Factors affect tourism stock price in Indonesia

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ARTICLE INFO

Article history
Received 2021-11-18
Revised 2021-12-11
Accepted 2021-12-21

Keywords
Interest Rate
Exchange Rate
Inflation
Number of Tourists
Tourism Stock Price

ABSTRACT

The study aims to examine which factors affect the tourism stock price more. The study uses weekly exchange rate and tourism stock prices; the inflation, interest rate, and the number of tourism use monthly data. Using descriptive statistics, correlation matrix, augmented Dickey Fuller's unit root test, VAR, the Granger causality test, and Impulse Response. The results show that all the variables in our observations have no causal relationship. Interest rates do not have a causal relationship with exchange rates, inflation, number of tourists, and tourism stock prices. The VAR models show interest rate has a negative impact on tourism stock price, exchange rate, and the number of tourists positively impacting tourism stock price. Inflation has no impact on tourism stock price. A decrease in interest rates will encourage investment to develop a business. A decrease in the IDR exchange rate against the USD will lower the product's price, so foreign tourists will feel that Indonesian goods are getting cheaper; thus, they will spend more and increase the tourism company's share price. Regulators can use the research results by lowering and maintaining the stability of interest rates, exchange rates, inflation, and increasing the number of tourists to Indonesia.

1. Introduction

Indonesia is a country in Southeast Asia rich in natural resources, fertile land, and various cultural heritages. Natural resource and cultural wealth is essential component of tourism in Indonesia. Until 2020, 9 locations in Indonesia have been determined by UNESCO to be included in the list of World Heritage Sites [1]. Tourism in Indonesia is an important economic sector. Tourism objects in Indonesia consist of natural tourism, cultural tourism, religious tourism, and shopping tourism. The Indonesian government asks investors to invest in facilities and infrastructure to support tourism. The stock price plays a vital role in the economy. Investors will select and buy the tourism stock with a good prospect and tends to increase. The stock price movement is based on the demand or supply of a particular market stock. Many factors influence the tourism stock price, such as the stock's financial indicators, technical analysis, the number of tourists, the macroeconomics indicators, and other factors.

Many researchers have studied various factors in tourism and hospitality management. The study of [2] and [3] are modeling tourist arrivals and tourist consumptions, exchange rate, and gross domestic product. [4] find that higher uncertainty drives higher demand for international tourism

abroad; the increased global economic policy uncertainty negatively impacts international departures. [5] examined the usefulness of Google Trends data in estimating monthly tourist arrivals and overnight stays; [6] explored the demand-side factors that influence the number of international tourists arrivals. [7] indicated that house prices, net financial assets, and stock options have the same causality as tourism departure. [8] concluded that economic growth appears to support human capital. [9] show that gross domestic product (GDP) and political stability positively impact the number of tourism, meaning that the higher GDP growth and the more political stability will increase the number of tourists. However, the exchange rate negatively affects the tourist number, which means that the exchange rate fluctuation will increase the tourist flow. [10] and [11] have studied the stock market and tourism. [12] shows that the Gross Domestic Product and interest rate have influenced the stock price, while the gold price and exchange rate do not affect the stock price. [13] results suggest that exchange rate movements have significant short-term and long-term effects on stock prices. [14] conclude that exchange rate and interest rate have negatively affected stock price indices. [15] and [16] show that inflation significantly negatively affects the stock price. [17] study indicates that inflation and interest rates positively and significantly impact the stock market. [12],[18],[19] results show that the interest rate positively impacts the stock price.

The above studies of inflation, exchange rate, and interest rate impact on the stock price have different results. Therefore, we have used interest rate, exchange rate, inflation and number of tourists, and tourism stock price in Indonesia because international tourists' arrival to Indonesia has increased over the years. So, the problem formulation for this study is: do the interest rate exchange rate, inflation, and the number of tourists impact tourism stock price, partially and simultaneously? This study examines which factors have impacted the tourism stock price more. We have collected the data from Indonesia Statistics Central Bureau, Bank Indonesia, and Indonesia Composite Stock Price Index (IHSG). We have used descriptive statistics, augmented Dickey-Fuller (ADF) test, the Granger causality test, the vector autoregressive model (VAR), and Impulse Response.

