International Journal of
Economics Development Research, Volume 4(5), 2023
pp. 2660-2673

The Effect of Macroeconomic Variables and COVID-19 on Stock Returns of Tourism Sector Companies in Indonesia

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Abstract:

The purpose of the research in this article is to find out whether the COVID-19 pandemic and macroeconomics have an impact on the return of tourism sector stocks in Indonesia and how big the impact is. The research method used in this study is quantitative method and the data used are secondary data taken from various sources with data for the period 2019 Q4 - 2022 Q4. The analysis tool used in this study is Eviews 12. Based on the results, it is known that variable oil prices, exchange rate, positive cases of COVID-19, and cases of COVID-19 deaths have an insignificant effect. While the money supply significantly positive affects stock return. An increase in the amount of currency supply results in more economic activity and cash flow and thus, fluctuations in the amount of money supply affect the increase in the amount of investment and return on shares. Inflation has a significant negative effect to stock returns which means the increase in inflation will decrease tourism sub-sector companies' stock returns and vice versa.

Keywords: *COVID-19, Macroeconomic variables, Stocks, Tourism sector*

1. Introduction

Stocks are the most sensitive assets to economic conditions thus stock price movements are quite difficult to predict and topics related to the relationship between stocks and macroeconomic variables continue to be debated (Barakat et al., 2015) In general, macroeconomics consists of GDP, inflation, state debt, exchange rate, population, unemployment rate, however, the most frequently used variables are exchange rates, inflation, and interest rates (Iqmal & Putra, 2020).

Since 2020, the COVID-19 virus has rapidly spread throughout the world. In a short time, the COVID-19 virus has spread to various transcontinental countries and caused more than 250 thousand deaths (Junaedi &; Salistia, 2020). COVID-19 cases have an impact on the world economy, and Indonesia is one of them (Syukur et al., 2021). The *Lockdown* policy, which is an effort by the government to reduce the number of positive cases in Indonesia, causes foreign tourists to be unable to visit

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and certainly has a significant impact on the tourism and hospitality sector industry where shares in the industry concerned mostly decline (Fajriani, 2021).

Research related to the effect of the COVID-19 pandemic on stock returns was conducted Utomo and Hanggraeni, (2021) which shows that the number of COVID-19 deaths has a significant negatively affect on stock returns. However, these results contradict research conducted by (Indrastuti, 2021) which found results that the COVID-19 pandemic did not have a significant impact. According to (Indrastuti, 2021), this can happen because some investors still believe in the government in managing the COVID-19 pandemic so they remain focused on their long-term investment strategies. Therefore, positive cases of COVID-19 do not have much impact for some investors.

Several studies also have been conducted on the influence of macroeconomics on stock returns and the results have been quite varied. In research conducted by Kalam (2020) on stock returns in Malaysia using variables of GDP, interest rate, exchange rate, inflation rate, and foreign investment. The results showed that GDP, inflation rates, and foreign investment positively influence stock returns, while interest rates and exchange rates had a negative influence on stock returns. The results of these findings contradict the results of Naseer et al's (2021) research on stock returns in Pakistan where the research shows that GDP and inflation rates negatively affect stock returns.

The difference in the findings of previous research related to the relationship between macroeconomic variables, COVID-19 and stock returns with different country objects shows that there is a research gap makes the author interested in researching on macroeconomic variables' relationship to stock returns and how big the COVID-19 pandemic impact on stock returns in the tourism sector companies in Indonesia.

2. Theoretical Background

Stock

Stock is known as the division of ownership in a company. The more shares owned, the greater the ownership rights in a company (Nayeem Abdullah et al., 2015). Investing in stocks will get a return in the form of income from a percentage initial capital referred to as *stock return* (Alexander and Kadafi, 2018)

According to Bhowmik and Wang (2020), the price of stocks is affected by several factors. The first factor is monetary policy where during one year of loose monetary policy, there is a greater chance of stock prices rising. Conversely, stock prices are likely to decline if tight monetary policy is implemented. The second factor is the interest rate where in general, Stock market capital costs will also rise if interest rates continue to rise.

