and their components on the stock market , the proposed model is as follows:

$$Y_{it} = \beta_0 + \beta_1 Y_{it-1} + \beta_1 X_{it} + \beta_2 Z_{it} + e_{it} \quad (3.2)$$

In which, Y is the stock market index; X are the independent variables respectively (global commodity prices, agricultural prices, energy prices, metals prices); Z is the set of control variables (MSCI global stock index, exchange rate, inflation rate, interest rate); The indices i and t correspond to country and time.

According to Pesaran et al. (2001), MG and PMG models suggest dynamic heterogeneous panel regression that can be integrated into the error correction model by using distributed delay ARDL (p, q) technique. generation, p is the lag of the dependent variable, q is the lag of the independent variables, from which equation (3.2) is specified as follows:

$$\Delta SI_{i,t} = \sum_{j=1}^{p-1} \gamma_j^i \Delta SI_{i,t-j} + \sum_{j=0}^{q-1} \delta_j^i \Delta X_{i,t-j}^{API+\cdots} + \varphi^i \left[SI_{i,t-1} - \left\{ \beta_0^i + \beta_1^i \Delta X_{i,t-j}^{API+\cdots} \right\} \right] + \varepsilon_{i,t-1} \quad (3.2.1)$$

$$\Delta SI_{i,t} = \sum_{j=1}^{p-1} \gamma_j^i \Delta SI_{i,t-j} + \sum_{j=0}^{q-1} \delta_j^i \Delta X_{i,t-j}^{API+\cdots} + \varphi^i \left[SI_{i,t-1} - \left\{ \beta_0^i + \beta_1^i \Delta X_{i,t-j}^{API+\cdots} \right\} \right] + \varepsilon_{i,t-1} \quad (3.2.2)$$

$$\Delta SI_{i,t} = \sum_{j=1}^{p-1} \gamma_j^i \Delta SI_{i,t-j} + \sum_{j=0}^{q-1} \delta_j^i \Delta X_{i,t-j}^{EPI+\cdots} + \varphi^i \left[SI_{i,t-1} - \left\{ \beta_0^i + \beta_1^i \Delta X_{i,t-j}^{EPI+\cdots} \right\} \right] + \varepsilon_{i,t-1} \quad (3.2.3)$$

$$\Delta SI_{i,t} = \sum_{j=1}^{p-1} \gamma_j^i \Delta SI_{i,t-j} + \sum_{j=0}^{q-1} \delta_j^i \Delta X_{i,t-j}^{MPI+\cdots} + \varphi^i \left[SI_{i,t-1} - \left\{ \beta_0^i + \beta_1^i \Delta X_{i,t-j}^{MPI+\cdots} \right\} \right] + \varepsilon_{i,t-1} \quad (3.2.4)$$

3.3 Data

The study uses data from January 2007 to December 2020. With stock price indexes sourced from the Stock Exchange website including the Jakarta Stock Index of Indonesia (JCI), the Stock Index Malaysia Stock Index (KLCI), Philippine Stock Index (PSEI), Singapore Stock Index (STI), Thailand Stock Index (SET), Vietnam Stock Index (VNI). Global commodity prices, components and control variables representing domestic macroeconomics collected from the International Monetary Fund (IMF), only the global stock index is sourced from MSCI.

The study uses data from January 2007 to December 2020. With stock price indexes sourced from the Stock Exchange website including the Jakarta Stock Index of Indonesia (JCI), the Stock Index Malaysia Stock Index (KLCI), Philippine Stock Index (PSEI), Singapore Stock Index (STI), Thailand Stock Index (SET), Vietnam Stock Index (VNI).

Table 3.3 Summary of the variables

Variable	Code	Source
Variable of the stock market		
Stock market index	SI	Stock exchanges of Southeast Asian countries
Variable of Global commodity and components		
Global commodity index	GPI	IMF
Agricultural commodity index	API	IMF
Energy commodity index	EPI	IMF

Metal commodity index	MPI	IMF
Control variable - other macroeconomic variables		
World stock index	WI	MSCI
Exchange rate	ER	IMF
Inflation rate	CPI	IMF
Interest rate	IR	IMF

(Source: computed by the author)

