Does Macroeconomic Fluctuation Matter for The Composite Stock Price Index?

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Abstract: This study aims to investigate the effect of interest rates, inflation, rupiah exchange rate, money supply, and exports on the composite stock price index (CSPI) in Indonesia. The data used is secondary data obtained from the Indonesian Statistics Agency (BPS) and Central Bank of Indonesia for the period from January 2014 to May 2021. This study applies a multiple linear regression model. The findings of this study indicate that interest rates, money supply, and exports have a positive sign and have a significant effect on the composite stock price index, meanwhile the rupiah exchange rate has a negative sign and a significant effect on CSPI. However, inflation has no significant effect on the composite stock price index. The implication of the results of this study is that macroeconomic variables are very important in highlighting transactions in the capital market, especially on fluctuations in the composite stock price index, these findings provide results that still need to be observed by policy makers. On the one hand, interest rates and inflation must remain under control. In addition, exports must also be increased to increase transactions in the capital market, foreign exchange and maintain the rupiah exchange rate for Indonesia.

Keywords: interest rate, inflation, exchange rate, money supply, exports, composite stock price index

JEL Classification: G11, P34

1. INTRODUCTION

The world's economy moves in different cycles at each level. Starting from the household level, regional level, domestic, national and even international (Purna & Kamara, 2022). The global financial crisis is an immediate impetus for studying interactions (Adenan, 2021). As part of economic development, investment has become a very important part of every country in the world.
to increase their national income (Suhadak & Suciany, 2020). The global financial crisis is an immediate impetus for studying interactions (Adenan, 2021). Today, the Stock Price Index is a tool of the economy that is experiencing massive development. The simple understanding of the capital market can be interpreted as a market in which there is a long-term sale and purchase of financial instruments (securities), and transactions of financial equipment can be in the form of credit. Stock is a well-known financial market instrument in the capital market (Muflihin & Ihwandi, 2020).

The capital market is one of the means to raise sources of long-term economic funds available in banking and society (Triani, 2013). The world economy has entered the era of globalization which has an impact on significant impact on the movement of foreign capital that will enter the financial market in developing countries such as Indonesia through the Indonesia stock exchange (Sampurna, 2016). The capital market is one of the drivers of the world economy, including Indonesia (Yubiharto et al., 2021). Macroeconomic changes in Indonesia will certainly affect the national economy as well as the entire industry (Astuti et al., 2016). If the investors are discouraged to invest in a company, it will decrease the stock price of that company (Desfiandi et al., 2017).

Generally, to measure price movements in a market, you can use a stock index. When most stock prices increase, the stock price index increases, and vice versa (Kurniawati & Khairunnisa, 2020). In today’s globalization era, capital owners can choose what form they want to invest in. Capital holders have funds that can be deposited in banks with various types of deposits, used for business capital, or even invested in capital. The rapid development of capital markets in Indonesia shows that the capital market is a different source of funding from banks. The development of the capital market also shows that investor confidence is relatively good in the Indonesian capital market. The large number of foreign investors causes the movement of stocks on the Indonesia stock exchange to tend to follow the movements that occur on international stock exchanges (Paranita et al., 2017). The composite stock price index describes a series of information history of stock price movements a combination of all shares, up to a certain date (Palatte & Akbar, 2014). The public can also place their funds according to the characteristics of the benefits and risks of each instrument that is suitable for them (Lestari et al., 2020).

Associated with the rise and fall of prices shares in the capital market become a interested phenomenon for discuss related to rising issues decrease in the value of the company (Mahpudin & Suparno, 2016). A crisis or shock that can be a supporting factor for the movement concurrently does not only apply between markets global stocks but also between markets stock and exchange rate (Murtini & Hardiyanto, 2022). The recent unprecedented volatilities in stock prices have prompted the necessity to probe into numerous of questions about the relationship between the stock market returns and the rest of the macroeconomic variables (Isaac & Doe, 2021).

