Technium Business and Management (TBM)
Vol. 7, pp.138-145 (2024)
ISSN: 2821-4366
www.techniumscience.com

Exports, Imports, Inflation, BI Rates and Their Implications for Indonesia Composite Index (ICI) in Indonesia 2018-2022

Muhammad Ali[1], Syafrizal Ikram[2], Suryana[3], Sendi Gusnandar Arnan[4]

Faculty of Economics and Business, Widyatama University, Bandung, Indonesia
muhammad.ali@widyatama.ac.id[1], syafrizal.ikram@widyatama.ac.id[2], suryana.se@widyatama.ac.id[3], sendi.gusnandar@widyatama.ac.id[4]

Abstract. The purpose of this study is to ascertain the impact of imports, exports, inflation, and BI rates on Indonesia Composite Index (ICI) over the years 2018–2022. This study's findings are discussed in relation to inflation, imports, exports, BI rates, and ICI. Theories pertaining to that field are the method used in this regard. This study was carried out in Indonesia. Research of this kind is quantitative in nature. Central Agency of Statistics provided time series secondary data for this study in the form of publications on imports, exports, inflation, BI rates, and ICI for the period of January 2018 to December 2022.The explanatory approach was the research methodology employed in this study. Multiple linear regression analysis and descriptive analysis are the data analysis methods used in this study. The study's findings partially indicate that while imports and inflation have little bearing on the ICI, exports and BI rates do. The study's findings concurrently demonstrate that the ICI is impacted by inflation, imports, exports, and BI rates.
Keywords. exports, imports, inflation, BI rate, Indonesia Composite Index (ICI)

Introduction

The stock index is very crucial in supporting the development of the Indonesian capital market. This can serve as a standard for investment goods and capital market performance. In addition, stock indices can be used as the basis for investment products, both mutual funds and exchange traded funds (ETF). There are various types of data that investors can access. However, it is not uncommon for this large amount of data to confuse investors, especially novice investors. Therefore, in 1983, the stock exchange authority introduced a stock indexation feature called the Indonesia Composite Index (ICI) (Mulachela, 2022).

Quoting the Indonesia Stock Exchange (IDX), an index known as the ICI tracks the price performance of every share listed on the IDX's main and development boards. The existence of the ICI graph makes it easier for capital market players to see a summary of IDX capital market conditions in real-time without having to analyze stock instruments one by one. This indexation facility makes it easier for investors and other interested parties to check the performance of investment instruments. Apart from that, the ICI can be a reflection of the investment climate in the Indonesian capital market. Information related to ICI can be found easily on the internet. However, before it is released, the IDX must first calculate the ICI based on Market Capitalization Weighted. Furthermore, the results of these calculations are used by various parties to make decision (Mulachela, 2022).

ICI gathers all the companies that are part of the calculation in order to calculate it. In this instance, one or more listed companies may be excluded from the ICI calculations by the IDX. The Indonesian Stock Exchange (2008) claims that ICI serves as a benchmark for portfolio performance, a market trend indicator, a profit level indicator, a tool for creating passive strategy portfolios, and a tool for product development. (Aulia, 2022).

Technium Business and Management (TBM)
Vol. 7, pp.138-145 (2024)
ISSN: 2821-4366
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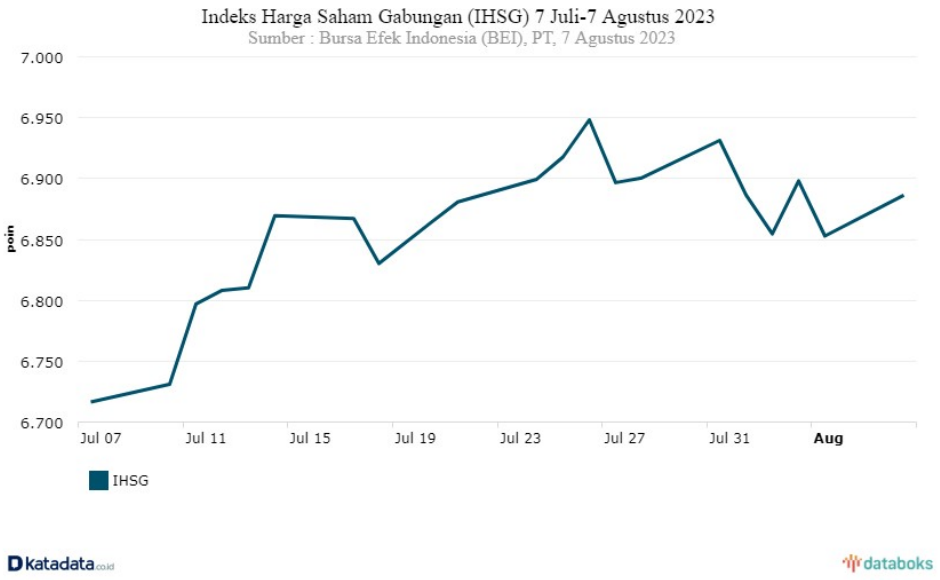