Exchange rate

Exchange rate and stock returns relation are research topics that researchers are interested in. Some researchers pay more attention to the cause and effect of the exchange rate relationship to stock fluctuations (Mroua and Trabelsi, 2020). According to Suriani et al. (2015), exchange rate relationship to stock returns may vary depending on geographical regions, economic conditions, relations with the international world and others.

Based on research conducted by Singh (2015) on the effect of exchange rates on stock returns in India using *Johansen's co-integration test and Granger causality test framework*, shows the results that in the long run, exchange rates will always affect stock prices due to their significant influence Therefore, the exchange rate is considered quite effective in determining stock prices.

Muneeb et al (2019) research related to the effect of exchange rates on stock returns in Pakistan also supported that statement, where the findings of the study also show that exchange rates significantly influence stock returns. The high exchange rate leads to an increase in operating costs, but the increase is masked by receipts of income from abroad so that it remains a profit for the company and increases the share price of the company. In addition, research conducted by (Amarkhil et al., 2021; George & Yusof, 2022; Gunawardhana & Mustafa, 2020) also got the same result, namely that exchange rate significantly influences stock return.

Inflation Rate

The inflation rate is a continuous increase in prices for goods or services in a certain period. Because goods and services require more money to obtain, the implicit value of money decreases and a high inflation rate will drain the purchasing power of a country's economic currency (Mugambi & Okech, 2016). According to Kwofie and Ansah (2018), a nation's economy can be impacted by elements like income, high nominal wages, income swings, and debt servicing.

In research conducted by Jamaludin et al (2017) related to the effect of inflation on stock returns in three ASEAN countries, namely Indonesia, Malaysia, and Singapore, it was found that the inflation rate had significantly affect stock returns on a negative way. That because, an increase in the amount of money increases the supply of shares on the exchange but the demand side remains unchanged, so companies do not benefit from inflationary events. Research done by (Kusumaningtyas et al., 2021; Njogo et al., 2018; Suharyanto & Zaki, 2021) also get the same result, namely inflation significant negatively affect stock returns

However, research conducted by Kalam (2020) regarding the influence of inflation on stock returns in Malaysia, also found that the rate of inflation has significant effects on stock returns., but in a positive way. This is because in Malaysia, the government provides support for industrial development and emphasizes poverty rates by creating new jobs.

Crude Oil Price
According to (Diaz & Gracia, 2017), factors that cause changes in the determination of oil costs directly have a positive and critical impact on return of oil and gas companies' stocks in the short term. The rising cost of oil positively impacts stock returns. In research conducted (Suripto et al., 2021) on stock returns in mining sector companies in Indonesia, it was found that oil prices significantly influenced stock returns.

Money Supply
Based on the quantity theory of money, the long-run economic price level is determined by the money supply. If there is a change in the money supply, it creates a change in the price, either in a positive or negative direction (Naveed and Muhammad, 2016). Authorities have typically exploited the money supply to influence economic change through interest rate manipulation (Murthy et al., 2017).

In research conducted by Altintas and Yacouba (2018) regarding the relationship between money supply on stock returns in Turkey, it was found that money supply significantly affects stock returns where a 1% increase in money supply will increase stock prices by 4.97%. Conversely, if the money supply decreases by 1%, it will have an impact on stocks where it decreases by 5.07%.

The findings of this research are supported by John's research (2019) regarding the effect of money supply on stock returns in Nigeria, where his research also shows that stock returns are significantly influenced by the money supply. In addition, research conducted by (Pícha, 2017; Qing & Kusairi, 2019) also gets the same result where stock returns are greatly influenced by the money supply.