The original of the research is the first model in this study. The independent variables of interest rate, exchange rate, and tourists' number impact the tourism stock price, but inflation has no impact on the tourism stock price. Regulators can use the research results by maintaining the stability of interest rates, exchange rates, and increasing tourists to Indonesia.

2. Theoretical Framework

ourism is an important economic sector in Indonesia. The stock price is the market value for a compaTny. The stock price depends on news announcements, market supply and demand, individual stock's financial indicators, the particular stock's technical analysis, macroeconomics indicators, and other factors. The financial indicators of the firm will serve as the fundamental analysis for the value of an individual stock, and the investor will invest in the undervalue firm.

Given interest rate, exchange rate, and inflation, the tourism stock price and many researchers have given different results in their studies. [17] reveals that gross domestic product, foreign direct investment, inflation, and interest rate are co-integrated with market value; the inflation rate and interest rate positively and significantly impact the stock market. [18] and [19] have also concluded that interest rates positively impact stock prices. The increment in an interest rate at a certain level will encourage more consumption and investments; therefore, in the end, it will increase the stock price. Stocks with good fundamentals will value higher in periods of high inflation, and growth stocks perform better during low inflation.

[14] study the impact of commodity prices, interest rates, and exchange rates on the stock market performance. The result concludes that the palm oil price significantly impacts the stock market; the exchange rate and interest rate negatively affect stock price indices. A simple explanation is an increase in the interest rate will reduce consumption and investments. The decrease in consumption and investment will decrease the stock price. On the contrary, if the interest rate decreases will increase consumption and investments. Investors will establish a factory to produce and increase market prices. [20] concluded that gross domestic product growth rate, foreign currency reserve growth rate, and fiscal deficit positively influence the stock market. However, inflation, interest rate, foreign direct investment to gross domestic product ratio, and exchange rate significantly negatively impact the stock market. The Granger causality test result that inflation can predict stock market returns. Exchange rates and stock prices have no long-run relationship but bidirectional and

nonlinear Granger causality [21]. Inflation has a significantly negative effect on the stock price; inflation will destroy the value of investment [16]. [22] examines inflation, industrial production, exchange rate, number of tourist arrivals, and a stock price index of Croatian hospitality companies. Higher inflation negatively impacts the stock price, and the exchange rate does not impact the tourism stock price. The exchange rate positively affects the stock prices when local currency depreciates and local firms become more competitive, leading to increased exports, which will boost stock prices.

The tourism businesses depend on the tourist flow in Indonesia. One of the parameters to show the success of the tourism firms is the stock price. The number of tourists arriving will increase the tourism stock price because they will use the facility and infrastructures. [9] have studied the factors that influence tourist arrival. The elements are gross domestic product per capita of the traveler's home country, the political or security situation based on expert perception, the distance weighted between the destination country's economic center and the travelers' home country, border, language, visa, flight, inflation, and exchange rate. The result shows that gross domestic product (GDP) and political or security stability positively impact the tourism inflow, meaning that the higher growth in GDP and more stability of the political or security will increase the number of tourists. However, visa and exchange rate negatively affect the tourist number, which means that the more straightforward it is to get the visa and the decrease of exchange rate fluctuation, the tourist inflow will increase.

[6] identify the dynamic of tourism demand to achieve sustainable tourism. Their model is very effective in explaining tourist arrivals. Their findings are that the per capita income of both origin country and destination country, exchange rate, and globalization positively affect the demand for tourism. Inflation, violence, household debt level, and bilateral distance between the origin and destination countries negatively affect the tourism inflow.

