An Analysis of Macroeconomic Indicators in Advanced Economies and Emerging Markets during Covid-19

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Abstract. This study aimed to analyze the effect of macroeconomic indicators on the composite stock price index. Stock price movements are influenced by several factors, some of which are economic growth, inflation rate, and interest rate. The population in this study includes countries in Asia. The sample used in this study is the composite stock price index in each country's period first quarter in 2020 to second quarter in 2022 (1Q20-2Q22). The statistical method used is multiple linear regression.

Keywords: Composite Stock Price Index, Economic Growth, Inflation Rate, Interest Rate.

1 Introduction

Global economic stability has begun to be threatened since the emergence of Corona Virus Disease 2019 (Covid-19). According to the World Health Organization, Covid-19 is an international type of infectious disease. This virus first appeared in December 2019 in the city of Wuhan, China. The presence of Covid-19 was responded to negatively by business people because it could trigger a new economic crisis (2).

The terms of Advanced Economies and Emerging Market (henceforth AEs and EMs respectively) became popular after World War II. This grouping is the result of the cold war (3). Several international agencies have different names for the two groupings. One of them is the International Monetary Fund (IMF) which adopts the aforementioned names. Furthermore, the World Bank uses different terms, namely 'High-Income' countries and 'Low-Middle-Income' countries. Meanwhile, the United Nations Development Program (UNDP) uses the terms 'developed' countries and 'developing' countries. Even though there are different terms for this grouping, the definitions for AEs and EMs refer to almost the same terminology.

In the capital market, there is a main index which is commonly called the composite stock price index. This index can be used to observe the movement of stock prices as a whole. This index is a combination of all stocks which is a reference for stock price developments and reflects the performance of various companies. In addition, the movement of this index can be used to measure the economic condition of a country (4). Many factors can affect the

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movement of the composite stock price index, for example, economic growth, inflation rate, and interest rate (5).

2 Theoretical Framework and Hypotheses

2.1 Signalling Theory

Puspita & Aji (2018) suggest a signal given by the party delivering the information in the form of a piece of information as material to support investment decisions by the recipient. According to Khairudin & Wandita (2017), a signal theory is a signal in the form of information that can help investors consider and determine their investment decisions in the company's shares in question.

2.2 Contagion Effect Theory

According to Trihadmini (2013), Contagion Effect discusses the phenomenon of crises that occur in one country and will trigger crises in other countries. This theory explains that no country in one region can avoid the effects of contagion. Based on the description of the opinion above, it can be said that contagion effect in one country which causes a crisis in another country.

2.3 Advanced Economies and Emerging Markets

The grouping of countries in the world is generally based on their level of welfare by using indicators of real income per capita (9). Based on the level of welfare, the World Bank categorizes the world's countries into two, namely developed countries or AEs according to the IMF and developing countries or EMs according to the IMF.

2.4 Capital Market Theory

Under Indonesian law, the capital market is defined as activities related to public offerings and securities trading, public companies related to the securities they issue, as well as institutions and professions related to securities. The capital market in a country can be used as a benchmark to see the development of business dynamics in that country (10).

2.5 Efficient Market Hypothesis

An efficient form of capital market is related to all relevant information. Sujana (2017) classifies information into three types, namely (a) past price changes; (b) information available to the public (public information); and (c) information is available both to the public and not (public and private information). Therefore, there are three forms of efficient capital market, namely: (a) weak form efficiency; (b) semi strong form efficiency; and (c) strong form efficiency.

2.6 Composite Stock Price Index

The composite stock price index is a price index formed by calculating all stocks on the stock exchange. This index describes a series of historical information regarding the combined price movements of all stocks up to a certain period (4). This index can be used as a barometer of a country's economic health (5). The calculation of return on the composite stock price index can be seen in the following formulation:

$$CSPI\ Return = \frac{Index\ t_1\ -\ Index\ t_0}{Index\ t_0}\ x\ 100\% \qquad (1)$$

Details:
Index t_0 = Index value at t_0
Index t_1 = Index value at t_1

2.7 Economic Growth

Economic growth is a process in which there is an increase in real gross domestic product or real national income so that the economy is said to grow or develop when there is growth in real output (Samsul, 2015). Gross Domestic Product (GDP) is the total amount of products in the form of goods and services produced by production units within the territorial boundaries of a country (domestic) for one year. The occurrence of economic growth can be reflected in the rapid GDP growth. The calculation of GDP growth can be seen in the following formulation:

$$Economic\ Growth = \frac{GDP\ t_1\ -\ GDP\ t_0}{GDP\ t_0}\ x\ 100\% \qquad (2)$$

Details:
GDP t_0 = Real Gross Domestic Product Value at t_0
GDP t_1 = Real Gross Domestic Product Value at t_1

2.8 Inflation

Inflation is a measure of economic activity which is often used to describe the condition of the national economy. Inflation can be defined as the tendency of prices to rise in general and continuously (13). In addition, inflation can also be interpreted as a tendency for an increase in the price of products as a whole. Soaring prices are reflected in high inflation. Meanwhile, relatively stable prices are reflected in the low inflation rate.