COVID-19 Pandemic
The COVID-19 pandemic is increasingly considered a serious problem around the world. This causes anxiety and stress in the community (L. Liu et al., 2020). The impact of COVID-19 is very important, especially since the first outbreak occurred in China which is a major center of foreign investment in Asia (H. Liu et al., 2020).

In research conducted by Romieo et al (2022) related to the effect of COVID-19 on stock returns in Singapore and Indonesia, it was found that positive COVID-19 cases significant negatively affect Singapore's stock returns while it did not affect Indonesia. This is because Singaporeans tend to be more afraid of death so they do not buy shares during the pandemic. Research conducted by Utomo and Hanggraeni, (2021), also found that COVID-19 cases significant negatively affect stock return.

In research conducted by Romieo et al (2022) regarding the effect of COVID-19 to stock returns in Singapore and Indonesia, it was found that stock returns were significantly negative impacted by the number of deaths of these two countries. This result is also supported by the results of research from Utomo and Hanggraeni,

(2021) which shows that the number of COVID-19 deaths has a significant negatively affect on stock returns.

3. Methodology

In this article, the object of study is tourism sub-sector companies that listed on the Indonesia Stock Exchange (IDX) since 2019. Tourism companies are used as research objects because in research conducted by Fachira & Saleh (2022), it was found that the most impactful sector during the pandemic was the tourism sector as evidenced by the decrease in the number of foreign tourists. The following are 26 tourism sub-sector companies listed on the IDX since 2019

Table 1. List of Companies in the Tourism, Hospitality, and Restaurant Sub-sector

AKKU	Anugerah Kagum Karya Utama Tbk	**HRME**	Menteng Heritage Realty Tbk	**NATO**	Surya Permata Andalan Tbk
ARTA	Arthavest Tbk	**IKAI**	Intikeramik Alamasri Industri	**NUSA**	Sinergi Megah Internusa Tbk
BUVA	Bukit Ulawatu Villa Tbk	**JIHD**	Jakarta International Hotels & Development Tbk.	**PGLI**	Pembangunan Graha Lestari Inda
CLAY	Citra Putra Realty Tbk	**JSPT**	Jakarta Setiabudi Interasional	**PNSE**	Pudjiadi & Sons Tbk
DFAM	Dafam Property Indonesia Tbk	**KPIG**	MNC Land Tbk	**PSKT**	Red Planet Indonesia Tbk
EAST	Eastparc Hotel Tbk	**MABA**	Marga Abhinaya Abadi Tbk	**RISE**	Jaya Sukses Makmur Sentosa Tbk
FITT	Hotel Fitra Intenational Tbk	**MAMI**	Mas Murni Indonesia Tbk	**SHID**	Hodel Sahid Jaya International
HOME	Hotel Mandarine Regency Tbk	**MINA**	Sanushasta Mitra Tbk	**SOTS**	Satria Mega Kencana Tbk
HOTL	Saraswati Griya Lestari Tbk	**NASA**	Andalan Perkasa Abadi Tbk		

Source: Stockbit (Awal, 2022)

The method used is quantitative methods and secondary data at period 2019 Q4 - 2022 Q4 taken from various sources such as exchange rate data taken from Google Finance, inflation rate data taken from the Bank Indonesia website, crude oil prices taken from the Trading Economics website, money supply data taken from the Badan Pusat Statistik website and COVID-19 data taken from Google News are used in this study. The sampling method in this study is *purposive sampling* where the sample taken is a tourism sub-sector company that listed on the Indonesia Stock Exchange since 2018. Data is analyzed with the E-views 12 tool.