3. Method

Based on the introduction and literature review, the interest should negatively impact tourism stock price, decrease the interest rate, the people will consume more, and investors will expand their businesses. The lower interest rate will make the company operate better, and the product price will be stable. If the interest rate increases, the product price will increase, people will buy less, the firms' profit will decrease, and the stock price will fall. The increasing number of foreign tourists will increase the sales of local companies' products so that local companies' finances will be better, which will increase the company's share price. For the exchange rate, if the IDR depreciates against the USD, then the foreign tourists will find that the products are getting cheaper, and they will increase their consumption and, in the end, increase the sales of the company and increase the stock price. The inflation rate is stable or lower, will increase the buying power of the people, in the end, will increase the sales of the companies and increase their stock prices.

Therefore, we have formulated the hypotheses as to the following:

H1: The interest rate negatively impacts tourism stock price.

H2: The exchange rate positively impacts tourism stock price.

H3: Inflation negatively impacts tourism stock price.

H4: The number of tourists positively impacts tourism stock price.

3.1. Econometric modeling

We have used descriptive statistics to see if data has normally distributed and the augmented Dickey-Fuller (ADF) test [23]. The equation of ADF is as the following.

$$\Delta Y_t = \alpha + \beta T + \rho Y_{t-1} + \sum_{i=1}^{k} Y_i \Delta Y_{t-i} + e_t \quad (1)$$

We can apply the Johansen cointegration and Granger causality test if the ADF is stationary at the first difference.

We have used a vector autoregressive model [24],[25] for the study to organize the data into the impulses mechanism. Other studies have used Johansen's cointegration test [26],[27] continuous wavelet analysis [28], ARDL cointegration approach [29].

[30] Causality is a tool for discovering if a one-time series is a substantial long-run relationship between variables, such as equations (2) and (3):

$$Y_t = \beta 0 + \sum_{k=1}^{M} \beta_k Y_{t-k} + \sum_{i=1}^{N} \alpha_i X_{t-i} + U_t \quad (2)$$

$$X_t = \beta 0 + \sum_{k=1}^{M} \beta_k X_{t-k} + \sum_{i=1}^{N} \delta_i Y_{t-i} + V_t \quad (3)$$

According to [31] and [32], model vector autoregressive is a system of a dynamic equation where the estimations of a variable in a certain period depending on the movement of these variables and the other variables involved in the system in the previous period. Var model is a combination of several autoregressive models.

$$y_t = c + A_1\, y_{t-1} + A_2\, y_{t-2} + \cdots + A_p\, y_{t-p} + e_t \quad (4)$$

We have used the interest rate, exchange rates (USD-IDR), inflation, number of tourists arriving, and tourism stock price of IHSG from Indonesia Statistics Central Bureau, Bank Indonesia, and Indonesia Composite Stock Price Index (IHSG). We have used the consumer price index (CPI) to represent the inflation of Indonesia. We collect the weekly data of tourism stock price and exchange rates from Bank Indonesia, Indonesia Composite Stock Price Index (IHSG), monthly data of CPI, interest rate, and tourists arriving from Indonesia Statistics Central Bureau Bank Indonesia.

4. Results and Discussion

4.1. Data Description

Table 1 shows the descriptive statistics data that the mean and standard deviation of IR is 0.048 and 0.007; the mean and standard deviation of ER is 14518.33 and 655.73; the mean and standard deviation of inflation is 0.23 and 0.266; the mean and standard deviation of NT is 993931.8 and 456708.3; the mean and standard deviation of SP is 609.006 and 69.02.

Table 1. Descriptive Statistics

	IR	ER	Inflation	NT	SP
Mean	0.048484	14518.33	0.230164	993931.8	609.0055
Median	0.047500	14413.00	0.200000	1147031	598.7576
Std. Dev	0.007060	655.7262	0.266424	456708.3	69.01675
Skewness	0.117450	1.398952	0.338279	-1.051212	0.670909
Kurtosis	2.128262	5.213481	3.262080	2.642425	2.703927
Jarque-Bera	2.071725	32.34973	1.337975	11.55962	4.799010
Probability	0.354920	0.000000	0.512227	0.003089	0.090763