3.4 Analyses

To study the impact of global commodity prices on stock markets of Southeast Asian countries by month for the period 2007-2020, a balanced panel data is performed on Stata software. The combination of cross-sectional data and time-series data in panel data has many advantages and advantages in analysis, especially when you want to observe and analyze the changes of the research subjects' groups after the events. or over time as well as analyze the differences between the study groups. To achieve the research objectives, the author uses a combination of qualitative and quantitative analysis methods. For the quantitative analysis method, the stationarity test, the cointegration test, as well as the MG and PMG models were used to analyze the long-term impact of the study. Accordingly, the MG model (Pesaran and Smith, 1995) allows for differences in both short-run and long-run coefficients between panel units. The PMG model (Pesaran and Shin, 1999) allows short-run estimators such as cut-off coefficient, short-run coefficient, and variance of error to vary across panel units, but long-run coefficients to be the same across groups. . Both of the above estimators consider the long-run equilibrium, the heterogeneity of the dynamic adjustment process, and are calculated according to maximum likelihood (Demetriades and Law, 2006). However, in order to assess between MG and PMG which estimator is more suitable, the Hausman test is used to test this problem (Pesaran, Shin and Smith, 2001). In addition, use DGMM models to reinforce the research results.

CHƯƠNG 4: RESULTS AND DISCUSSION.

4.1 Global commodity prices and stock markets in Southeast Asian countries

4.1.1 Global commodity prices volatility

Global commodity prices were volatile in the years 2007 to 2009, with slight corrections months before the financial crisis. Most commodity prices are set to remain high in 2011 and weaken only moderately through 2013, reflecting continued strong demand, low inventories and associated supply constraints. continued in some cases. From 2010 to mid-2014, although there were times of adjustment, global commodity prices and components also tended to increase. In general for the period 2007 - 2020 global commodity prices reached the highest level in July 2008

and the lowest in April 2020. The components of global commodity prices also fluctuated over time.

4.1.2 Stock markets in Southeast Asian countries

Southeast Asian stock markets have grown significantly in size in recent years, with increasing regional financial integration, capital account liberalization and improved market structure. Since then, the Southeast Asian stock market has emerged as a bright spot that offers many opportunities and is attractive with strong international capital flows. Investors around the world are also more interested in stock markets such as Singapore and Malaysia, Thailand, Indonesia, Philippines and Vietnam. From 2000 to 2020, stock price indexes of six Southeast Asian countries are considered to develop in an uptrend, notably there are two timelines in 2008 with the influence of the financial crisis, and in 2020 due to the impact of the financial crisis. Due to the Covid epidemic, the market adjusted down and volatility increased in the following year. It should also be recognized that Asia in general, the ASEAN region with developing economies, are susceptible to many influences and are sensitive to changes in the external environment.

4.2 Results

4.2.1 Descriptive statistics and correlation analysis

The results show that most of the explanatory variables have a relatively low correlation, only a few pairs of variables have a significant correlation. In which, agricultural prices, energy prices, metal prices, as components, are strongly correlated with global commodity price.

4.2.2 Panel unit root test and anel cointegration test.

4.2.2.1 Panel unit root test

The unit root test results show that each variable has a different integration level in the order of integration 0 ie I(0) and in the order of integration 1 ie I(1), or there are stationary variables of order 0, there are stationary variables of order 1. On the basis of stopping the mixed I(0) and I(1) of the variables, the study continues to perform the panel data cointegration test in the next section.

4.2.2.2 Panel Cointegration Tests

At 1% significance level, global commodity prices, along with their components and all other macroeconomic variables including the MSCI global stock index, exchange rate, consumer price index Both domestic and lending rates are co-linked with stock market indices of selected countries. Therefore, the model applied in the study suggests the possibility of long-term and short-term correlations between Southeast Asian stock markets and global commodity prices, their components, and economic variables. other macro.

4.2.3 Results of model estimation

4.2.3.1 Results of the impact of global commodity prices on the stock markets in Southeast Asian countries.

- Results of DGMM

The research results show that the regression coefficient of GPI in the DGMM estimation method has a positive sign and is statistically significant at 1%, showing that there is a positive relationship between global commodity prices and the market. stocks in Southeast Asian countries.

For stock market index variables, the regression coefficients of MSCI's global stock index, exchange rate, inflation rate, lending rate, and stock market index for the previous period are also significant. Statistics with stock market index.

