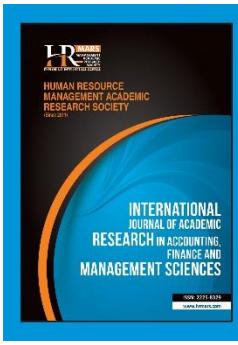

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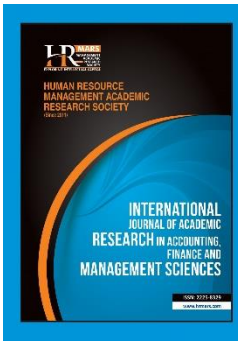
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Abstract

The research on factors of stock market performance has been well established for many years. However, the majority of research focuses on macroeconomic aspects in the setting of industrialized countries. In light of this, the purpose of this study is to close the gap by investigating the factors that influence stock market performance in Malaysia, a developing country. More particularly, this study intends to broaden current literature studies by examining the links between the Malaysian stock market and the gold price, exchange rate, crude oil price, and the U.S. stock market performance. Multiple linear regression analysis is performed in E-views 12 using the Ordinary Least-Squares regression approach to explore hypotheses and statistical associations on a monthly basis from 2011 to 2020. The findings indicate that the performance of the U.S. stock market is positively significant to the stock market performance in Malaysia. On the other hand, this study also suggests that the exchange rate, gold price and crude oil price have a negligible link with Malaysian stock market performance. These findings may be use by investor in monitoring the stock market performance and in making investment decision.

Keywords: Malaysian Stock Market Performance, Multiple Linear Regression Analysis, Gold Price, Exchange Rate, Crude Oil Price, U.S. Stock Market Performance

Introduction

According to Tuyon and Ahmad (2016), the Malaysian stock exchange was indeed highly susceptible to domestic and international economic and financial crises since it shrank after the Asian Financial Crisis in 1997. Despite the government spending of RM9 billion to defend Ringgit Malaysia's value, the Malaysian stock market still has fallen (Uddin and Ahsan, 2014). Considering the global financial crisis in 2008 also, it does hit Malaysia as well. Following the financial crisis, in Bursa Malaysia, the number of firms listed and their market capitalization has also declined (Yeoh et al., 2010). This Malaysian stock market's history of crashes and volatility shows that both internal and external factors influence the stock market. Furthermore, the stock market plummeted in March 2020, one of the most dramatic drops in history. Government response to novel coronavirus (COVID-19) caused the crash. Due to the

virus's high contagiousness and lethality, residents were quarantined and businesses were closed. As a result, consumption and economic output decline, reducing future cash flows.

This shows that the stock market performance is critical to a country's overall economy. It is unquestionably necessary for a country's economic development. As a result, numerous academics have argued that the stock market performance can be used to gauge a country's economic progress. Many politicians and investors believe that a major drop in the stock index heralds a future recession, whereas a dramatic rise in the market index heralds future economic growth. Hence, the main objective of this study is to identify the factors that may influence the performance of the Malaysian stock market performance. In addition, this study may help investors to identify which macroeconomics factors that proven may have influence in the Malaysian stock market performance, thus hopefully this can assist them in their investment decisions.

Literature Review

Stock Market Performance in Malaysia

The most widely used stock index in Malaysia is the Kuala Lumpur Composite Index (KLCI) which is made up of the top 30 Malaysian companies. Many studies show that macroeconomic variables can be used to predict stock market movements. Moreover, Corradi, Distaso and Mele (2013) have stated that prior to the Asian financial crisis, the Malaysian stock market was found to be the sixth largest market capitalization in Asia. According to their findings, macroeconomic factors can explain more than 75 percent of stock market volatility. Another study, performed by Srinivasan (2011), shows that in the long term, stock price indexes have a close and positive relationship with macroeconomic indicators. This study is focusing on the exchange rate, gold price, U.S. stock market and crude oil price which represent the macroeconomic variables that may affect the stock market performance in Malaysia.

Exchange Rate

Based on Kibria et al (2014), there is a positive and significant correlation between exchange rate and stock market performance. Stock prices are expected to increase with an increase in the exchange rate. When the stock market rises, so does the national currency, showing a correlation between stock prices and the value of currencies (Reboredo et al., 2016). Meanwhile, according to research by Ouma and Muriu (2014), the exchange rate can have an extremely adverse effect on stock returns. It shows that the exchange rate volatility does not affect stock returns. Previous studies had also found that the exchange rates and stock market operations are not mutually agreed upon. This could be due to the different methods used in those studies. According to Ooi et al (2009), there was no correlation between exchange rates and stock prices. The insignificant long-run relationship between the exchange rate and stock market prices could be influenced by political factors such as government policy, expectation patterns, and election impact (Abidin et al., 2013).

