GLOBAL COVID-19 PANDEMIC AND PERFORMANCE OF FTSE BURSA MALAYSIA KLCI FROM MARCH 2020 UNTIL DECEMBER 2021

William Choo Keng Soon
Dinesh Kumar a/l Saundra Rajan
Cheah Chee Keong
Kong Yin Mei
Nurul Ikma Binti Haris

ABSTRACT

The Covid-19 global pandemic is one of the world's most unprecedented disasters in millennium era. In the recent past, there have been outbreaks such as Ebola Virus Disease (EVD), Middle East Respiratory Syndrome (MERS), and Severe Acute Respiratory (SARS). Nevertheless, the distinguishes of Covid-19 global pandemic is its tremendous infection rate, which has spread to practically the entire globe. The Covid-19 pandemic has brought the entire global economy to a halt and hampered economic growth due to blockades in several countries, as a result, it considered as a Black Swan event, such as in the past, the 9/11 terrorist attack, SARS, 2008 financial crises. The similarity of these events has caused panic among investors, whose direct response is panic selling, such scenario affected the confidence of businesses and investors, which will subsequently influence their investment decision and the stock market performance. Therefore, this paper investigates the long run impact on the Covid-19 latent, the daily infected cases, Covid recoveries rate, Covid-19 death rate as critical variables in explaining the Bursa Malaysia stock market performance. Nonetheless, the foreign exchange rate, Malaysia gold price and crude oil price would be added as control variable latent as it could influence the outcomes of the empirical analysis. This study employment empirical test of the Johansen co-integration and vector error correction model and concluded that, the daily recovery rate, confirmed cases, gold and brent crude oil price have a long-term effect in explaining the Malaysia stock market performance. Moreover, This study further contributes and lays a conceptual model in strengthen the finance literature regard to the disease outbreak on stock market performance.