Figure 1. Indonesia Composite Index (ICI, July 7th – August 7th, 2023)

ICI increased by 33.52 points, or 0.49%, to close on Monday, July 8, 2023, at 6,886,366. As Indonesia's economic development picked up steam in the second quarter of 2023, so too did the stock index today. Based on the IDX-IC Sectoral Index, seven stock sectors climbed, lead by the financial sector by 0.80%, followed by the technology sector and the industrial sector which increased 0.64% and 0.53% respectively. Meanwhile, four other stock sectors were corrected, namely the health sector which fell the most by minus 0.71%, followed by the infrastructure sector and the primary consumer goods sector which fell minus 0.38% and 0.18% respectively. Based on RTI Business data, the frequency of stock trading on the domestic stock exchange today was 1.17 million transactions. The total number of shares changing hands reached 16.27 billion shares, with a transaction value reaching IDR 8.26 trillion. Sari Kreasi Boga corporation became the top gainer after strengthening 25%, followed by issuers Garda Tujuh Buana corporation and Multi Garam Utama corporation which rose 24.72% and 13% respectively. On the other hand, today's top loser issuer was RELF which fell 9.73%, followed by Net Visi Media corporation and Minahasa Membangun Hebat corporation which contracted 9.64% and 9.26% respectively. The majority of shares in today's trading closed higher. In detail, 276 shares rose, 245 shares weakened, and 223 shares stagnated (Annur, 2023).

The following variables affect the ICI: macroeconomic fundamentals, company behavior, government policies, and swings in the value of the rupiah relative to other currencies. Policies that govern the operation of the firm, such as those pertaining to acquisitions, mergers, and rights issues, are examples of company actions. Government policies, such as export-import and foreign investment policies, can affect share prices even if they have not been ratified, particularly in the capital sector. The strength or weakness of the Rupiah's exchange rate relative to other currencies has a significant impact on the rise and fall of share prices. For instance, a weakening Rupiah versus the Dollar results in lower share prices in the ICI. The value of exports and imports that directly affect the value of the rupiah exchange rate, the inflation rate, including that which is influenced by macroeconomic conditions, and the rise and fall of interest rates caused by the Federal Reserve, the American Central Bank, and Bank Indonesia are some of the fundamental factors that determine the rise and fall of stock prices (Aulia, 2022).

This research aims to determine exports, imports, inflation, Bank Indonesia interest rates (BI rate) and their implications for ICI in Indonesia for the 2018–2022 period. The results of this research can provide useful information for capital market investors in making investment decisions in Indonesia. Investors can look at the ICI movement trend to determine whether the market is in a bullish or bearish

Technium Business and Management (TBM)
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condition. This information can help investors determine the right investment strategy, such as buying or selling shares at the right time. Apart from that, ICI movements can also be used to estimate stock portfolio performance.

Basic Theory

An indicator that displays changes in stock prices is called ICI. This index serves as a gauge of market trends, with index fluctuations providing information about the state of the market at any given moment, regardless of market activity (Martalena and Malinda, 2011).

Exports and imports of a nation are a result of the money made via global trade. Additionally, trade can boost a nation's capacity for consumption, assist different business players in carrying out development, and expand the function of industries that have comparative advantages because of the efficiency of production elements (Apriliana, Saudi and Sinaga, 2021).

The sale of commodities abroad under terms of payment, quantity, quality, and other sales conditions agreed upon by the importer and exporter is known as export. The quantity of goods or services that are sought to be exported from one nation to another is known as export demand (Sukirno, 2011). In general, the export process involves taking goods or commodities out of the country and reintroducing them into another.

Exchange rates and foreign revenues have an impact on exports. Foreign nations' increasing incomes will raise demand for their goods, which will eventually lead to a rise in exports (T.Y and Tarmidi, 2021).

Import is the activity of bringing goods from outside Indonesia or also known as the customs area into Indonesia or the customs area (Berata, 2013). The value of imports depends on the income or output of the domestic country. Increasing income will also increase imports (T.Y and Tarmidi, 2021).