[a.] Source: authors' work

Table 2. Correlation Matrix

	IR	ER	Inflation	NT	SP
IR	1	0.202255	0.044214	0.008887	-0.468793
ER	0.202255	1	0.237362	0.273444	0.056780
Inflation	0.044214	0.237362	1	0.176333	0.167862
NT	0.008887	0.273444	0.176333	1	0.447772
SP	-0.468793	0.056780	0.167862	0.447772	1

[b.] Source: authors' work

Table 2 shows the correlation between the variables in the study. The tourism stock price negatively correlates with interest rates, i.e., -0.468793, and positively correlates with exchange rates, inflation, and tourists' number. The stock market has high negative correlations with the interest rate and a high positive correlation with tourists' arrival, 0.447772.

Table 3. Lag

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1362.563	NA	4.75e+14	47.98465	48.16387	48.05430
1	-1079.383	506.7428	5.55e+10	38.92571	40.00100*	39.34361*
2	-1044.862	55.71778*	4.06e+10*	38.59165	40.56302	39.35779
3	-1022.458	32.22997	4.69e+10	38.68275	41.55019	39.79713
4	-993.4480	36.64460	4.52e+10	38.54203*	42.30555	40.00466

[c.] Source: authors' work

After running the correlation matrix, table 3 shows that the AIC criteria for number 4 lag were good to use in this research.

Table 4. Unit Root Test

Variables	Intercept		Intercept, Linear Trend		None	
	t-Statistic	Probability	t-Statistic	Probability	t-Statistic	Probability
IR	-2.270047	0.1850	-2.224678	0.4671	0.714877	0.8668
D(IR)	-4.750839	0.0002	-4.784994	0.0014	-4.641428	0.0000
ER	-3.230312	0.0233	-3.713894	0.0293	0.179027	0.7347
D(ER)	-	-	-	-	-7.599167	0.0000
Inflation	-6.457217	0.0000	-7.489520	0.0000	-1.465064	0.1322
D(Inflation)	-	-	-	-	-8.443793	0.0000
NT	-0.756791	0.8236	-1.603387	0.7799	-0.883457	0.3292
D(NT)	-5.817102	0.0000	-5.982972	0.0000	-5.812517	0.0000
SP	-1.776714	0.3884	-1.869805	0.6575	-2.071561	0.0377
D(sp)	-6.728197	0.0000	-6.789322	0.0000	-	-

[d.] Source: authors' work

Table 4 describes the ADF (Augmented Dickey-Fuller) test at the level and in the first difference. The Augmented Dickey-Fuller test is to ascertain if the data in the study are stationary or not. We can conclude from the table that the exchange rates, inflation, and stock price variable was stationary at the level, but the interest rate and tourists' arrival variables were stationary at the first difference.

Table 5. Stability

Root	Modulus
0.953945 - 0.132460i	0.963097
0.953945 + 0.132460i	0.963097
0.439117 - 0.755498i	0.873843
0.439117 + 0.755498i	0.873843
0.819069 - 0.238785i	0.853166
0.819069 + 0.238785i	0.853166
0.840482	0.840482
-0.029102 - 0.784400i	0.784940
-0.029102 + 0.784400i	0.784940
-0.555175 - 0.536721i	0.772198
-0.555175 + 0.536721i	0.772198
0.731562	0.731562
0.667852 - 0.269831i	0.720303
0.667852 + 0.269831i	0.720303
0.089950 - 0.667845i	0.673875
0.089950 + 0.667845i	0.673875
-0.570525 - 0.062717i	0.573962
-0.570525 + 0.062717i	0.573962
-0.437014 + 0.246178i	0.501582
-0.437014 - 0.246178i	0.501582

[e.] Source: authors' work

We have tested the stability, and Table 5 can conclude that the data was stable because the modulus is less than 1.