Key words: Covid-19, Stock Market Performance, Malaysia

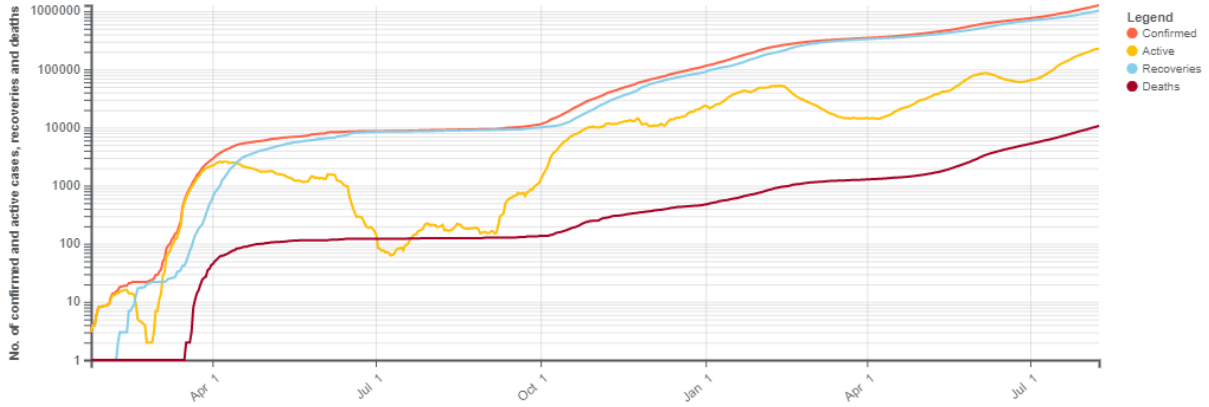
INTRODUCTION

The novel coronavirus or better known with synonyms of Covid-19 is type of viruses that cause disease in mammals and birds that caused respiratory tract infection. The global pandemic has impacted all inhabitants across the world since the year 2020 and brought many gigantic, negative impacts and challenging public health concerns towards the lives of people, social and global economic perspectives (Morgan, Awafo & Quartey, 2020). The earliest reports of Covid-19 in December 2019, a seafood-wet market located in Wuhan, China. The Covid-19 symptoms of infected are dry cough, fever, loss of smells or tastes, fatigue, and other respiratory symptoms. Moreover, the disease transmission through patients' droplets or close contact (Wu, Chen & Chan, 2020). The elevated speed of Covid-19 transmission has ravaged the whole world from China to the rest of the world and effective citywide lockdowns are implemented in across the globe. The World Health Organization (WHO) announced the Covid-19 is a worldwide pandemic on11 March 2020 as the speed of transmission has caused 2,361,998 confirmed cases as well as 272,094 deaths as of 9 May 2020 (Lin et al., 2020). Shen, Fu, Pan, Yu and Chen (2020) highlighted as the pandemic is out of control spreading, the world experiences the worst global recession since 1930 and a number of companies filed for bankruptcy, deteriorate firm performances, an increasing number of unemployment and plunged world stock markets.

Covid-19 Epidemic in Malaysia

The Covid-19 pandemic is the most serious communicable disease outbreak in Malaysia after the SARS outbreak in the year 2003. The Covid-19 pandemic has so far claimed over 11,000 lives with accumulate number of daily infected of 1.36 million as at August 2021. The first wave of Malaysia epidemic outbreak from 25 January 2020 to 15 February 2020, with 22 cases identified. Nonetheless, most of the first wave cases were imported cases in Malaysia. The second wave of outbreak on 27 February 2020 with several clusters of cases and the huge number are reported from a religious gathering in the Sri Petaling Tabligh which is attended more than 14,500 Malaysians and 1,500 foreigners. On 15 March 2020, the number of daily infected cases from all states surged from 41 to 190, most of which were traced attended the Sri Petaling Tabligh. The number of daily infected cases continued raised over the 100 and the Malaysia's Ministry of Health announced Malaysia was in the late containment phase of Covid-19 and a respond and contingent plan needed to prevent the spread of the disease.

Figure 1: Malaysia Covid-19 Daily Confirmed Cases, Active Cases, Recoveries Rate and Death Rate



Source: https://en.wikipedia.org/wiki/COVID-19_pandemic_in_Malaysia

In responding to the global pandemic, the government of Malaysia officially promulgated the first Movement Control Order (MCO) from 18 March 2020 to 31 March 2020, to prevent and control the virus spread through a social distancing, a compulsory of face mask, prohibition of mass movements, restrictions on the international and foreign entry and closure of education, government, and private businesses. As that the number of daily cases and active case increasing, the government of Malaysia announced the second phase of MCO effective from 1 April 2020 to 14 April 2020. Further measures were instilled such as a 10 km travel radius for all travelers and the banning of all types of gatherings except for funerals. The number of cases in Malaysia dropped to between double-digits during July to September 2020 and entered the third wave of outbreaks in early October. The third wave of the Covid-19 outbreak driven by cases in Sabah election on 26 September 2020, and people returning to Peninsular Malaysia from high-risk areas in Sabah also tested positive (Ministry of Health, 2020). The government of Malaysia has announced the implement the Conditional Movement Control Order (CMCO) for the entire state including Sarawak and Sabah to stop the spread of the Covid-19 disease outbreak. However, until today we are still dealing with the third wave of the outbreak, the number of cases recorded did not decline because of the movement control order. Thereafter, the as the Covid-19 cases spike above the 5,000 cases on 3 May 2021, government of Malaysia imposed total lockdown from 1 June 2021 and national recovery plan to help the country emerge from the Covid-19 pandemic and its economic fallout.

Investor sentiment, Stock Market Performance in Global Pandemic

A Malaysia stock market index is the benchmark and measurement of stock market performance (Hayes, 2021). The stock market can provide insight into the overall trend of the capital market and be used as the indicator of economic trends, as well as clues to possible future trends (Corporate Finance Institute, 2019). In the Covid-19 global pandemic, the Bursa Malaysia index fell to its new lowest level since October 2009, as investors reacted to the news on the implementation of MCO by government of Malaysia (Idris, 2020). The empirical review indicated that a global stock market returns fluctuate due to those contagious infectious illnesses, for an instance, the SARS epidemic and EVD epidemic (Al-Awadhi et al., 2020). The plunge in the stock market inevitably brought huge losses to investors, therefore is it vital provides a comprehensive analysis of the association between Covid19 and the stock market index, which serves the interest of investors when making investment decisions during difficult times.