The capital market also plays a role in the Indonesian economy, because the value of composite stock price index can be used as a leading indicator of the Indonesian economy. The movement of the stock price index is affected by investors guesses about the state of the country. Study by Sunardi & Permana (2019) found that stocks are one of the most attractive capital market instruments investors because it can provide an attractive level of profit. In addition to the stock price index as a consideration for economic policymaking, the stock price index is also used to determine the level of community welfare that will be followed by crowded capital market activities. Composite stock price index uses all companies listed on the Indonesia stock exchange as a component of index calculation (Galih & Sulistyowati, 2020).

Figure 1 reports that the data above the stock price from the period increased even though in 2015 it was volatile, which previously in 2014 was worth 5,226.95 down in 2015 to 4,593.01. The Jakarta Composite Index in 2016 again increased to 6,335.65. In 2017-2019 the stock price was still at 6000 although in 2018 the stock price decreased but still at 6000. However, due to the covid pandemic starting from the beginning of 2020, composite stock price index fell again in 2020 but was not significant. It is also the basis for researchers to take 2014-2021 as a research period. The choice of 2014 as the basic year of research, characterized in 2014 is the beginning of stock price experiencing the stability of the composite stock price index at 4000 after in previous years the composite stock price index has always been at 3000, and 2014 is the year where there is a new economic policy due to the leadership transition from president Susilo Bambang Yudhoyono.
switched to Joko Widodo. In 2021 is the end year of research because in 2021 the market is crowded. After all economy is being disrupted due to the Covid-19 pandemic. Therefore, the research was conducted from 2014 to 2021 because researchers were interested in knowing how the development of the composite stock price index in the capital market during the Covid-19 pandemic caused the economy to be unstable.

![Figure 1. The year-end composite stock price index, 2014-2021](https://example.com/figure1.png)

**Source:** Indonesia Stock Exchange

This increase in stock price cannot be separated from the state of the economy in the country macro. Macroeconomic conditions and their stability will greatly affect stock prices. The traditional approach claims that depreciation of the domestic currency makes local firms more competitive, leading to an increase in their exports and consequently higher stock prices (Lee & Brahmasrene, 2019). This study uses five macro variables that are suspected to affect stock price ideas are interest rates, inflation, exchange rates, money supply, and exports. Stock prices interact using major macroeconomic variables both in the short term and long term, where the government’s economic and financial policies have a hand in stock price movements. In general, the relative effect comes from various economic variables to the level of return on stocks. The novelty in this research is the existence of a research period during a pandemic. In previous studies, many have stated that macro conditions affect composite stock price index. The economic policy reflects through its instruments the ideological orientation of a country, it is considered as the realistic translation of the macroeconomic theory which provide an analytical tools and information that lead the policy makers to investigate the performance of the taken decisions in achieving the economic policy goal of economic stability, and to figure out the growth constraints and the macroeconomic problems such as the level of employment, the general level of prices, the economic growth, the external balances, foreign trade policy and so on (Hamdini & Gaidi, 2021).

2. RESEARCH METHODS

2.1. Data

This study uses time series data per month for the observation period from January 2014 to May 2021 in Indonesia. This study uses data from the composite stock price index (CSPI) measured by the price index; interest rate (IR) is measured in percent; inflation (INF) is measured in percent;
exchange rate (EXCR) is measured in USD against IDR; the money supply (MS) is measured in billion rupiah; and exports (EXP) are measured in million dollars. The data sources were obtained from the Indonesian Statistics Agency (BPS) and Bank of Indonesia.