The act of introducing products into the customs territory of another nation is known as importation. According to this definition, import-related activities involve two nations. In this instance, the divergent interests of the two corporations operating in the two nations, as well as the rules and their respective roles as the giver and the recipient, can be portrayed (Tandjung, 2011).

The inclination for product prices to rise generally, rather than just for one particular good, is known as inflation. Other commodity prices, however, increased after the price hike. High levels of inflation are typically linked to overheated (or too hot) economic conditions, which are characterized by a demand for goods that exceeds supply, leading to price increases for one or two main product categories that either cannot raise prices for most or all commodities or other goods or can raise prices for those that can (Tandelilin, 2010).

Inflation affects economic growth (Apriliana, 2023). Inflation has a very big influence on the Indonesia Composite Index (ICI). With inflation, goods increase, so people's purchasing power will decrease. Of course, this can reduce investors' interest in investing and will cause a decline in the share price of a company. As a result, it will cause the ICI to decline.

The compensation offered for a loan based on accepted theories is known as the interest rate. The cost that the party obtaining the loan must pay might be understood as the interest rate (Sunariyah, 2013). The Bank Indonesia interest rate, often known as the BI Rate, is a policy interest rate that represents the publically declared monetary policy attitude or stance of Bank Indonesia. At each monthly Board of Governors Meeting, the Bank Indonesia Board of Governors announces the BI Rate (BankIndonesia, 2016).

Research results (Safitri, 2016) show that exports have a positive relationship with the ICI. This is different from research (Sumantri and Latifah, 2021) showing that exports have no effect on the ICI.

Research results (Safitri, 2016) show that imports have a negative relationship with the ICI. This is different from research (Sumantri and Latifah, 2021) which shows that imports have no effect on the ICI.

The results of research conducted (Sumantri and Latifah, 2021) show that inflation has a significant influence on the ICI. Meanwhile, according to (Lestari, 2021) inflation has no effect on the ICI.

BUSINESS & MANAGEMENT

Technium Business and Management (TBM)
Vol. 7, pp.138-145 (2024)
ISSN: 2821-4366
www.techniumscience.com

The results of research conducted (Artini *et al.*, 2017) show that BI rate has a significant negative effect on the ICI. Meanwhile, according to (Lestari, 2021) BI rates have no effect on the ICI.

Research Method

From January 2018 to December 2022, four independent variables—exports, imports, inflation, and BI rates—and one dependent variable—the Indonesia Composite Index (ICI)—were used in the study conducted in Indonesia. This study was conducted between October 2023 and March 2023. The implementation utilized in this study was acquired via www.bps.go.id from publications published by the Central Statistics Agency.

Quantitative research will be the methodology employed. Quantitative research is characterized by its ability to yield findings through statistical procedures or other methods of quantification (measurement). Numbers and statistical analysis are used to analyze quantitative data.

All of the information released by the Indonesian central statistics agency between 2018 and 2022 on exports, imports, inflation, Bank Indonesia interest rates, and ICI in Indonesia is used as the population in this study.

The information gathered for this study is secondary data. Secondary data, on the other hand, is information that comes from an additional source and is typically usable. This secondary data is readily available and simple to collect from a variety of sources. The government's economic data is fully accessible from Bank Indonesia (BI) and the Central Statistics Agency. Time series data from 2018 to 2022 are the sort of data that was used.

Technical data analysis must be done in order to get research findings that are consistent with the study objectives. We will process and analyze the data that has been gathered. Multiple linear regression analysis and descriptive analysis are the data analysis methods used in this study. Prior to performing multiple linear regression analysis, a classical assumption test is required to evaluate the validity of the data. This study used two steps of hypothesis testing: simultaneous testing (F test) and partial testing (t test).

Result And Discussion

The ICI is the dependent variable employed in this study. In the meanwhile, the indicators that are not subject to control are the following: percentage measures of inflation, BI rates, exports and imports expressed in millions of US dollars. The outcomes of the descriptive statistical analysis shown in table 1 are as follows.