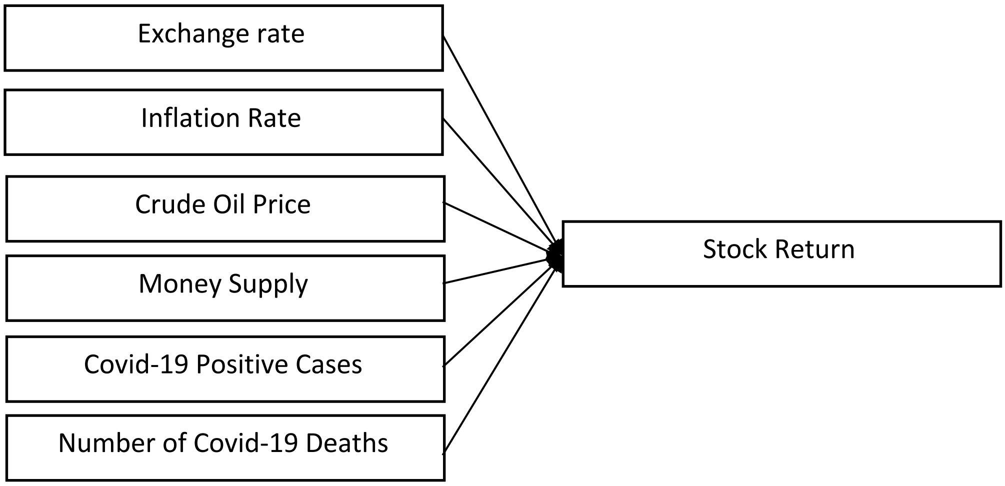

Figure 1. Model of Relationships Between Variables

Based on the research model made, it can be concluded on the hypothesis in this study as follows:

H1: Exchange rate has a significant positive effect on stock returns
H2: The inflation rate has a significant negative effect on stock returns
H3: Crude oil prices have a significant positive effect on stock returns
H4: Money supply has a significant positive effect on stock returns
H5: Positive cases of COVID-19 have a significant negative effect on stock returns
H6: COVID-19 deaths have a significant negative effect on stock returns

4. Empirical Findings/Result

Descriptive statistics can be useful for explaining and describing the values of research samples in statistical forms such as minimum, maximum, average, and standard deviation (The et al., 2022).

Table 2. Descriptive Statistics

	Min	Max	Mean	Std
SR	-0,900	2,493	0,022	0,360
ER	-0,126	0,177	0,013	0,068
INF	0,013	0,059	0,027	0,016
OIL	20,480	105,760	66,447	24,484
M2	6,806	6,931	6,863	0,039
CP	2,057	4,339	3,253	0,632
CD	0,778	2,669	1,663	0,609

Source: Processed by author (2023)

Panel regression analysis aims to analyze data that is panel data type, which is a combination of *cross-sectional* and *time-series based data*. The first step in conducting the analysis is Chow Test to determine which effect should be use.

Table 3. Chow Test

Effects Test	Prob.
Cross-section Chi-Square	0,267

Source: Processed by author (2023)

Based on the Chow test result above, the value of prob. Cross-section Chi-Square is 0.2673 or greater than 0.05 so the results of the Chow test recommend a common effect rather than a fixed effect.

Table 4. Lagrange Test

	Cross-Section
Breusch-Pagan	0,815

Source: Processed by author (2023)

Based on the Lagrange test result, the P value in Breusch-Pagan is 0.8145 which means, the best estimation method in this study is the Common Effect.

Table 5. F-test

Effect Specification	
Prob (F-statistic)	0,006

Source: Processed by author (2023)

In Table 5 above, the output of Test-F with a probability value smaller than 0.05 can be interpreted as the independent variable of the study simultaneously affecting the dependent variable and the model used is considered appropriate. This result explains that exchange rates, inflation, oil prices, currency inventories, COVID-19 positive cases, and the number of COVID-19 deaths simultaneously affect stock returns.