2.2. Model specification

For this matter, we use an econometric approach with multiple linear regression models using the ordinary least squares (OLS) method. The aim is to determine the effect of interest rates, inflation, exchange rates, money supply, and exports on the composite stock price index. We present the econometric model in the following equation:

\[
\text{CSPI}_t = \beta_0 + \beta_1 \text{IR}_t + \beta_2 \text{INF}_t + \beta_3 \text{EXCR}_t + \beta_4 \ln \text{MS}_t + \beta_5 \ln \text{EXP}_t + \epsilon_t
\] (1)

Where: \(\text{CSPI}\) is composite stock price index; \(\text{IR}\) is interest rate; \(\text{INF}\) is inflation; \(\text{EXCR}\) is exchange rate; \(\text{MS}\) is money supply; \(\text{EXP}\) is exports value; \(\beta_0\) is constant coefficient; \(\beta_1, \ldots, \beta_5\) is parameters coefficient from each variable; \(t\) is times series; and \(\epsilon\) is error term.

3. RESULTS AND DISCUSSION

3.1. Descriptive statistics

Table 1 reports that according to market developments and conditions, CPSI fluctuates in each period. In 2020, the CPSI experienced a significant decline due to the COVID-19 pandemic which made the Indonesian economy even worse. At the beginning of 2021, CPSI returned because the economy was stable even though it was not optimal. Table 1 reports that interest rates continued to fluctuate until 2019. From 2020 to May 2021 interest rates fell 2 percent to an average of 8 percent. The inflation rate from mid-2014 inflation fell below 4 percent but at the end of 2014 to 2015 at the end of the year inflation rose again to an average of 6 percent. From 2016 to 2021 in May inflation was stable and under control at the level of 3 percent.

<table>
<thead>
<tr>
<th>Table 1. Descriptive statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Descriptive</strong></td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>Std. Dev.</td>
</tr>
<tr>
<td>Skewness</td>
</tr>
<tr>
<td>Kurtosis</td>
</tr>
<tr>
<td>Jarque-Bera</td>
</tr>
<tr>
<td>Probability</td>
</tr>
<tr>
<td><strong>CSPI</strong></td>
</tr>
<tr>
<td><strong>IR</strong></td>
</tr>
<tr>
<td><strong>INF</strong></td>
</tr>
<tr>
<td><strong>EXCR</strong></td>
</tr>
<tr>
<td><strong>lnMS</strong></td>
</tr>
<tr>
<td><strong>lnEXP</strong></td>
</tr>
</tbody>
</table>

Source: Authors calculation

The exchange rate from 2014-2021 in May the dollar exchange rate against the rupiah continued to depreciate with the US dollar continuing to strengthen, the dollar exchange rate against the rupiah depreciated due to the flow of foreign capital into Indonesia, thus affecting the economy. The depreciation of the exchange rate continued to reach its peak in May 2021 from IDR 14,310 per US dollar. This is due to the global crisis due to the COVID-19 pandemic in all parts of the world. The money supply during 2014-2021 has increased, but has slowed, although in 2019-2021 there is a push for government financial expansion and accelerated credit growth.
Indonesian exports experienced volatility during 2014-2020, this was caused by depreciation due to the dollar exchange rate and restrictions on goods coming in from abroad due to the Covid-19 pandemic. However, in early 2021 exports have started to increase again because the economic situation has started to return to normal. Table 1 also reports the correlation between variables indicating that the relationship between IR and CSPI is positive and significant, but the relationship between INF, EXCR, InMS, InEXP, and CSPI is negative and significant. Likewise, the relationship between INF, EXCR, InEXP and CSPI was negative and significant. While the relationship between EXCR, InEXP and INF was positive and significant, and the relationship between InEXP and EXCR was positive and significant.

3.2. Stationarity test

Table 2 reports that the unit root testing at the first difference level shows that all data are stationary. This can be seen from the absolute value of the ADF statistic which is greater than the Mc Kinon critical value at the critical values of 1%, 5% and 10%. Thus it can be explained that all the variables to be estimated in this study have been stationary at the same degree.