2.9 Purchasing Power Parity (PPP)

The theory of Purchasing Power Parity (PPP) states the unit of purchasing power concerning the exchange rate between two currencies in two countries that are in balance and when their purchasing power is the same in each country (14). In other words, the exchange rate between different countries must be equal to the ratio of the fixed price levels of goods and services in those countries.

2.10 Interest Rate

Witjaksono (2010) explains that the interest rate policy is controlled directly by the Central Bank. Changes in interest rates are the Central Bank's response to future inflation to remain within predetermined limits. Changes in interest rates can trigger movements in the capital market. A reduction in interest rate will automatically trigger a reduction in lending and deposit interest rate.

2.11 Conceptual Framework

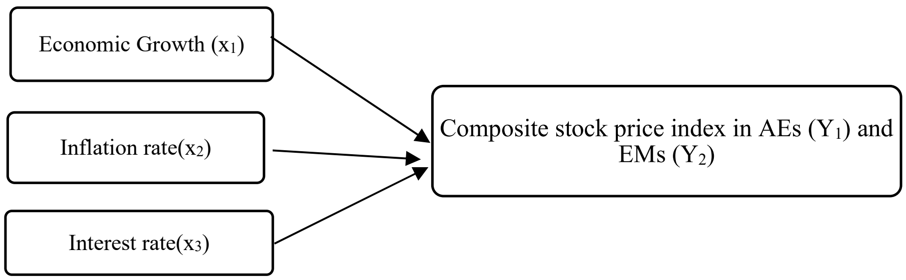

Fig. 1. Conceptual Framework

3 Research Method

3.1 Sampling

The population in this study are countries in the Asian continent as many as 38 countries. The data sample taken in this study uses purposive sampling, which is a sample grouping that is adjusted to the research criteria where the authors use sample criteria on the Composite Stock Price Index on the Asian continent during the first quarter of 2020 to the second quarter year 2022 (1Q20-2Q22).

3.2 Criteria

The selection of samples was determined with the following considerations and criteria: (a) Countries categorized as being on the Asian continent; (b) Countries that are on the border between the Asian continents, but do not have a stock market; (c) Countries that are categorized as being in the Asian continent, but do not report quarterly macroeconomic data.

3.3 Data Collection

The data used in this study is secondary data which is quantitative data obtained by the authors from investing.com, finance.yahoo.com, and tradingeconomics.com. The data collection used in this research is a method of collecting documentation data by studying available secondary data. The type of data in this study is secondary data which were obtained from third parties.

4 Discussion

This study aims to examine the effect of economic growth, inflation rate, and interest rate on the composite stock price index in AEs and EMs. Based on the results of the tests that have been carried out in Table 1 below, it can be concluded that simultaneously the variables of economic growth, inflation rate, and interest rate have a significant effect on the composite stock price index in both AEs and EMs. This is due to the significant value <0.05 of the two groups so H_0 is rejected and H_1 is accepted. Furthermore, the results and discussion of the three independent variables partially in each group will be discussed as follows:

Table 1. Results of Multiple Linear Regression Analysis

Classification	Y	X	t_{count}	t_{table}	Sig.	Result
AEs	CSPI	GDP	-0.17	+1.67	0.86	H_0 accepted
		INF	-3.52	±2.01	0.00	H_0 rejected
		INT	0.42	±2.01	0.67	H_0 accepted
	F_{count} = 5.13		F_{table} = 2.81		0.00	H_0 rejected
	R^2 = 0.27			Adjusted R^2 = 0.21		
EMs	CSPI	GDP	-1.16	+1.66	0.24	H_0 accepted
		INF	-2.72	±1.99	0.00	H_0 rejected
		INT	2.91	±1.99	0.00	H_0 rejected
	F_{count} = 3.87		F_{table} = 2.73		0.01	H_0 rejected
	R^2 = 0.14			Adjusted R^2 = 0.10		

Table 2. Results of Multiple Linear Regression Analysis

Classification	Variable	Coefficient	Std. Error	t-Statistic	Sig.
AEs	C	6.19	2.06	2.99	0.00
	GDP	-0.04	0.25	-0.17	0.86
	INF	-3.30	0.93	-3.52	0.00
	INT	1.22	2.90	0.42	0.67
EMs	C	-0.37	2.88	-0.12	0.89
	GDP	-0.18	0.15	-1.16	0.24
	INF	-1.27	0.46	-2.72	0.00
	INT	2.78	0.95	2.91	0.00

4.1 The Effect of Economic Growth on the Composite Stock Price Index in AEs

The results of the hypothesis test show that economic growth has no significant effect on the Composite Stock Price Index in AEs. This was due to several factors, one of which was that during that period the economic growth of the five countries in the AEs was very volatile. Several political and macroeconomic events occurred during that period, causing the level of volatility that was formed for each country to be very high.