Table 1. Description of Research Variables

Keterangan	Exsport (US $ million)	Import (US $ million)	Inflation (%)	BI Rate (%)	ICI
Average	17,240.02	15,586.53	0.2648	4.5000	6,175.219
Median	15,256.90	15,324.95	0.2800	4.2500	6,191.745
Maximum value	27,928.70	22,150.60	0.9500	6.0000	7,228.910
Minimum value	10,452.60	8,438.60	-0.8000	3.5000	4,538.930
Standard deviation	4,524.204	3,167.626	0.3835	0.9275	636.906
jumlah observasi	60	60	60	60	60

A statistical summary is shown in Table 1 and contains the mean, median, maximum, minimum, and standard deviation of export, import, inflation, BI rate and ICI data. The average export value was US$17,240.02 million. The median value was US$15,256.9 million. The maximum value is US$27,928.7 million. The minimum value is US$10,524.6 million, with a standard deviation of US$4,524.204 million.

The average value of imports was US$15,586.53 million. The median value is US$15,324.95. The maximum value is US$22,150.6. The minimum value is US$8,438.6, with a standard deviation of US$3,167,626.

Technium Business and Management (TBM)
Vol. 7, pp.138-145 (2024)
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www.techniumscience.com

Inflation has an average value of 0.2648%. 0.28% is the median value. 0.95% is the maximum value. The standard deviation is 0.3835%, and the minimum value is -0.8%.

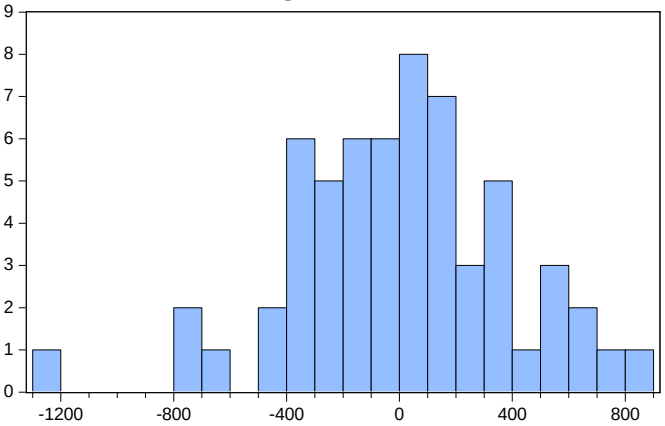
4.5% is the average BI rate. 4.25% is the median value. There is a maximum of 6%. 3.5% is the lowest figure, while the standard deviation is 0.9275%.

6175.219 is the average ICI value. The number 6191.745 is the median. The value at most is 7228.91. 4538.93 is the lowest figure, while the standard deviation is 636.906.

The following outcomes of the normality, heteroscedasticity, autocorrelation, and multicollinearity tests were obtained prior to doing multiple linear regression calculations.

1. Normality Test Result

The results of the normality test led to the determination of the Jarque-Bera Normality test statistic, which was 2.959375 with a probability value of 0.227709; this explains why the probability value with $\alpha = 5\%$ is $0.227709 > 0.05$, indicating that the used empirical model has normally distributed residuals or confounding factors. The results of the data normalcy test are shown in the diagram below.



Gambar 2. Normalitay Test Result

2. Heteroskedasticity Test Result

The Breusch-Pagan-Godfrey test is used in this study to assess the heteroscedasticity problem, and the results are as follows.

Table 2. Breusch-Pagan-Godfrey Test Result

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.842458	Prob. F(4,55)	0.1338
Obs*R-squared	7.089805	Prob. Chi-Square(4)	0.1312
Scaled explained SS	8.302280	Prob. Chi-Square(4)	0.0811

Since Obs*R-squared's likelihood is 0.1312, or $0.1312 > 0.05$, it is more than 0.05, meaning that the model's heteroscedasticity is not a problem.

3. Autocorelation Test Result

One method to ascertain whether autocorrelation exists is the Durbin-Watson Test (DW test), which is used for first order autocorrelation and requires the inclusion of an intercept (constant) in the regression model and no additional variables among the independent variables. where the d value is compared with df = n - (k + 1) using the d table at a significance level of 5%. The following requirements can be used to determine whether autocorrelation exists. When the DW number is less than -2, positive autocorrelation is present. Since the DW number ranges from -2 to +2, there is no autocorrelation. There is negative autocorrelation if the DW number is greater than +2.

The autocorrelation test produced the following results when the autocorrelation problem was resolved:

BUSINESS & MANAGEMENT

Technium Business and Management (TBM)
Vol. 7, pp.138-145 (2024)
ISSN: 2821-4366
www.techniumscience.com

Table 3. Durbin-Watson Statistical Test

Durbin-Watson stat	**Kesimpulan**
1,46237	tidak terdapat autokorelasi

Table 3 shows that 1.46237 is the final Durbin-Watson value, falling between -2 and +2 (-2 < 1.46237 < +2). Based on these findings, it can be concluded that the regression model satisfies the requirements for regression testing because there is no autocorrelation.