Table 4.11. Results of the impact of global commodity prices on the stock markets of Southeast Asian countries from DGMM

SI	Coef.	Std. Err.	t	P>t
GPI	0.2581***	0.0574	4.50	0.000
WI	1.4670***	0.0893	16.99	0.000
ER	0.2397***	0.0316	7.59	0.000
CPI	-1.4794***	0.6921	-2.14	0.000
IR	-0.1580***	0.0577	-2.14	0.033
SI(-1)	0.1969**	0.0215	9.16	0.033
AR(1) p-value	0.000			
AR(2) p-value	0.833			
Sargan test (p-value)	0.273			
Hansen test (p-value)	1.000			
Number of groups	6			
Number of instruments	5			
Second stage F-test P-value	0.000			

(*Source: Calculated results from STATA*)

- Results of the PMG and MG estimations

Table 4.13 Results of assessing the impact of global commodity prices on Southeast Asian stock markets from the PMG and MG estimations

Dependent variable:	**PMG**		**MG**	
SI	Coefficients	Std. Error	Coefficients	Std. Error
Long-term cointegration vectors (Long-run coefficient)				
GPI	-0.376***	0.129	-0.184*	0.127
WI	0.657***	0.125	0.759***	0.098
ER	-0.404**	0.341	-0.582	0.363

CPI	1.552***	0.597	0.169*	1.139
IR	-0.241**	0.147	-0.189**	0.549
Short-term dynamics (Short-term coefficients)				
Error Correction Term	-0.202***	0.027	-0.198***	0.023
ΔGPI	0.209**	0.163	0.202*	0.116
ΔWI	0.116*	0.338	0.055*	0.038
ΔER	0.674***	0.085	0.642***	0.082
ΔCPI	0.918***	0.297	0.789**	0.292
ΔIR	-1.226*	0.738	-1.294*	0.733
C (constant)	-0.947*	0.539	-0.971	0.537
Number of observations	924		924	
Number of groups	6		6	
Hausman Test	6.81			
Pvalue	0.4601			

(*Source: Calculated results from STATA*)

Akaike's information criterion - AIC (Akaike, 1974) was used to determine the optimal number of lags for each variable in all models by reference and the result obtained was 1, when taking the number of lags maximum is 2.

The PMG model results about 20.2% of the imbalance in one quarter will improve in the next month and approach the long-term balance. Or the ECT error correction factor of -0.202 reflects the time it takes for the LSI to return to equilibrium. According to Hausman's test, with hypothesis H0, PMG estimator is more effective than MG estimator, because p-value > significance level α (5%), so this hypothesis cannot be rejected. . Thus, it can be concluded that PMG is a more effective estimator than MG and subsequent analyzes will be based on the results of the PMG model.

The estimated results of PMG show that the GPI variable has insignificant negative impact on SI in the long run and positive in the short term; WI is significantly positive for SI in the short and long term; ER has a negative effect on the SI in the long run and a positive effect in the short term; CPI in the long run has a significant positive effect on SI but in the short term it has a negligible negative effect; whereas, IR has negative effects in both long and short term on SI.

Global commodity prices are statistically significant at the 5% level for the Indonesian and Thai stock markets in the short run, while for the Philippines, Singapore and Vietnam stock markets they are statistically significant at the 10th level. %, but has no meaning for Malaysia. The volatility of global commodity prices can be seen affecting the stock markets of Singapore, Thailand, Indonesia, the Philippines and Vietnam. For an integrated economy, fluctuations of the world market are always related to the domestic market. These effects are shown very quickly

through the stock price index of Southeast Asian countries, but not for Malaysia. This finding suggests that the Malaysian stock market can provide an effective hedge against fluctuations in world commodity markets or is it information efficient for global commodity prices. However, this hedging effect does not occur in the case of Singapore, Thailand, Indonesia, Philippines and Vietnam.

Table 4.14 Results of short-run coefficients in the selected Southeast Asian countries

	Indonesia	**Malaysia**	**Philippin**	**Singapore**	**Thái Lan**	**Việt Nam**
ΔSI(-1)	0.347** 0.044	-0.033 0.152	-0.052 0.276	0.205** 0.057	-0.131** 0.037	0.107* 0.186
ΔGPI	-0.152** 0.032	0.078 0.105	0.249* 0.072	0.146** 0.045	0.103* 0.079	-0.121* 0.051
ΔWI	0.631*** 0.000	0.557*** 0.000	0.564*** 0.000	0.825*** 0.000	0.418*** 0.000	0.995*** 0.000
ΔER	-0.973*** 0.000	0.485** 0.049	-1.312*** 0.000	0.204* 0.039	-2.099*** 0.000	-0.736 0.277
ΔCPI	-0.294* 0.076	-2.019*** 0.000	-3.399*** 0.000	-2.344*** 0.002	1.667* 0.067	-0.938* 0.053
ΔIR	-1.711*** 0.000	-0.303* 0.081	-0.647*** 0.004	-3.373* 0.062	-0.703*** 0.000	-0.129** 0.041
Tốc độ điều chỉnh	-0.198*** 0.000	-0.169*** 0.000	-0.170*** 0.003	-0.216*** 0.000	-0.159** 0.014	-0.334*** 0.000
C(cons)	-0.115* 0.082	0.132* 0.087	0.167** 0.035	0.206* 0.071	0.231** 0.042	0.328* 0.059