Table 6. Granger Causality Test

Null Hypothesis	Obs	F-Statistics	Prob.	Conclusion
ER does not Granger Cause INFLATION	57	0.57188	0.6843	The relationship does not exist
INFLATION does not Granger Cause ER	57	0.53657	0.7095	
IR does not Granger Cause INFLATION	57	1.82113	0.1402	The relationship does not exist
INFLATION does not Granger Cause IR	57	1.83310	0.1379	
NT does not Granger Cause INFLATION	57	0.65918	0.6234	The relationship does not exist
INFLATION does not Granger Cause NT	57	0.78342	0.5416	
SP does not Granger Cause INFLATION	57	1.64069	0.1794	The relationship does not exist
INFLATION does not Granger Cause SP	57	0.24481	0.9114	
IR does not Granger Cause ER	57	1.33479	0.2707	The relationship does not exist
ER does not Granger Cause IR	57	1.09452	0.3700	
NT does not Granger Cause ER	57	0.55940	0.6932	The relationship does not exist
ER does not Granger Cause NT	57	0.49406	0.7401	
SP does not Granger Cause ER	57	1.89618	0.1264	The relationship does not exist
ER does not Granger Cause SP	57	1.67945	0.1702	
NT does not Granger Cause IR	57	0.67297	0.6140	The relationship does not exist
IR does not Granger Cause NT	57	0.20396	0.9350	
SP does not Granger Cause IR	57	0.63606	0.6393	The relationship does not exist
IR does not Granger Cause SP	57	0.87468	0.4861	
SP does not Granger Cause NT	57	1.72338	0.1603	The relationship does not exist
NT does not Granger Cause SP	57	1.54268	0.2049	

[f.] Source: authors' work

From table 6, we can conclude that all of the variables in our observations do not have a relationship. Interest rates are not related to exchange rates, inflation, number of tourists, and tourism stock prices. Likewise, there is no linkage between one variable and another with other variables examined in the study.

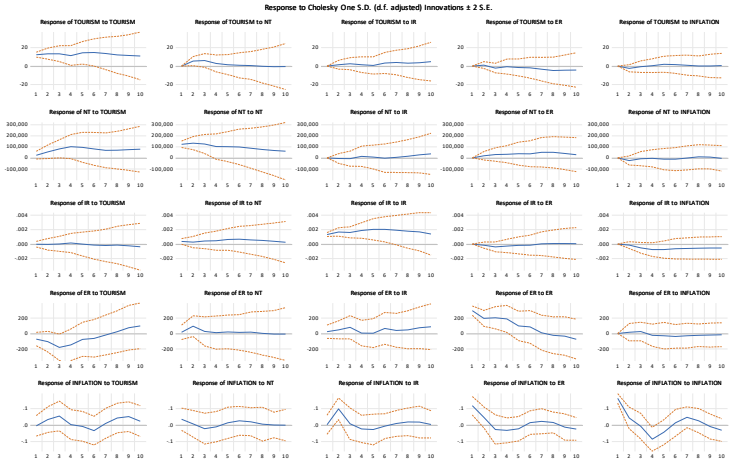

Fig. 1. Impulse Response

4.2. Discussions

After we run the impulse response, we can see that inflation's response was not noticeable in 10 periods because of the symmetric impact on inflation; in other words, inflation has no impact on tourism stock price—the impulse response of exchange rates in periods 1 and 2. The response declined from the 2nd period until the 3rd period, when it hits its steady-state value. Beyond the 4th period, the exchange rates rise above their steady-state and remain in the positive region. It means that stock prices will have a positive impact on exchange rates. The response of interest rates declines until the 4th period when it hits its steady-state value-form where it remains in the negative region from the 5th period until the 10th period falls very drastically than its steady-state value and remains in the negative areas. It means that interest rates will negatively or asymmetric impact tourism stock price. The response of the total number of tourism rises until the 3rd period when it hits its steady-state value-form where it remains in the positive region from the 4th period until the

10^{th} period rises sharply, its steady-state value, and remains in the positive areas. It means that the total number of tourists will positively impact tourism stock price.