4. Multicollinierity Problem Test

The multicollinearity problem in this study was investigated by examining the VIF value, yielding the following findings.

Table 4. Multicollinierity Test Result

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	205394.2	76.34401	NA
X1	0.000841	99.21185	6.292400
X2	0.001379	129.5885	5.057624
X3	1.94E+08	1.550547	1.044161
X4	52336290	41.03802	1.645411

All of the variables, X1 and X2, have VIF values > 0.10 and < 10, as can be seen in the table. Thus, it can be said that multicollinearity is not an issue in this model.

Table 5. Estimation Output

Variable	Coefficient	Std. Error	t-Statistic	P-Value
C	2845.188	453.2044	6.277936	0.0000
X1	0.083888	0.029002	2.892522	0.0055
X2	0.062387	0.037136	1.679947	0.0986
X3	-9219.942	13937.02	-0.661543	0.5110
X4	20796.24	7234.382	2.874639	0.0057

R-squared	0.629042	Mean dependent var	6175.219
Adjusted R-squared	0.602063	S.D. dependent var	636.9060
S.E. of regression	401.7744	Akaike info criterion	14.90931
Sum squared resid	8878246.	Schwarz criterion	15.08384
Log likelihood	-442.2794	Hannan-Quinn criter.	14.97758
F-statistic	23.31621	Durbin-Watson stat	1.070651
Prob(F-statistic)	0.000000		

The coefficient of determination (R2) in Table 5 is 0.629042, or 62.9042%, according to the test results. The results of the tests indicated that the independent variables in this study—imports, exports, inflation, and BI rates—accounted for 62.9042% of the variability of the ICI variable, while factors outside the regression model accounted for the remaining 37.0942%.

Table 5 shows the coefficient constant value, which may be used to create the following multiple linear regression equation:

$Y = 2845{,}18784563 + 0{,}0838878077084\ X_1 + 0{,}0623865734116\ X_2 - 9219{,}94218629\ X_3 + 20796{,}2389097\ X_4$

The following is an interpretation of the equation above:

- α is 2845.18784563, meaning that the ICI is valued 2845.18784563 units if imports, exports,

Technium Business and Management (TBM)
Vol. 7, pp.138-145 (2024)
ISSN: 2821-4366
www.techniumscience.com

inflation, and the BI interest rate are all zero

- The export variable's regression coefficient is 0.0838878077084, meaning that the ICI will increase by 0.0838878077084 units if exports move by 1 unit (assuming all other variables remain constant).
- The import variable's regression coefficient is 0.0623865734116, meaning that a rise of 0.0623865734116 units will be experienced by the ICI for every unit change in imports (provided all other variables remain constant).
- The inflation variable's regression coefficient is 9219.94218629, which indicates that the ICI will fall by 9219.94218629 units if there is a change in inflation of 1 unit (provided all other variables remain constant).
- The BI rate variable's regression coefficient is 20796.2389097, which indicates that the ICI will rise by 20796.2389097 units if the BI rate changes by 1 unit (provided all other variables remain constant).

Table 5 leads to the conclusion that the export variable's value of probability (p-value) is 0.0055. Exports having an impact on the ICI, as determined by the value of probability < 0.05 (5% significance level) or 0.0055 < 0.05.

The import variable has a p-value of 0.0986. Imports have no effect on the ICI, as determined by the value of probability > 0.05 (5% significance level) or 0.0986 > 0.05.

The inflation variable's p-value is 0.511. The result is that inflation has no influence on the ICI because the value of the probability > 0.05 (5% significance level) or 0.511 > 0.05 respectively.

The BI rate variable has a p-value of 0.0057. The BI rate affects the ICI, as indicated by the value of probability < 0.05 (5% significance level) or 0.0057 < 0.05.

Table 5 indicates that the value of the probability (F-statistic) is 0.0000 < 0.05, indicating that the ICI is simultaneously influenced by imports, exports, inflation, and BI rates.

Conclusion

Partially, exports and BI rates have an impact on the ICI, while imports and inflation have no effect on the ICI for the 2018 period, according to research findings on the effects of imports, exports, inflation, and BI rates on ICI for the 2018–2022 period. For the years 2018–2022, the ICI in Indonesia is influenced concurrently by imports, exports, inflation, and BI rates.

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