(*Source: Calculated results from STATA*)

4.2.3.2 Results of the impact of agricultural prices, energy prices, metal prices on stock markets of Southeast Asian countries.

Table 4.15 Results of assessing the impact of agricultural prices, energy prices, and metal prices on stock markets in some Southeast Asian countries from the PMG and MG estimations.

Dependent variable: LSI	**MH 3.4 (API+)**				**MH 3.5 (EPI+)**				**MH 3.6 (MPI+)**			
	PMG		**MG**		**PMG**		**MG**		**PMG**		**MG**	
	Coefficients	Std. Error	Coefficients	Std. Error	Coefficients	Std. Error	Coefficients	Std. Error	Coefficients	Std. Error	Coefficients	Std. Error
Long-term cointegration vectors (Long-run coefficient)												
API	0.137***	0.190	0.128**	0.120								
LEPI					-0.283***	0.078	-0.207***	0.066				
LMPI									-0.204***	0.104	-0.195***	0.028
LWI	0.799***	0.125	0.883***	0.117	0.669***	0.117	0.712***	0.076	0.676***	0.121	0.750***	0.118

LER	-1.256***	1.320	-1.093*	0.402	-0.387**	0.039	-0.438**	0.342	-0.249**	0.279	-0.501***	0.748
LCPI	1.586**	1.638	1.396	1.068	1.777***	0.546	0.536**	0.987	0.313*	0.526	1.221	0.747
LIR	-0.352**	0.610	-0.292	0.501	-0.221**	0.241	0.540	0.129	-0.207**	0.165	-0.213	0.431
Short-term dynamics (Short-term coefficients)												
ECT	-0.163***	0.026	-0.199***	0.103	-0.179***	0.039	-0.205***	0.034	-0.212***	0.025	-0.194***	0.029
ΔSI(-1)	-0.206*	0.157	-0.179*	0.165	-0.012	0.018	-0.019	0.012	0.368***	0.121	0.305***	0.104
ΔLAPI	0.086	0.124	0.093	0.121								
ΔLEPI					-0.105**	0.208	0.102*	0.239				
ΔLMPI									0.163***	0.035	0.157***	0.040
ΔLWI	0.709***	0.120	0.671***	0.108	0.664***	0.077	0.637***	0.074	0.595***	0.810	0.563***	0.066
ΔLER	1.017***	0.331	-0.897***	0.341	0.902***	0.300	0.794***	0.294	0.780***	0.299	0.706**	0.289
ΔLCPI	-1.218*	0.678	-1.324**	0.664	-1.240*	0.694	-1.291*	0.697	-1.222*	0.680	-1.309*	0.703
ΔLIR	-0.848*	0.514	-0.860	0.508	-0.943*	0.531	-0.957*	0.524	-0.620**	0.316	-0.622**	0.580
C (constant)	0.103**	0.108	0.160*	0.100	-0.114*	0.106	-0.118**	0.086	-0.103*	0.102	0.101*	0.105
Number of observations	924		924		924		924		924		924	
Number of groups	6		6		6		6		6		6	
HausmanTest	6.13				5.96				8.22			
Pvalue	0.4007				0.3291				0.5403			

(*Source: Calculated results from STATA*)

Hausman test (Yerdelen, 2013) is used to choose the MG or PMG estimator, with the hypothesis H0 that the PMG estimator is more efficient than the MG estimator. All 3 models have p-value > significance level α (5%), so this hypothesis cannot be rejected. Thus, it can be concluded that PMG is a more effective estimator than MG in all three models to assess the impact of agricultural price index, energy price and metal price on Southeast Asia stock market index. , so the next analysis will be based on the results of the PMG model.

The results for the API variable are found to have a positive effect on SI in the long run at 1% significance level but no effect in the short term. Accordingly, when the agricultural index grows, the stock market index will increase in Southeast Asia in the long term.