Gold Price

The correlation between gold and stock prices is spurious. Previous research discovered that the short-term connection between gold and stock indexes in the European and Japanese markets is frequently weak and negative (Smith, 2002). In addition, gold prices and stock market indexes are not closely related. These results corroborate the results of previous

studies, which found that the price of gold had no discernible impact on the returns of the Turkish ISE100 index (Buyuksalvarci, 2010).

Moreover, another study that analyzed four gold prices and six stock market indexes has found that the correlation between gold and U.S. stock indexes in the short term is weak and negative, but only for certain series (Smith, 2001). Meanwhile, other researchers examined the impact of volatility in gold prices on stock indexes in the United States, Germany, Japan, Taiwan, and China (Wang et al., 2010) where the results show that volatility in the gold price as well as stock markets in Germany, Japan, Taiwan, and China, are closely related. This result indicates that these variables have a stable long-run relationship. However, no association exists between these variables and US stock indexes, implying that there is no stable long-run relationship between gold prices and US stock indexes. These findings suggest that the relationship between gold and the stock market is complicated and country-specific.

U.S. Stock Market Performance

Using macroeconomic variables from Asia and the United States, Azizan and Sulong (2011) found that only the stock prices and exchange rates of other countries are correlated with the Malaysian stock market. The Malaysian stock market, in particular, is more sensitive to movements in the Chinese stock market than the US stock market. Meanwhile, according to Loh (2013), the Malaysian and U.S. stock markets have proven to be integrated over the long term. Wavelet analysis has been used to explore the long-term correlation between these two stock markets. Asian stock markets have been found to behave differently from U.S. markets during two financial crises, the U.S. subprime mortgage crisis and the European debt crisis. Other researchers have found that the Malaysian and U.S. stock markets have little or no correlation. These markets are linked, but Lim and Sek (2014) find that only a small amount of interaction takes place. According to the research results of Khan (2011), there is no evidence of co-integration among the studied countries, China, Malaysia, Korea, Spain and Austria. Neither study found sufficient evidence of a correlation between the Malaysian and U.S. stock markets using daily data.

Crude Oil Price

There is a statistically significant positive correlation between crude oil prices and stock indexes, according to Siddiqui (2014) where stock prices increased due to rising oil prices. In addition, a study performed by Aloui, Nguyen and Njeh (2012), has shown that stock market performance is related to the volatility of crude oil prices, especially in developing countries. In a bull market, the global market beta has increased with the growth of emerging-market returns, according to the research. Most studies show a substantial association between crude oil prices and stock market performance. There is a positive association between rising crude oil prices and stock market gains. However, in the long and short run, there is no statistically significant correlation between crude oil prices and market activity, as found by (Nordin et al., 2014). In his study of oil and stock market shocks in the BRIC, Ono (2011) confirms this assertion.

Research Methodology

This study is a hypothesis testing and the main purpose is to determine the relationship between exchange rate, gold price, U.S. stock market performance and crude oil price towards the stock market performance in Malaysia. The data for this study were collected as

a monthly time series from the year 2011 to 2020. The sources of data and proxy used for each variable are presented in the table below.

Table 1
Proxy and Data Source

Variables	Proxy	Units	Data Source
Malaysian Stock Market Performance	KLCI	Percent	Investing.com
Exchange Rate	Exchange Rate	Percent	Federal Reserve (US)
Gold Price	Gold Price	Percent	Investing.com
U.S. Stock Market Performance	S&P 500	Percent	Yahoo Finance
Crude Oil Price	Brent Crude Oil Price	Percent	Investing.com

This study also used the Ordinary Least-Squares regression approach to explore hypotheses and statistical associations. The variables are logarithmically transformed since it can help to reduce data variation (Imarhiagbe, 2010). According to Wooldridge (2005), the independent variable's logarithmic form is consistent with the assumptions of a classical linear regression model. Thus, the study model is as follows:

$$LNYt = \beta 0 + \beta 1Xt + \beta 2LNXt + \beta 3LNXt + \beta 4LNXt + \varepsilon t$$
$$LNKLCIt = \beta 0 + \beta 1EXRt + \beta 2LNGOLDt + \beta 3LNSPXt + \beta 4LNOILt + \varepsilon t$$