Table 6. T-test

Variable	t-Statistic	Prob.	Result	Hypothesis
ER	0,038	0,969	Insignificant	H_1 rejected
INF	-2,151	0,032	Significant Negative	H_2 accepted
OIL	-0,823	0,411	Insignificant	H_3 rejected
M2	2,916	0,003	Significant Positive	H_4 accepted
CP	-0,255	0,799	Insignificant	H_5 rejected
CD	0,556	0,579	Insignificant	H_6 rejected
C	-2,917	0,003		

Source: Processed by author (2023)

Based on the results of the t-test in Table 6 above, can be concluded that the independent variables of oil prices and positive cases of COVID-19 have a negative impact and also have an insignificant value on stock returns. Meanwhile, the exchange rate and COVID-19 death cases have a positive impact, although the value obtained is not significant on stock returns.

The independent variable that has a positive as well as significant impact on stock returns is the money supply. While the independent variable that has a significant negative impact on stock returns is inflation.

5. Discussion

The effect of exchange rates on stock returns

In the results of the t-test, get results where the exchange rate did not significantly affect stock returns which mean, changes in exchange rate did not effect tourism sector compies' stock return. Therefore, H1 in this study was rejected. The results are supported by research conducted by (Suriani et al., 2015). According to Suriani et al (2015), movements or fluctuations in demand and supply are factors that affect stock prices more so that exchange rates may not be able to affect prices strongly or significantly. The test results also supported by research conducted by Kalam (2020), (John, 2019) which obtained results where the exchange rate did not significantly affect stock returns. But contrary to research conducted by (Amarkhil et al., 2021; Fatmawati et al., 2020) which shows results where exchange rates influence significantly on stock returns and research from (Suripto et al., 2021) which results that exchange rates significant negatively affect stock returns.

The effect of inflation on stock returns

The t-test that has been done shows that the inflation rate has a significant negative effect on stock returns so the H2 of this study is accepted. That's mean the fluctuation on inflation leads to a fall in Indonesia tourism sector companies' stock return. The test results are supported by research conducted by Jamaludin et al (2017) where the research showed similar results. According to Jamaludin et al (2017), this phenomenon can be explained based on the fact that the occurrence of surplus money as a result of the inflation rate increases the supply of shares on the stock exchange while keeping the demand side unchanged. Iqmal and Putra (2020) also argue that high inflation reduces the ability or purchase power of people's goods. The findings are in line with the research conducted by (Q. N. Alam, 2020; Eldomiaty et al., 2020; Kalam, 2020; Kusumaningtyas et al., 2021; Naseer et al., 2021; Njogo et al., 2018; Suharyanto & Zaki, 2021) which obtained the results of the inflation rate having a significant negative effect to stock returns.

The effect of crude oil prices on stock returns

In the t-test that has been done, getting results where oil prices do not significantly affect stock returns so H3 in this study is rejected. These findings are in line with research conducted by (Gunarto et al., 2020; Kösedağlı et al., 2021; Masood et al., 2019) where their research results found that oil prices did not significantly affect stock returns. However, contrary to research (Suripto et al., 2021) which found that oil prices significantly affect stock returns.

The effect of money supply on stock returns
Based on the t-test conducted, the results show that the money supply has significantly affected stock returns which mean, the rise on money supply give benefit on tourism sector companies' stock return. Therefore, the H4 of this study was accepted. The test results are supported by Khan and Khan's (2018) research which also found that currency supply has a positive significant effect on stock returns. According to Khan and Khan (2018), an increase in the amount of currency supply results in more economic activity and cash flow and thus, fluctuations in the amount of money supply affect the increase in the amount of investment and return on shares. The test results are also supported by research (I. Alam et al., 2020; Altintas & Yacouba, 2018; John, 2019; Pícha, 2017; Qing & Kusairi, 2019) which get similar results.

The effect of positive COVID-19 cases on stock returns
In the t-test conducted, getting results where positive cases of COVID-19 did not significantly affect stock returns so the H5 of this study was rejected. The results of this research are supported by Indrastuti's (2021) research. According to (Indrastuti, 2021), this can happen because some investors still believe in the government in managing the COVID-19 pandemic so they remain focused on their long-term investment strategies. Therefore, positive cases of COVID-19 do not have much impact for some investors. Research conducted by Milenia and Marheni (2021) also obtained similar results.