The EPI variable has a negative effect on SI in the long run with 1% significance level and short term with 5% significance level, meaning that an increase in the energy price index will cause the stock market price index to decrease and vice versa. .

The MPI variable has a negative effect on SI with 1% significance in the long run, or an increase in the metal price index variable will cause the stock market index to fall. In the short term, metal prices also have an influence on the Southeast Asian stock market index with a significance level of 1%.

4.3 Discussion

4.3.1 Impact of global commodity prices on the stock market of Southeast Asian countries.

The research results show that global commodity prices have a negative impact on the Southeast Asian stock market price index in the long run. In the context of deeper and deeper integration into the world economy of countries in Southeast Asia, fluctuations in global commodity prices will not only have a direct impact on the country's imports of goods. countries but also create indirect effects on domestic commodity prices. In addition, for companies that are dependent on the import of input materials, when global commodity prices increase, import costs increase, causing input costs to increase and affecting total costs. costs, revenues and profits of businesses in the economy, as well as companies on the stock market. Thus, in the long-term, the stock market of the group of Southeast Asian countries, although insignificant, is also affected by global commodity prices, which is also consistent with the research of Robert J. & Luc S. (2009), Kang W. et al (2018), Basher S. A. et al (2019).

In the short term, the global price index has a positive impact on the stock markets of Southeast Asian countries, that is, the world commodity price index has a certain positive influence on the stock markets of the East Asian countries. South Asia. Thus, together with the fact that Southeast Asian countries have all made progress in exports, in which Thailand and Vietnam have made a remarkable breakthrough, and at the same time, due to the trend of globalization and integration with other economies. In the world, goods exported to the world by Southeast Asian countries are also affected when world commodity prices fluctuate. Therefore, the rising fluctuations in global commodity prices also create incentives for exporting companies, both increasing the company's profit margin and creating favorable information leading to the share price of the companies belonging to the group. The export sector in particular and the stock price index also showed a positive direction. Thus, the studies of Elena F. et al (2014), Lukman O. & Dauda Y. (2019) also suggest that the increase in world commodity prices in the short term creates motivation for the stock markets of many countries. both individually and globally.

4.3.2 The impact of global commodity prices and macroeconomic factors on the stock market of each selected Southeast Asian country.

Research results show that global commodity prices have an impact on the stock markets of Singapore, Thailand, Indonesia, the Philippines and Vietnam. For an integrated economy, fluctuations of the world market are always related to the domestic market. These effects are shown very quickly through the stock price index of Southeast Asian countries, but not for Malaysia. This finding suggests that the Malaysian stock market can provide an effective hedge against fluctuations in world commodity markets or is it information efficient for global commodity

prices.. However, this hedging effect does not occur in the case of Singapore, Thailand, Indonesia, the Philippines and Vietnam.

Other macroeconomic variables also have different meanings for the stock markets of each Southeast Asian country. In which, the MSCI global stock index variable has a significant positive impact on the stock markets in all six selected Southeast Asian countries. Thus, the stock markets of Southeast Asian countries are integrated and influenced by the world stock market.

For Vietnam's stock market, global commodity prices had a negative impact, showing an increase in world commodity prices in the short term accompanied by unstable signals that could cause concern for investors to sell. divestment of commodity stocks, has led to a negative reaction for commodity stock prices in particular and stock price indexes in general. In addition, the increase in world commodity prices may affect domestic commodity prices, creating increased domestic inflation pressure, thereby increasing risks on Vietnam's stock market. The increase in world commodity prices also affects businesses that depend on foreign goods. Specifically, companies in the field of transportation, production of animal feed or production of petroleum-based input products were also significantly affected when the world price of this material increased sharply, while Vietnam The South is an importer of petroleum. In fact, the high price of gasoline has an indirect impact on most industries through logistics and transportation costs. Besides, Vietnam's stock market is influenced by MSCI's global stock price index, for domestic macro variables, lending interest rates and inflation rates also have certain influences on stock price index.

4.3.3 Impact of agricultural prices, energy prices, metal prices on stock markets of Southeast Asian countries.

As the agricultural price index rises, the stock market index will correct Southeast Asia in the long run. Southeast Asian countries are strong exporters of agricultural commodities such as rice, coffee, rubber, wood, cotton, etc., so the increase in prices of these commodities in the world more or less has a stimulating effect. stimulate export growth, increasing revenue and profit for companies exporting their respective products, thereby also affecting the stock price of this company and creating positive impacts on the stock price index. securities in Southeast Asian countries.