Where:
$LNKLCIt$ = *the natural logarithm form of Kuala Lumpur Composite Index at time t.*
$EXRt$ = *changes in Exchange Rate at time t.*
$LNGOLDt$ = *the natural logarithm form of Gold Price at time t.*
$LNSPXt$ = *the natural logarithm form of S&P 500 Index at time t.*
$LNOILt$ = *the natural logarithm form of Crude Oil Price at time t.* εt = *Error term*

For diagnostic checking, a few tests were performed including the Jarque-Bera Test for determining the model's normality, the multicollinearity test by using Variance Expansion Factor (VIF), the Autoregressive Conditional Heteroskedasticity (ARCH) model to identify error terms inconsistency and the Breusch-Godfrey Test to check the existence of the autocorrelation problem.

Findings

Descriptive Analysis

Table 2

Descriptive Statistics for All Variables

Date: 01/05/22 Time: 12:58
Sample: 2011M01 2020M12

	KLCI	EXR	GOLD	SPX	OIL
Mean	1675.527	3.728115	1440.608	2178.024	76.37375
Median	1672.310	3.955150	1372.700	2082.960	66.66500
Maximum	1882.710	4.457300	2017.100	3756.070	125.8900
Minimum	1350.890	2.982400	1121.000	1131.420	22.74000
Std. Dev.	121.4373	0.510645	202.5680	636.3975	28.26884
Skewness	-0.239531	-0.218172	0.831254	0.284073	0.187792
Kurtosis	2.485128	1.338713	2.942152	2.179277	1.581615
Jarque-Bera	2.472968	14.75136	13.83639	4.981873	10.76441
Probability	0.290403	0.000626	0.000990	0.082832	0.004598
Sum	201063.2	447.3738	172873.0	261362.8	9164.850
Sum Sq. Dev.	1754895.	31.03023	4883023.	48195216	95096.15
Observations	120	120	120	120	120

Based on Table 2, it shows that the highest KLCI is in Jun 2014 at 1882.710 while the lowest is in March 2020 at 1350.890. The dispersion of the KLCI from its mean is 121.4373 and the skewness for the KLCI is -0.239531. This shows that the KLCI has a negative skewness and has a long-left tail on the left of the distribution of the probability of the sample. The kurtosis for the KLCI is 2.485128. This shows that the KLCI is platykurtic, as 2.485128 is less than 3. For EXR, the highest value is in December 2016 at 4.457300 while the lowest is in August 2011 at 2.982400. The dispersion of EXR from its mean is 0.510645 and the skewness is -0.218172. This shows that the EXR is a negative skewness and has a long-left tail on the left of the distribution of the probability of the sample. The kurtosis for the EXR is 1.338713. This shows that the EXR is platykurtic, as 1.338713 is less than 3. On the other hand, the highest GOLD is in December 2020 at 2017.100 and the lowest is in December 2015 at 1121.000. The dispersion of GOLD from its mean is 202.5680. The skewness for the GOLD is 0.831254. This shows that the GOLD is a positive skewness and has a long-right tail on the right of the distribution of the probability of the sample. The kurtosis for the GOLD is 2.942152 which shows that the export of GOLD is platykurtic, as 2.942152 is less than 3.

The highest SPX is in December 2020 at 3756.070 and the lowest SPX is in September 2011 at 1131.420. The dispersion of SPX from its mean is 636.3975 while the skewness for the SPX is 0.284073. This shows that the SPX is a positive skewness and has a long-right tail on the right of the distribution of the probability of the sample. The kurtosis for the SPX is 2.179277. This shows that the SPX is platykurtic, as 2.179277 is less than 3. At last, for OIL, the highest value is in April 2011 at 125.8900. The lowest OIL is in March 2020 at 22.74000. The dispersion of OIL from its mean is 28.26884. The skewness for the OIL is 0.187792. This shows that the OIL is a positive skewness and has a long- right tail on the right of the distribution of the probability of the sample. The kurtosis for the OIL is 1.581615 which shows that the OIL is platykurtic, as 1.581615 is less than 3. In conclusion, the descriptive analysis shows that GOLD, SPX and OIL have positive skewness while KLCI and EXR have negative skewness. In terms of

kurtosis, all the variables show that they are platykurtic as the value of their kurtosis is less than 3.