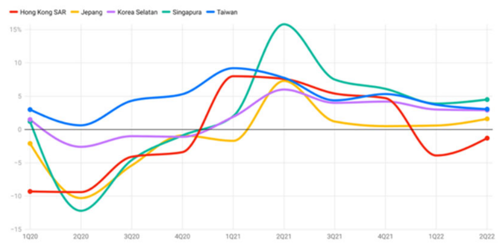

Fig. 2. Economic Growth in Advanced Economies (AEs)

Figure 2 provides information that in the second quarter of 2020 the economic growth of the five countries compactly experienced a decline. This decline was the impact of Covid-19 which appeared in the first quarter of 2020, so the economy experienced a contraction which was reflected in the decline in economic growth. In the following period, the economies of the five countries were in a recovery phase marked by increased economic growth (16).

4.2 The Effect of Economic Growth on the Composite Stock Price Index in EMs

The results of the hypothesis test show that economic growth has no significant effect on the Composite Stock Price Index in EMs. Just like the previous explanation on AEs, this is related to a contagion effect. This event was a condition where the presence of Covid-19 affected the economy of a country (in this case China, where Covid-19 first emerge) which then spread throughout the world. Thus, it was not only China that was affected, but neighbouring countries were also feeling the impact (17). Both the AEs and EMs groups experienced an economic contraction during the period of the presence of Covid-19.

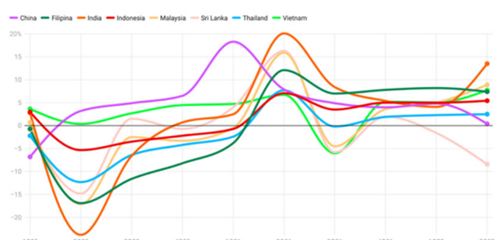

Fig. 3. Economic Growth in Advanced Economies (EMs)

Figure 3 provides information that economic growth in EMs is highly fluctuating. When compared to economic growth in AEs as shown previously, namely Figure 6, economic growth in these EMs has a higher level of volatility. It can be seen that after the first semester of 2021, the picture of economic growth is moving randomly. Several countries have experienced an increase, but some have decreased. Even though in the same period, namely the second quarter of 2020, economic growth in EMs was at a negative level and in the following period experienced a recovery similar to that in AEs. During this period, economic growth was also influenced by political and macroeconomic factors.

4.3 The Effect of Inflation on the Composite Stock Price Index in AEs

The results of the hypothesis test showed that the inflation rate has a significant negative effect on the Composite Stock Price Index in AEs. This is because when the prices of goods and services increase, people tend to reduce consumption. After all, people consider the prices in the market to be too expensive. This condition eventually resulted in the decline of profits of companies that sell these goods and services. Thus, investors respond to this with a negative sentiment because investors also assess that the profit earned by owning the company's shares is decreasing (18). This decline was reflected in the decline in or Earnings per Share (EPS). Knowing this, investors ultimately prefer to divert their funds to other, more profitable investment areas.

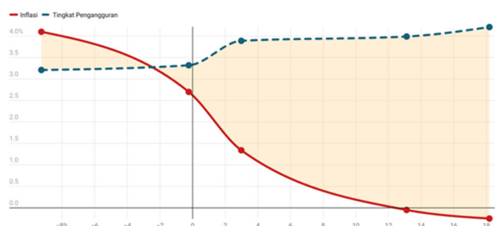

Fig. 4. Trade-Off Between Inflation, CSPI, and Unemployment Rate in Advanced Economies (AEs)

Figure 4 provides information that when inflation increases, the Composite Stock Price Index and the unemployment rate decrease, and vice versa. That is, when the unemployment rate decreases, people who previously had no income finally have income (have the purchasing power to buy goods and services that they could not get before). In this case, the demand for goods and services also increases (demand increases). Following the supply-demand law that when demand increases it will cause the prices to increase (inflation occurs) (19).

From the community's point of view, this is a profitable situation, but not for the company. Declining unemployment means companies are recruiting (having more employees) than before. When employees increase, the salary expense also increases which has an impact on decreasing company profits. Investors also see this condition as a negative sentiment because the increase in workers will reduce profits. Therefore, it can be seen in Figure 4 that the Composite Stock Price Index decreased when inflation increased and the unemployment rate decreased.