Energy goods including crude oil, natural gas or coal are considered inputs in the production process. Therefore, the economy of every country in the world depends directly or indirectly on this fuel source, including Southeast Asian countries.

Basically, when the price of precious metals decreases, people will tend to invest in the stock market more, increasing the stock price. Conversely, when the price of precious metals increases, investors will tend to invest more in the precious metal market leading to a decrease in stock prices.

CHAPTER 5: CONCLUSION AND IMPLICATIONS

5.1 Conclusion

The overall objective of the study is to assess the impact of global commodity prices and other macroeconomic variables on Southeast Asian stock markets. From this general goal, the study has developed into specific objectives including: (1) Assessing the impact of global commodity prices on the Southeast Asian stock market; (2) Assess the impact of other control variables including global stock index, exchange rate, inflation, interest rate on Southeast Asian stock market; (3) Assessing the impact of global commodity prices on the stock market price index of each selected Southeast Asian country; (4) Assess the impact from the components of global commodity prices including agricultural prices, energy prices and metal prices on Southeast Asian stock markets.

The first objectives are to evaluate the impact of global commodity prices and other control variables on the stock markets of Southeast Asian countries. This means that there must be an overview of whether the errors of the variables are moving in the same direction. Therefore, all independent variables including global commodity prices and other macro variables are considered at the same time in the analysis. In the previous chapter, the regression coefficients for each independent variable were estimated. Research results from DGMM estimates show that global commodity prices have an impact on Southeast Asian stock markets. As global commodity prices fluctuate, it has implications for multinational companies, consumer reactions, national economies and stock markets. The results of this study are consistent with the results of previous studies (Kang W. et al., 2018; Ghaderi S. & Shahrazi M, 2020).

The PMG model results show a negative influence of global commodity prices and stock markets of selected Southeast Asian countries in the long run, which is consistent with research Robert J. & Luc S. (2001), Nabila Nisha (2016), Lukman O. and Dauda Y. (2019). Also, under the efficient market hypothesis, it is assumed that stock prices contain public information and that it is not possible to forecast stock prices using this information or by using other market price indexes. If two markets are not co-integrated, it means that the efficient market hypothesis has been violated because one market contains enough information that one can predict the behavior of the other financial market. Research results show that with co-integration between the two markets, losses in one market cannot be offset by gains in another and it also reduces the number of assets available to investors. from which they can hedge risk. Since the impact from global commodity prices on the Southeast Asian stock market is small, it can be concluded that both markets are relatively independent and offer good opportunities for investors to diversify. their investment portfolio. In the short term, global commodity prices have a positive but insignificant

effect on the stock markets of selected Southeast Asian countries. This result is also consistent with study Elena F. et al (2014), Lukman O. and Dauda Y. (2019).

Besides, the MSCI global stock index has a significant impact on the stock markets of Southeast Asian countries in both the long and short term. This shows that the stock markets of Southeast Asian countries have undergone transformations in the process of globalization and volatility in a large market will bring about related efficiency in the group of emerging markets as classified. accounted for in this study. Domestic macroeconomic factors including exchange rate, inflation rate, lending interest rate also have a long-term impact on the stock markets of Southeast Asian countries. The inflation rate also has a negative effect on the stock market in the short term and a positive effect in the long run. This result implies that although rising inflation represents instability in the economy, negatively affecting the stock market in the short term, in the long term, the market will efficiently allocate resources by adjustment to the general increase in prices. Stocks are a pretty good hedge against inflation, but only in the long term. In the short term, inflation and stock prices can completely have an inverse relationship. Rising inflation can cause stock prices to fall, and vice versa. It is true that there is evidence that the stock market has helped investors avoid inflation risk for a long time.

Thus, the results obtained from the DGMM and PMG models show that the Southeast Asian stock market price index is influenced by global commodity prices and macroeconomic factors. Thus, it may be because the ASEAN stock market is quite sensitive to changes in economic activity. Commodity prices have a number of positive as well as negative effects on stock market performance. This demonstrates that the argument that financial markets are efficient cannot be sustained empirically for Southeast Asian economies.