Diagnostic Checks

Normality Test

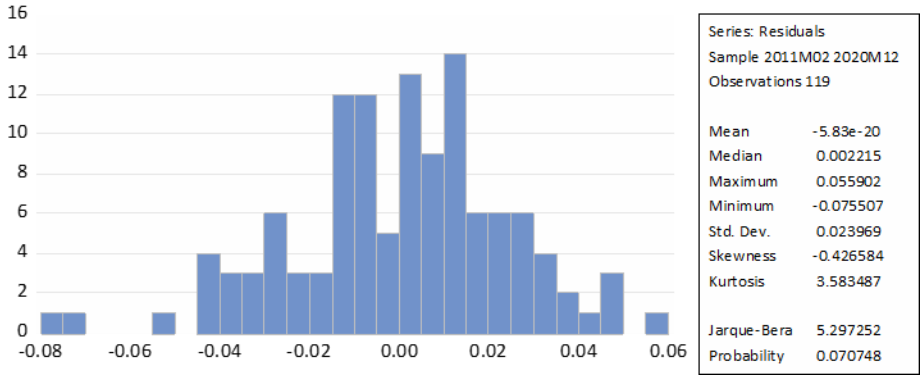

Figure 1: Result of Skewness or Kurtosis (Jarque-Bera) Test

Figure 1 indicates the result of the skewness or kurtosis test for normality. Jarque-Bera test is a type of goodness-of-fit test that is used extensively in statistical applications, particularly for determining the model's normality. The result shows that P-value in this test is 0.07 and is greater than the 5 percent significant level. This led to the acceptance of the null hypothesis where the model meets the normality assumption on the error term.

Multicollinearity Test

Table 3

Result of Multicollinearity Test

Variance Inflation Factors
Date: 11/22/21 Time: 23:38
Sample: 2011M01 2020M12
Included observations: 119

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	5.74E-06	1.148059	NA
EXR	0.018241	1.221122	1.197729
LNSPX	0.005022	1.612675	1.531163
LNOIL	0.000561	1.521285	1.517747
LNGOLD	0.002405	1.052700	1.048371

The result above in Table 3, shows that all variables have a low VIF value which is below 5. This demonstrates that there are no serious multicollinearity issues in the model.

Heteroscedasticity Test

Table 4

Results ARCH Test in Heteroscedasticity

Heteroskedasticity Test: ARCH

F-statistic	1.485897	Prob. F(1,116)	0.2253
Obs*R-squared	1.492399	Prob. Chi-Square(1)	0.2218

Based on Table 4 above, since the P-value 0.2218 is greater than the significant level α =0.01, therefore the null hypothesis should not be rejected. This indicates that there is no heteroskedasticity problem in the model.

Autocorrelation Test

Table 5

Result of Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	2.906921	Prob. F(2,112)	0.0588
Obs*R-squared	5.872377	Prob. Chi-Square(2)	0.0531

According to Gujarati and Porter (2009), when a random variable ordered over time has a nonzero covariance, there is an autocorrelation problem. Referring to Table 5, the result shows that there is no autocorrelation problem in the model since the P-value (0.0531) is greater than the significance level of α = 0.01.

Time-series Data Regression Model

Table 6

Results of Time-series Data Regression Model

Dependent Variable: LNKLCI
Method: Least Squares
Date: 11/22/21 Time: 21:10
Sample (adjusted): 2011M02 2020M12
Included observations: 119 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001390	0.002395	-0.580200	0.5629
EXR	-0.185683	0.135061	-1.374812	0.1719
LNGOLD	-0.067950	0.049043	-1.385500	0.1686
LNSPX	0.307600	0.070864	4.340709	0.0000
LNOIL	0.023828	0.023692	1.005734	0.3167

R-squared	0.287339	Mean dependent var	0.000573
Adjusted R-squared	0.262333	S.D. dependent var	0.028392
S.E. of regression	0.024385	Akaike info criterion	-4.548548
Sum squared resid	0.067790	Schwarz criterion	-4.431778
Log likelihood	275.6386	Hannan-Quinn criter.	-4.501131
F-statistic	11.49095	Durbin-Watson stat	2.389114
Prob(F-statistic)	0.000000		

The strategy for selecting independent variables from the model is to look at the p-value of the t-test statistic for each variable's coefficient. When the p-value t-test statistic is less than 5 percent, the variable is considered significant and must be kept in the regression model. Based on the results obtained in Table 6 above, shows that only the U.S. stock market performance p-value is lower than 5 percent. Hence, it has a significant relationship with the stock market performance in Malaysia. Meanwhile, the exchange rate, gold price and crude oil price are not significant.