So, based on the impulse responses charts, the first hypothesis is accepted; we see that the interest rate negatively impacts stock prices in the tourism sector. The decrease in interest rate will drive the investment in developing a business and opening branches or opening new companies. Then, with a low-interest rate, the public will increase consumption so that the company will sell its products well, the company will get good profits, and its stock price engagement in the tourism sector will increase. The result supports [14]. But it contradicts those of [12], [18], [19] results show that the interest rate positively impacts the stock price.

The second hypothesis is accepted; the exchange rate impacts tourism stock price positively. The result supports the conclusion of [6]. A decrease in the IDR exchange rate against the USD will lower the price of the products so that foreign tourists will feel that Indonesian goods are getting cheaper. Thus, they will spend more, so, in the end, companies in Indonesia engaged in tourism will increase their share prices. The results of this study contradict those of [9] and [14]. Their results are the exchange rate has negatively affected the stock price [12] shows that the exchange rate has no significant impact on the stock price.

The third hypothesis is rejected; inflation has no impact on tourism stock price. The results from [6], [15], [16], [22] studies show that inflation has a significantly negative effect on the stock price, while [17] indicates that the inflation rate positively and significantly impacts the stock market. The fourth hypothesis is accepted; the number of tourists positively impacts tourism stock price. An increasing number of tourists coming to Indonesia will shop for Indonesian products, namely transportation, housing, food, and souvenirs. Companies engaged in tourism will increase the value of their companies by increasing share prices.

The contribution of this paper is policymakers to keep interest rates low to create a favorable climate for doing business. Policymakers must maintain a more stable IDR-USD exchange rate to stabilize the prices of products and services. With the depreciation of the IDR currency against the USD, foreign tourists will feel that a decrease in the price of Indonesian domestic products will eventually increase consumption. Thus, the tourism company's share price will increase. However, policymakers should strive for stable IDR and USD exchange rates; so business people do not hesitate in carrying out their business activities. Although the inflation rate does not affect the tourism stock price in this study, the regulators must maintain inflation stability and even try to reduce the inflation rate so that the standard of living of the Indonesian people becomes better. Indonesia should strive to increase the number of international tourists on vacation in the country; this will develop local businesses in Indonesia, increase the company's share price, and bring in the state's foreign exchange.

The government can stimulate investors to invest in facilities and infrastructure with low-interest rates, stable foreign exchange rates, and low inflation rates to increase the number of tourists. The tourists will increase sales to all companies in Indonesia, especially companies engaged in the tourist business sector. Increased sales will increase business opportunities so that investors will open new businesses and absorb workers. Absorption of workers will increase consumption, increase the company's sales growth, increase company profits, ultimately improve people's welfare.

5. Conclusion

Our research focuses on the impact of the interest rate, exchange rate, inflation, and the number of tourists on tourism stock prices in Indonesia. We show the descriptive statistics, correlation matrix, ADF test, Granger causality test, and the impulse responses. The ADF test shows that the exchange rates, inflation, and stock price variable was stationary at the level, but the interest rate and tourists' arrival variables were stationary at the first difference. All the variables in our observations have no Granger causality test. Interest rates are not related to exchange rates, inflation, number of tourists, and tourism stock prices. Thus there is no relationship between one variable and another with other variables examined in this study.

Our findings are that interest rate negatively impacts stock price in the tourism sector, exchange rate and the number of tourists positively impact tourism stock price, and inflation does not impact tourism stock price. This paper has used the variables of interest rates, foreign exchange rates,

inflation, the number of tourists, and the share price of tourism companies. Further researchers can use the variables of economic growth, consumption of tourists, duration of tourist visits, political stability, security, gold prices, and commodity prices

Acknowledgment

I would like to acknowledge the editor and anonymous reviewers for helping to comment on this paper. His/her comments help me to improve the quality of this paper. The authors' responsibilities were as follows Thomas, Erika, Henry, and Toni designed the research and wrote the manuscript; Henry analyzed data; Thomas and Erika edited the manuscript; all the authors conducted the research and had primary responsibility for the final content of the manuscript; and all authors: read and approved the final manuscript. None of the authors had a conflict of interest.