With the second objective, the thesis also assesses the impact of the global commodity price index on the stock market of each Southeast Asian country including Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. Global commodity prices caused an impact on the stock markets of Singapore, Thailand, Indonesia, the Philippines and Vietnam. Other macroeconomic variables also have different meanings for the stock markets of each Southeast Asian country. The Malaysian stock market alone is informative in terms of global commodity prices. The MSCI Global Equity Index has a positive impact on stock markets in all six selected Southeast Asian countries. The exchange rate has a significant negative impact on the stock markets of Thailand, Indonesia, Malaysia and the Philippines. The domestic consumer price index has a positive impact on the Singapore and Thailand stock markets; negative impact on the Indonesian stock market; negligible impact on the stock market of Malaysia, Philippines and Vietnam. Meanwhile, interest rates are significantly negative for stock markets in selected Southeast Asian countries, except for the Philippines. For Vietnam stock market, global

commodity prices and inflation rate have a positive effect, MSCI global stock index has a positive relationship with stock market, but lending rates have the opposite effect. This proves that except for MSCI's global stock price index, Vietnam's stock market is influenced but too much by the global commodity price index and domestic macroeconomic variables such as interest rates for foreign investors. loans and the inflation rate.

The third objective is to examine the impact of global commodity price components including agricultural prices, energy prices, and metal prices on the stock markets of Southeast Asian countries. The results of the PMG model show that the agricultural price index has a negative effect on the stock markets of selected Southeast Asian countries, but in the long term but not in the short term. At the same time, there is a negative impact of energy prices on Southeast Asian stock markets in both the long and short term. In addition, metal prices only have a significant negative impact on the Southeast Asian stock market index in the long term, but in the short term it has a negligible effect. This result is consistent with the studies of Robert J. & Luc S. (2009), Wang Y. et al (2013). Thus, the possibility of arbitrage is excluded and the stock markets of selected Southeast Asian countries can be considered informatively efficient for agricultural prices in the short run.

5.2 Implications

Research results show that global commodity prices are significantly related to stock market indexes of Southeast Asian countries. Therefore, central banks should use the domestic macro variable as a tool to regulate the economy. Global commodity prices have negligible negative impact in the long run and positive short term on the stock markets of Southeast Asian countries. Besides, agricultural prices, energy prices and metal prices also have an influence on Southeast Asian stock markets both in the long term and in the short term, with the exception of agricultural prices which are not significant in the short term. In addition, the global stock market index also has a significant impact on the Southeast Asian stock market index both in the short and long term. Therefore, any study that does not include a global stock market index will miss an important variable in the regression analysis. Policymakers need to keep an eye on external macro factors such as global commodity prices, agricultural prices, energy prices, metals prices, and global stock indexes to forecast the potential impact. their potential to the stock markets of Southeast Asian countries when any changes occur. Agricultural prices alone have no effect on Southeast Asian stock market indexes in the short term, the policy implication of this finding is that changes in agricultural prices cannot predict Southeast Asian stock market prices. . Therefore, the possibility of arbitrage is excluded and the stock markets of the countries can be considered informationally efficient with respect to agricultural prices. This also has important policy implications for domestic and foreign institutional investors and portfolio managers as the above finding can aid in

structuring tightly traded portfolios. tight. Thus, the movement of the capital market cannot be separated from the movement of commodity prices. Understanding the importance of the relationship between global commodity prices and stock market movements in Southeast Asian countries is expected to be important information for investors in diversifying their risks. financial assets and take intermediate steps to mitigate losses from fluctuations in world commodity prices.

The significant short- and long-term effects of the global stock index on the stock market index also highlight the importance of external shocks to Southeast Asian stock markets, and at the same time demonstrating the integration ability of the stock markets of these countries with the world stock markets. Investors in these markets in addition to the domestic market may have to look beyond the global economic environment to determine their full exposure to risk, especially in terms of portfolio diversification. private. The increasing integration of these markets with the global economy may increase the likelihood of exposure to external shocks such as capital reversals and international capital market activity. Considering the extrinsic nature of these global variables, domestic policymakers can design mechanisms to limit or counteract global shocks. Careful policy formulation, effective sequencing and implementation can help to minimize as well as eliminate their adverse effects.

In order to maintain a healthy domestic stock market, selected Southeast Asian governments have devised their own strategies for monitoring global commodity prices, global stock indexes, and controlling domestic macro factors.

Indonesia

Malaysia

Philippin

Singapore

Thái Lan

Việt Nam

Research results show that Vietnam's stock market is quite sensitive to global commodity prices. The increase in world commodity prices has partly motivated the company's activities, leading to a positive reaction of the stock price in particular and the stock price index in general. Today, capital market movements are inseparable from the volatility of commodity prices and global macroeconomic variables. Understanding the importance of the relationship between macroeconomic variables and the stock market is expected to be important information for investors and policy makers. Policies can affect economic growth, particularly in diversifying financial asset risks and taking intermediate steps to mitigate damage from fluctuations in world commodity prices.