4.4 The Effect of Inflation on the Composite Stock Price Index in EMs

Similar to the results of hypothesis testing on AEs, the results of hypothesis testing on EMs show that the inflation rate has a significant negative effect on the Composite Stock Price Index. This is because the price of goods and services that increases will reduce people's purchasing power. The same level of income will obtain fewer goods and services if there is an increase in prices (inflation). Therefore, people tend to reduce consumption or save money because the cost of living is getting more expensive. From the company side, the burdens and costs that must be borne will also increase, thereby reducing the company's profits as well.

When company profits decrease, investors tend to be pessimistic and abandon these shares (18).

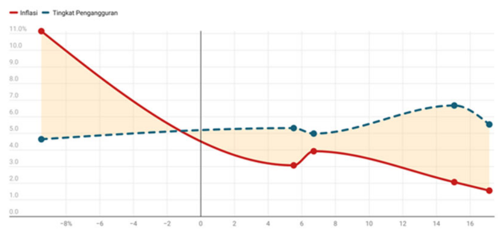

Fig. 5. Trade-Off Between Inflation, CSPI, and Unemployement Rate in Emerging Markets (EMs)

Figure 5 shows the negative relationship that occurs between the Composite Stock Price Index and the inflation rate. However, there is one added indicator, following the discussion on AEs, the unemployment rate in this discussion is used as supporting data, even though there is a trade-off between inflation and the unemployment rate. However, further discussion only refers to the impact it has had on the Composite Stock Price Index. It is known that when inflation increases, the Composite Stock Price Index and the unemployment rate decrease.

4.5 The Effect of Interest Rate on the Composite Stock Price Index in AEs

The results of the hypothesis test show that the interest rate has no significant effect on the Composite Stock Price Index in AEs. This is because investors do not use signals of increasing/decreasing interest rates as a basis for making investment decisions. That is, when interest rates rise, investors continue to buy and sell shares as usual and do not perceive changes in interest rates as a sentiment that can affect company performance and stock prices, and vice versa (20).

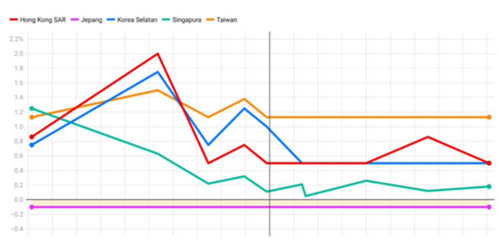

Fig. 6. Interest Rate in Advanced Economies (AEs)

Figure 6 above provides information that the interest rate of several countries in AEs tend to be flat or maintained at the same level. This can also be one of the factors that make this variable not have a significant effect on the Composite Stock Price Index. Then, other factors can also be seen in Figure 6 that the benchmark interest rate tends to fluctuate when it is in the negative zone or when the Composite Stock Price Index is declining. Therefore, the results of this study state that interest rates have no significant effect on the Composite Stock Price Index in AEs.

4.6 The Effect of Interest Rate on the Composite Stock Price Index in EMs

The results of the hypothesis test shows that the interest rate has a significant positive effect on the Composite Stock Price Index in EMs. This is because by increasing the benchmark interest rate, it will increase bank lending rates. Thus, this will have an impact on increasing the profit margin or profit margin of banking issuers in line with increasing interest rates and lending rates (18). Investors see this condition as a positive sentiment because increasing profit margins will also increase Earnings per Share (EPS). Thus, the share prices of banking issuers will also increase and contribute to an increase in the Composite Stock Price Index.

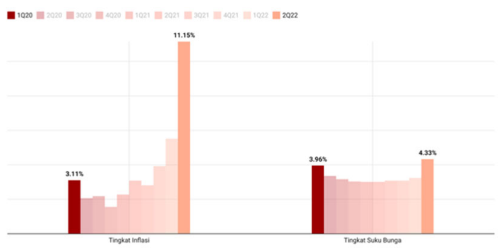

Fig. 7. Interest Rate in Emerging Markets (EMs)

Figure 7 above which provides information that averagely the inflation rate in EMs is very high. Thus, one way to reduce this high inflation is to increase the benchmark interest rate (Sari & Ratno, 2020). The increase in the interest rate set by the Central Bank is also in line with market expectations, so the increase in interest rate is used as a positive sentiment for company stock prices which has an impact on the Composite Stock Price Index.

5 Conclusion

The results of this research and discussion were obtained which can be concluded as follows: (1) Advanced Economies: (a) The variable economic growth partially has no significant effect on the Composite Stock Price Index; (b) Inflation rate variable partially has a significant negative effect on the Composite Stock Price Index; (c) Interest rate variable partially has no significant effect on the Composite Stock Price Index; (2) Emerging Markets: (a) The variable economic growth partially has no significant effect on the Composite Stock Price Index; (b) Inflation rate variable partially has a significant negative effect on the Composite Stock Price Index; (c) Interest rate variable partially has a significant positive effect on the Composite Stock Price Index.

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