References

[1] "World Heritage List." http://whc.unesco.org/en/list/ accessed in May 2021.

[2] A. Jelušić, "Modelling tourist consumption to achieve economic growth and external balance: Case of Croatia," Tour. Hosp. Manag., vol. 23, no. 1, pp. 87–104, 2017, doi: 10.20867/thm.23.1.5.

[3] J. Rosselló-Nadal and J. HE, "Tourist arrivals versus tourist expenditures in modelling tourism demand," Tour. Econ., vol. 26, no. 8, pp. 1311–1326, 2020, doi: 10.1177/1354816619867810.

[4] C. P. Nguyen, C. Schinckus, and T. D. Su, "Economic policy uncertainty and demand for international tourism: An empirical study," Tour. Econ., vol. 26, no. 8, pp. 1415–1430, 2020, doi: 10.1177/1354816619900584.

[5] T. Havranek and A. Zeynalov, "Forecasting tourist arrivals: Google Trends meets mixed-frequency data," Tour. Econ., vol. 27, no. 1, pp. 129–148, 2021, doi: 10.1177/1354816619879584.

[6] R. Ulucak, A. G. Yücel, and S. Ç. İlkay, "Dynamics of tourism demand in Turkey: Panel data analysis using gravity model," Tour. Econ., vol. 26, no. 8, pp. 1394–1414, 2020, doi: 10.1177/1354816620901956.

[7] Z. Šergo, "The wealth effect and tourism - ARDL modeling and granger causality in selected EU countries," Tour. Hosp. Manag., vol. 26, no. 1, pp. 195–212, 2020, doi: 10.20867/thm.26.1.11.

[8] R. Croes, J. Ridderstaat, M. Bąk, and P. Zientara, "Tourism specialization, economic growth, human development and transition economies: The case of Poland," Tour. Manag., vol. 82, no. June 2020, 2021, doi: 10.1016/j.tourman.2020.104181.

[9] J. Vanegas, M. Valencia, J. Restrepo, and G. Muñeton, "Modeling determinants of tourism demand in Colombia," Tour. Hosp. Manag., vol. 26, no. 1, pp. 49–67, 2020, doi: 10.20867/thm.26.1.4.

[10] M. Xu, W. Yang, and Z. Huang, "Do investor relations matter in the tourism industry? Evidence from public opinions in China," Econ. Model., vol. 94, no. February, pp. 923–933, 2021, doi: 10.1016/j.econmod.2020.02.033.

[11] M. C. Wang, T. Chang, and J. Min, "Revisit stock price bubbles in the COVID-19 period: Further evidence from Taiwan's and Mainland China's tourism industries," Tour. Econ., vol. 19, no. November 2019, pp. 1–10, 2021, doi: 10.1177/1354816620983954.

[12] N. P. Ha, "Impact of macroeconomic factors and interaction with institutional performance on Vietnamese bank share prices," Banks Bank Syst., vol. 16, no. 1, pp. 127–137, 2021, doi: 10.21511/bbs.16(1).2021.12.

[13] S. Cheah et al., "Volume 37 , Issue 1 A nonlinear ARDL analysis on the relation between stock price and exchange," vol. 37, no. 1, pp. 336–346.

[14] N. Nordin, S. Nordin, and R. Ismail, "The Impact of Commodity Prices, Interest Rate and Exchange Rate on Stock Market Performance: An Empirical Analysis From Malaysia," Malaysian Manag. J., no. March, 2020, doi: 10.32890/mmj.18.2014.9015.

[15] F. Omer Elmahgop and O. Ahmed Sayed, "The Effect of Inflation Rates on Stock Market Returns in Sudan: The Linear Autoregressive Distributed Lag Model," Asian Econ. Financ. Rev., vol. 10, no. 7, pp. 808–815, 2020, doi: 10.18488/journal.aefr.2020.107.808.815.