The F-test has a p-value of 0.000000. As a result, at a 5 percent level of significance, we may reject the null hypothesis. Thus, it is concluded that at least one independent variable is beneficial in estimating the stock market performance in Malaysia. On the other hand, the adjusted R^2 value is 0.262333. This means that 26.23 percent of the variation in the stock market performance in Malaysia is explained by the independent variables while the other

73.77 percent are explained by other independent variables that are not included in this study.

Discussion

This study establishes a significant relationship between the U.S. and Malaysian stock markets, which is consistent with (Teng et al., 2013). Indeed, as Sharma (2011); Loh (2013) discovered, there was a positive relationship between the U.S. stock market and the Malaysian stock markets, which was consistent with this research. The fact that foreign stock prices and exchange rates are correlated with the Malaysian stock market using macroeconomic variables from Asia and the United States corroborates (Azizan and Sulong's study, 2011). Additionally, Palamalai, Kalaivani, and Devakumar (2013) discovered that it was consistent with the findings of a long-term relationship study. They examined how emerging Asia-Pacific economies' stock markets have integrated with those in the United States. As a result, an arbitrage-related force closed the stock market in the long run.

In the meantime, there was no statistically significant relationship between the exchange rate and stock prices, according to some researchers. This conclusion was consistent with the empirical result of this study. These researchers include but are not limited to, (Chkili and Nguyen, 2014); Ooi et al., 2009). Exchange rate volatility, according to previous research, does not affect stock returns. However, stock returns have had a significant impact on exchange rates (Chkili and Nguyen, 2014). There was no linear or nonlinear causal relationship between stock prices and exchange rates prior to the recent financial crisis, but this changed in both linear and nonlinear ways when a crisis occurred (Liu and Wan, 2012). Exchange rates and stock market operations are not agreed upon by both parties. This could be a result of the study's disparate methods. According to the asset market approach, there was no correlation between the exchange rate and stock prices at all (Ooi et al., 2009). This was because the exchange rate was regarded as a significant component of an asset's foreign currency price. Additionally, the researchers asserted that the primary factors affecting the current and future exchange rates were not identical. For example, the exchange rate movement may be influenced by a country's international trade performance. The future exchange rate, however, may be influenced by significant political and economic events such as an election, recession, war, or a change in government policy. As a result, there was no causal relationship between these two variables.

In addition, the gold price is found to be insignificantly related to the performance of the Malaysian stock market in this study. In other words, the movement of the gold price will not affect the Malaysian stock market's performance. The correlation between gold and stock prices is spurious, as previous research has established that the short-term relationship between gold and stock indexes in the European and Japanese markets is frequently weak and negative (Smith, 2002). Moreover, gold prices and stock market indices are not inextricably linked. This implies that no long-run equilibrium exists. These findings corroborate previous research, which concluded that gold's price had no discernible effect on the returns of the Turkish ISE100 index (Buyuksalvarci, 2010).

Finally, the crude oil price is also found to be insignificantly related to the performance of the Malaysian stock market in this study. The finding is consistent with those of several studies, including (Nordin et al., 2014; Ono, 2011). The insignificant crude oil price result obtained may be a result of Malaysia's government subsidization of oil prices. For example, the government will keep retail oil prices below actual prices by providing subsidies, particularly during periods of increased crude oil prices. The government spent RM 17.7

billion on petroleum subsidies alone in 2014. As a result, the subsidized price may be able to neutralize the effect of crude oil price movements on the stock price.

Conclusion

This study seeks to establish a link between selected variables and the Malaysian stock market's performance. One variable was found to be significant while the other three were not. There was no correlation between the performance of the Malaysian stock market and the price of crude oil, gold price, or exchange rate. However, the performance of the U.S. stock market correlated positively with the Malaysian stock market. Given the U.S.'s importance to the global economy, as demonstrated by the facts stated previously, any news affecting the U.S. economy or stock market, whether positive or negative, will undoubtedly weigh on the minds of investors in other countries, including Malaysia.

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