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF-statistic</th>
<th>Mc Kinon's critical value</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>∆(CSPI)</td>
<td>-3.836</td>
<td>-3.508</td>
<td>-2.895</td>
</tr>
<tr>
<td>∆(IR)</td>
<td>-10.369</td>
<td>-3.489</td>
<td>-2.887</td>
</tr>
<tr>
<td>∆(INF)</td>
<td>-5.960</td>
<td>-3.487</td>
<td>-2.881</td>
</tr>
<tr>
<td>∆(EXCR)</td>
<td>-7.814</td>
<td>-3.486</td>
<td>-2.886</td>
</tr>
<tr>
<td>∆(InMS)</td>
<td>-8.154</td>
<td>-3.592</td>
<td>-2.983</td>
</tr>
<tr>
<td>∆(InEXP)</td>
<td>-6.801</td>
<td>-3.482</td>
<td>-2.892</td>
</tr>
</tbody>
</table>

Source: Authors calculation

3.3. Empirical results

In this session, we report the estimation results of the regression model presented in Table 3. The summary of the model presented shows that the coefficient of determination (R2) obtained is 0.5646, this implies that variations in interest rate (IR), inflation (INF), exchange rate (EXCR), the money supply (MS), and exports (EXP) were able to explain the variation of the composite stock price index (CSPI) by 56.46 percent. In addition, the F-stat value is obtained at 21,526 with a probability of 0.000, this implies that together the interest rate, inflation, exchange rate, the money supply, and exports have a significant effect on the composite stock price index. We also performed the classical assumption diagnostic test on the model presented in Table 3, the test results showed that the normal test, serial LM test, and heteroscedasticity test showed that they could be passed at the 5 percent significance level. The feasibility of the model is greatly influenced by the test. Thus, it can be concluded that this study model is valid and robust.

Table 3 reports that the relationship between interest rates and the composite stock price index is positive and significant. This implies that a 1 percent increase in interest rates will increase the composite stock price index by 0.150442 points, assuming ceteris paribus. This result is inversely proportional to the initial hypothesis of this study, namely that interest rates have a negative effect on CSPI. This finding proves that interest rates have a positive effect on CSPI because in the research year data from 2014 to 2021 (May), the total interest rates during the study period have a significant impact on CSPI fluctuations. Where an increase in interest rates will cause an investor to demand a higher return on an investment. This can increase the stock price index. These findings confirm the study conducted by Nurmasari & Nur’aidawati (2021) found that the interest rates have a positive and significant effect on composite stock price index. While the findings by Satyatama (2017); and Alam & Uddin (2009) stated that the interest rates have a positive and significant effect on composite stock price index. Study by Hutapea & Malau (2022) found that the interest rates insignificant effect on composite stock price index.
Table 3. The estimation results of linear regression model

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>t-statistics</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>9.071921</td>
<td>3.684478</td>
<td>2.462200</td>
<td>0.0159</td>
</tr>
<tr>
<td>IR</td>
<td>0.150442</td>
<td>0.035465</td>
<td>4.242017</td>
<td>0.0001</td>
</tr>
<tr>
<td>INF</td>
<td>-0.011609</td>
<td>0.008630</td>
<td>-1.345091</td>
<td>0.1823</td>
</tr>
<tr>
<td>EXCR</td>
<td>-1.459283</td>
<td>0.269392</td>
<td>-5.416951</td>
<td>0.0000</td>
</tr>
<tr>
<td>lnMS</td>
<td>1.439214</td>
<td>0.278779</td>
<td>5.162568</td>
<td>0.0000</td>
</tr>
<tr>
<td>lnEXP</td>
<td>0.406033</td>
<td>0.088061</td>
<td>4.610810</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Summary:
- $R^2$: 0.5646
- $F$-statistic: 21.526

Diagnostic test:
- F-stat: 2.766, Prob. = 0.258
- Normal test: 3.007, Prob. = 0.098
- Serial LM test: 2.002, Prob. = 0.141
- Heteroscedasticity test: 2.002, Prob. = 0.141