[16] M. A. Nasir, M. Shahbaz, T. T. Mai, and M. Shubita, "Development of Vietnamese stock market: Influence of domestic macroeconomic environment and regional markets," Int. J. Financ. Econ., vol. 26, no. 1, pp. 1435–1458, 2021, doi: 10.1002/ijfe.1857.

[17] A. Algarini, "Impact of Gdp, Foreign Direct Investment, Inflation Rate, and Interst Rate on Stock Market Values in Saudi Arabia," Int. J. Soc. Sci. Econ. Res., vol. 5, no. 7, pp. 1667–1678, 2020, doi: 10.46609/ijsser.2020.v05i07.002.

[18] J. Hu, G. J. Jiang, and G. Pan, "Market Reactions to Central Bank Interest Rate Changes: Evidence from the Chinese Stock Market*," Asia-Pacific J. Financ. Stud., vol. 49, no. 5, pp. 803–831, 2020, doi: 10.1111/ajfs.12316.

[19] T. S. Goh, H. Henry, and A. Albert, "Determinants and Prediction of the Stock Market during COVID-19: Evidence from Indonesia," J. Asian Financ. Econ. Bus., vol. 8, no. 1, pp. 001–006, 2021, doi: 10.13106/jafeb.2021.vol8.no1.001.

[20] Q. N. Alam, "Impacts of Macroeconomic Variables on the Stock Market Returns of South Asian Region," Can. J. Bus. Inf. Stud., vol. 2, no. x, pp. 24–34, 2020, doi: 10.34104/cjbis.020.24034.

[21] M. Kumar, "A bivariate linear and nonlinear causality between stock prices and exchange rates," Econ. Bull., vol. 29, no. 4, pp. 2884–2895, 2009.

[22] S. Bogdan, "Macroeconomic impact on stock returns in the Croatian hospitality industry," Zb. Veleučilišta u Rijeci, vol. 7, no. 1, pp. 53–68, 2019, doi: 10.31784/zvr.7.1.2.

[23] D. A. Dickey and W. A. Fuller, "Time Series With a Unit Root," 1986.

[24] C. A. Sims, "Discrete Approximations to Continuous Time Distributed Lags in Econometrics," Econometrica, vol. 39, no. 3, p. 545, 1971, doi: 10.2307/1913265.

[25] C. A. Sims, "The Role of Approximate Prior Restrictions in Distributed Lag Estimation," vol. 67, no. 337, pp. 169–175, 2014.

[26] S. Johansen, "Statistical analysis of cointegration vectors," J. Econ. Dyn. Control, vol. 12, no. 2–3, pp. 231–254, 1988, doi: 10.1016/0165-1889(88)90041-3.

[27] M. L. Estimation, I. O. N. Cointegration, A. To, T. H. E. Demand, and F. O. R. Money, "Maximum Likelihood Estimation and Inference on Cointegration - With," vol. 2, 1990.

[28] R. Kurniawan, "Dynamic Relationship between Stock Market and Foreign Exchange Market in Indonesia," Econ. Jounal FE-Unpad, vol. 20, no. 1, pp. 112–137, 2005.

[29] A. Ajayi and O. Olaniyan, "Dynamic Relations between Macroeconomic Variables and Stock Prices," Br. J. Econ. Manag. Trade, vol. 12, no. 3, pp. 1–12, 2016, doi: 10.9734/bjemt/2016/22524.

[30] U. Robert F. ENGLE and Byung Sam YOO University of California, San Diego, CA 92093, "Co-Integration and Error Correction : Representation , Estimation ," vol. 55, no. 2, pp. 251–276, 2012.

[31] H. Lütkepohl and M. Kratzig, Applied Times Series. 2004.

[32] I. Al Rusman, B. N. Ruchjana, and Sukono, "Vector autoregressive (VAR) model for rain-fall forecasting in west java indonesia at the peak of the rainy season," Int. J. Recent Technol. Eng., vol. 8, no. 2 Special Issue 7, pp. 216–223, 2019, doi: 10.35940/ijrte.B1054.0782S719.