MSCI's global stock index has a positive relationship with the stock market, showing the progress of Vietnam's stock market in the process of integration with the global economy and stock market. The problem is that policy makers need to monitor world macro variables such as commodity prices or global stock shocks to make appropriate adjustments for the economy and domestic stock market. .

Besides, the research results from the model also show that Vietnam's stock market index also reacts to changes in domestic commodity prices. That is, when there is an increase from CPI, the stock index will react to decrease. This is empirical evidence as a reference for policy makers in maintaining a moderate inflation rate for the economy to not only help stabilize the macro-economy, but also stimulate business expansion. production, increase employment, but also promote the stable development of the stock market.

Vietnam's stock market is also significantly affected by interest rates. Therefore, policy makers can use interest rates to more or less create adjustments to stock prices, thereby reducing the risk of stock price bubbles forming, and preventing crises from occurring..

In addition, in order for Vietnam's stock market to develop sustainably, become an effective capital mobilization channel and promote economic growth, the thesis would like to propose some suggestions for policy makers as follows:

- *Developing the domestic bond market*. In fact, for each country, the bond market is an important infrastructure for public debt management. If the bond market develops, the liquidity of government bonds will be high, thereby attracting idle capital from other sectors of the economy. The urgent issue is that state management agencies, especially the Ministry of Finance and the State Bank of Vietnam need to assess the current situation of the corporate bond market in order to have close coordination in controlling risks. risk, information transparency, so that the bond market - an effective capital mobilization channel for the economy and the interests of investors is guaranteed.

- *Managing foreign capital flows on the stock market*. In mobilizing investment capital sources for the economy, especially foreign capital sources, it is necessary to maintain and maintain a reasonable balance between international credit, foreign indirect investment capital and foreign exchange reserves. The management of credit policies and exchange rate policies need to be considered in different scenarios of foreign investment flows in order to achieve the ultimate macro objectives.

- *Promote upgrading of Vietnam's stock market*. Criteria that Vietnam needs to improve include limiting foreign ownership in conditional sectors; equal rights for foreign investment related to English information and room of ownership; degree of foreign exchange market

liberalization; registration to open an account must have VSD approval; Market regulation and information flow in English and clearing without overdraft and cash advance.

- *Continue to participate in the ASEAN capital market development program*. To promote further regional integration, the ACMF has established the Vision 2025 action plan (referred to as ACMF 2025) with the goal of an integrated, inclusive and resilient ASEAN capital market, consisting of two plans. action plan over a 10-year period with a number of key priority goals: Improving regional infrastructure and connectivity, strengthening coherence in regulations and practices; strengthen investor participation, promote interaction, cooperation and coordination among countries in the region and stakeholders.

- *Promote Vietnam's stock market to cooperate and integrate internationally*. The international integration of the stock market is an indispensable part, making an important contribution to enhancing Vietnam's position in international forums and organizations, raising the national credibility level, attracting the attention of the public. international investment council, at the same time consolidating and expanding cooperation with stock market management agencies of other countries.

5.3 Limitations and suggestions for future studies

Research results show that developing markets are also sensitive to fluctuations in world commodity prices. The global commodity market and the stock market have just experienced volatility due to the Covid-19 epidemic, further studies may additionally assess the impact of commodity prices on the stock market in the context of the pandemic. .

Further studies can collect data of each specific industry group on the stock market of each Southeast Asian country, perform panel data regression to assess the impact of macroeconomic factors. both domestic and global to market indexes of specific industry groups.

Future studies are also subject to change using other global variables, such as global industrial production, world stock market returns, global risk, etc. Other variables can help to better assess the influence of global macro variables on the stock markets of Southeast Asian countries.

It is also advisable to do an investigation into this issue by selecting different countries or localities to compare the level of impact on each group, for example the group of emerging market countries in Europe with group of emerging market countries in the Americas or group of emerging market countries in Asia. This is because different regions provide different levels of economy to a country and the results can vary for different regions. To compare the reactions of the stock markets of developing countries in different continents to global and domestic macroeconomic factors.

Furthermore, in the future it is possible to expand this study to include all ASEAN countries, as well as to find the relationship between domestic and foreign macroeconomic factors and the stock market.

THE AUTHOR'S PUBLICATIONS RELATED TO DISSERTATION

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