The Covid-19 global pandemic is an event like SARS and Ebola that affects the volatility of the stock market in the world with a most of the nations in the world instigated a lockdown to prevent the spread of such disease. The government of Malaysia implemented MCO from 18 March 2020 to control on the increase daily conformed cases, in such it slows down the infectious rate of infection but there business and corporate operations affected badly and subsequently contribute to the slow in the economic. In addition, the uncertainty that arises from the number of Covid-19 cases will affect the investment strategy and behavior of the investors, this would finally influence the volatility of the stock market.

Although there is immerse vaccination program, the pandemic risk will remain if the variation of Covid-19 spreads, causing the government to reimpose lockdown (Lee, 2021). Such a scenario could affect the confidence of both businesses and investors, which will subsequently influence their investment decision. The Covid-19 pandemic has impacted the operational costs and sales revenue of companies, hence the stock price of the company is indirectly affected followed by stock market return. Investors may think twice before they invest if the stock market return is going to fall below their expectations. In the stock market, good news can be favorable economic signs, such as new product launches, corporate acquisitions, and good earnings reports. In the current situation, the good news for investors in this pandemic time is the Covid-19 recovery rate. The recovery rate is significant in determining a country's progress toward Covid-19 control. The recovery rate is one of the indicators for the government of Malaysia to reopen of some economic during the MCO and this is a positive signal to investors.

This study included foreign exchange rate, Malaysia gold price and brent crude oil price as control variables in influencing the Bursa Malaysia stock market performance. The changes in the currency value will stimulate the export and have a significant impact on balance of trade and provide more investment opportunities in Malaysia. Gold price movement is sensitive to market change witness that gold price drop as the Covid-19 global pandemic in Malaysia. Furthermore, the negative effect can be observed obviously in gold and stock market in March 2020, which stock price drop sharply, the gold price has increasing trends. The

scenario above showed the relationship between gold price and stock market index and both of them could be influenced by the market change. Brent crude oil accounts for more than half of all crude oil traded globally, and it is used as a benchmark price for oil purchases. The world lockdown resulting in the oversupply of Brent Crude oil and oil producer slash the prices to clear stockpiles (Kaur, 2020). The consequently to this as Malaysia as an oil-exporting and oil-related income country are plausible to influence the cash flows and Bursa Malaysia performance. Hence, in this study will further determine the extent of reaction of Bursa Malaysia index interacts with Covid-19 issues in Malaysia.

LITERATURE REVIEW

In the context of stock valuation models, an asset's current price is equivalent to the present value of all future expected cash flows (Wickremasinghe, 2011). Changes in the macroeconomic variables change the expected cash flows, which impact the asset's price (Wickremasinghe, 2011). Notwithstanding, the Arbitrage Pricing Theory (APT), presented by Ross (1976), suggests the relationship between macroeconomic variables and stock prices.

Fama (1970) established that the market in which prices "fully reflect" the available information is called "efficient". This claim of Fama (1970) became famous with the name of "Efficient Market Hypothesis (EMH)". EMH is one of the most cited theories, which define the relationship between macroeconomic information and stock prices. EMH is related to the asset prices' behaviour in the market. The term "efficient market" refers to the stock market; however, this concept could apply to other asset markets (Queku et al., 2020). EMH postulates that security price is a reflection of the available information regarding security's fundamentals (Malkiel, 2011). EMH has based on the tenet that the change in an asset price is unpredictable. EMH is also associated with the concept of "random walk", which states that asset price change exhibits random departure from its previous price (Malkiel, 2003).