Source: Authors calculation

Meanwhile inflation does not significantly affect the composite stock price index in this study. The results showed that inflation was negatively related to CSPI, but the results were insignificant. This implies that inflation is not important and does not reduce investors’ investment interest in transacting in the capital market, when inflation exceeds 10 percent, the capital market will be hit, because Central Bank will raise interest rates twice, causing investors to transfer funds to banks. The inflation tends to be caused by high production costs which in turn result in company inefficiency, so that public interest in the capital market will also decrease which in turn will cause stock prices to fall. These findings confirm the study conducted by Putong (2013); and Hutapea & Malau (2022) found that the inflation insignificant effect on composite stock price index.

On the other hand, the relationship between the exchange rate and the composite stock price index is negative and significant. This implies that an increase in the exchange rate of 1 rupiah will reduce the composite stock price index by -1.459283 points, assuming ceteris paribus. This finding indicates that capital market investors observe every movement of the exchange rate on investment decisions. The exchange rate is detrimental to the CSPI, this result is in accordance with the previous theory that interest rates have a negative effect on the CSPI. For companies that have performance by importing and purchasing raw materials for production using US dollars, the decline in the rupiah exchange rate against the US dollar will increase the cost of importing raw materials that will be used for the production process within the company. This will have an impact on the decline in company profits. If profits are low, there will be a decrease in dividends distributed to shareholders. Low dividends will cause a decrease in investment in the capital market due to the lack of investors, one aspect that must be considered in buying shares. The decrease in dividends causes a decrease in the interest of investors who will invest their capital in the capital market. These findings confirm the study conducted by Safitri (2017); Satyatama (2017); and Hutapea & Malau (2022) found that the exchange rate have a negative and significant effect on composite stock price index.

Additionally, the relationship between money supply and the composite stock price index is positive and significant. This implies that an increase in the money supply of 1 billion rupiah will increase the composite stock price index by 1.439214 points, ceteris paribus assumption. This finding implies that if the money supply increases, it indicates that interest rates fall, in turn the CSPI will increase so that capital market transactions will increase. On the other hand, if the money supply decreases and interest rates rise, the CSPI will decrease, so that transaction activity in the capital market will fall again. An increase in the money supply will also increase economic activity. The money supply can increase economic activity in the money market so that economic actors will get a higher supply of money than before, this indicates that the ability or purchasing power of the people will increase. These findings confirm the study conducted by Kumar & Padhi (2012) found that money supply have a positive and significant effect on composite stock price index.
Likewise, the relationship between exports and the composite stock price index is positive and significant. This implies that an increase in exports of 1 percent will increase the composite stock price index by 0.406033 points, assuming ceteris paribus. This finding indicates that high export expansion will increase company profits which in turn will increase dividends and investment interest in the capital market which will directly have an impact on the increase in CSPI. These findings confirm the study conducted by Safitri (2017); and Nurhakim & Satar (2015) found that exports have a positive and significant effect on composite stock price index.

4. CONCLUSIONS

The study was conducted using the composite stock price index as the dependent variable and using five macroeconomic variables as independent variables, namely interest rates, inflation, exchange rates, money supply, and exports. The results of this study found that interest rates, money supply, and exports have a positive sign and have a significant effect on the composite stock price index. However, the exchange rate has a negative sign and has a significant effect on the composite stock price index. Meanwhile, inflation has no significant effect on the composite stock price index. The changes in the CSPI are not merely a reflection of the development of a country’s company or industry, it can even be considered a fundamental change of a country (Sari, 2019). The implication of the results of this study is that macroeconomic variables are very important in highlighting transactions in the capital market, especially on fluctuations in the composite stock price index, these findings provide results that still need to be observed by policy makers. On the one hand, interest rates and inflation must remain under control. In addition, exports must also be increased to increase transactions in the capital market, foreign exchange and maintain the rupiah exchange rate for Indonesia.

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