The effect of COVID-19 death on stock returns
The results of the t-test in this study show that the number of COVID-19 deaths has no apparent effect on stock returns. so that the H6 of this study is rejected. These results are supported by Indrastuti's (2021) findings. According to Indrastuti (2021), this phenomenon occurs due to several actions taken by the Indonesian government to decrease the impact of the COVID-19 pandemic on the market and investors focus on long-term investment goals so that the impact of the pandemic is not too significant. The results of this study are supported by research conducted by (Ashraf, 2020; Milenia & Marheni, 2021; Romieo et al., 2022) which also obtained results where the number of COVID-19 deaths didn't have a significant effect.

6. Conclusions

Stocks are the most sensitive assets to economic conditions thus stock price movements are quite difficult to predict and topics related to the relationship between stocks and macroeconomic variables continue to be debated because macroeconomic variables are referred as one of the factors that can affect stock returns. Then, since the beginning of 2020, the COVID-19 virus has rapidly spread throughout the world. The occurrence of COVID-19 cases impacted the world economy and one of them is Indonesia. The lockdown policy which is an effort by the government to reduce the number of positive cases in Indonesia causes foreign tourists to be unable to visit and certainly has a significant impact on the tourism and hospitality sector industry where shares in the industry concerned mostly decrease. The purpose of this study is to determine the influence of macroeconomic variables, namely exchange rates, inflation, oil prices, currency inventories, and also COVID-19 pandemic variables on stock returns in tourism sub-sector companies that are listed on the IDX.

Based on the results of the t-test analysis, it is known that exchange rate variables do not significantly affect stock returns. This result is supported by previous research, namely Kalam (2020) and John (2019) which found that exchange rates do not influence stock returns. Variable oil prices also have no significant effect on stock returns. These findings are supported by research conducted by (Gunarto et al., 2020; Kösedağlı et al., 2021; Masood et al., 2019). The inflation variable has a significant negative influence on stock returns which means the increase in inflation will decrease tourism sub-sector companies' stock returns and vice versa. These results are supported by research conducted (Q. N. Alam, 2020; Eldomiaty et al., 2020; Kalam, 2020; Kusumaningtyas et al., 2021; Naseer et al., 2021; Njogo et al., 2018; Suharyanto &; Zaki, 2021)

The variable money supply significant positively effect on stock returns which means the more money in circulation, the greater the stock returns and vice versa. This happens because the more money supply, the higher economic activities such as investment. The results of the study are supported by research conducted by (I. Alam et al., 2020; Altintas &; Yacouba, 2018; John, 2019; Pícha, 2017; Qing & Kusairi, 2019). The independent variables of COVID-19 positive cases and number of COVID-19 death cases did not significantly affect stock returns. These results are supported by research of Milenia & Marheni (2021) and Indrastuti (2021) which showed similar results. This happens because Indonesian investors tend to believe in government countermeasures in emphasizing problems from COVID-19 so that pandemic events do not have a meaningful impact on investors in carrying out their investment strategies.

Based on the results of the analysis conducted, investors who are interested in investing in tourism sector companies should paying more attention to inflation and money supply conditions. Then, the Indonesian government must be able to maintain the way they handle the COVID-19 pandemic so that the COVID-19 pandemic in the future will not become a variable that affects the stock return of tourism sector companies. The limitation of this study is that not all tourism sub-sector companies can be taken as a sample where only 26 companies out of 31 fit the research criteria. This is because the 5 companies were listed on the IDX after 2019 so that the required data was not met. Therefore, researchers hope that in the future, research related to the influence of macroeconomic variables and the COVID-19 pandemic on returns can be carried out again by further researchers with all tourism sub-sector companies can be used as research samples, so the results obtained can be more accurate and reflect the facts that occur in the world of tourism sub-sector companies.

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