According to Raza et al. (2016), emerging economies' stock markets are vulnerable to global news and events, which are occurring due to uncertain and volatile environments. Among such events, Covid-19 proved to be devastating for the world's economic outlook and stock markets. It was stated by Baker et al. (2020), before Covid-19, 2003 SARC epidemic, 2015 Ebola epidemic, Bird flu and Swine flu were short-lived in volatility. However, Covid-19 is a massive source of volatility for the stock market. Besides, the fluctuations in macro-economic variables are also posing a threat to the stability of stock markets.

Covid-19 Daily Confirmed Cases, Recoveries Rate and Death Rate

The Covid-19 was first detected on December 31, 2019, in Wuhan, situated in Hubei Province of China. Later, it took control of the whole world (Abuzayed & Al-Fayoumi, 2021). It spread rapidly and caused 1 million infections and 60,000 death within one month (Worldometer, 2021). Such devastating consequences of Covid-19 compel WHO to declare it a global pandemic on 20 February 2020.

The first case of Covid-19 was detected in Malaysia on 25 January 2020 (Elengoe, 2020), followed by a calm period until the cases took a rapid rise at the end of February 2020 after a gathering during a religious event (Tang, 2020). At the beginning of the Covid-19 outbreak, the Malaysian government adopted different strategies such as travel restrictions and quarantine. However, by considering the rapid increase in cases, Movement Control Order was rolled out in Malaysia on March 18, 2020. This order required closing all businesses except those providing essential items and services. The Movement Control Order (MCO) not only restricts human movement but also reduced the profit of firms. Consequently, their stock prices were impacted (Chia et al., 2020).

It was argued by Yan et al. (2020) that in times of global crises such as Covid-19, the stock markets are adversely impacted in the short run; however, such impact is subsidized in the long run. Wang et al. (2021) found convincing evidence that Covid-19 significantly influenced the stock prices of solar energy sources. Giglio et al. (2021) observed that during Covid-19, investors became pessimistic in the short run about the performance of the stock market. The announcement of the first case of Covid-19 in Saudi Arabia negatively impacted its stock prices in the short run.

It is evident from existing literature that the stock market responds negatively to an increase in the daily number of Covid-19 cases (Ashraf, 2020). In Malaysia's market, Lee et al. (2020) found the inverse relationship between the number of Covid-19 cases and all sectoral indexes (except real estate investment fund) of the Malaysian equity market. On the other side, Chia et al. (2020) and Ahmed (2020) did not find any such relationship in terms of the stock markets of Malaysia and Pakistan, respectively.

As the daily deaths from Covid-19 are increasing, governments are adopting the lock-down policies and imposing travel bans and providing stimulus packages to offset jobs losses and slowdown in the economic activity (Phan & Narayan, 2020). Baek et al. (2020) found the negative impact of daily covid-19 deaths on the stock market volatility of the United States. Chia et al. (2020) reported the negative but insignificant impact of daily Covid-19 deaths on the selected indexes of the Malaysia stock market. Similarly, Ahmed (2020) also found an insignificant relationship in the context of the Pakistani stock market.

The research of Ahmed (2020) found a significant association between Covid-19 recoveries and stock market performance in Pakistan. In the US market, Baek et al. (2020) established that negative news has more impact on stock market volatility than positive news in the shape of recoveries. Aslam (2020) argued that recovery from Covid-19 depends on the prevalence of the epidemic. He reported that as the virus's spread increased, recoveries also increased with fewer deaths. Yagli (2020), in the market of Turkey, claimed that an increase in Covid-19 recoveries reduce the stock market volatility

Foreign Exchange Rate

Two portfolio models named "Flow-Oriented" (Dornbusch & Fischer, 1980; Gavin, 1989) and "Stock-Oriented" or "Portfolio Balance" (Branson, 1981) explain the link between exchange rate and stock prices. According to the "Flow-Oriented" model, a decline in stock prices reduces the local investors' wealth as well as the liquidity in the economy. The decline in liquidity causes the interest rate to fall. Consequently, capital outflows occur, and the currency depreciates (Adjasi, 2009). "Stock-Oriented" or "Portfolio Balance" model states that the exchange rate serves as an equilibrium factor for demand and supply of assets (stocks and bonds). Thus expectations about changes in currency value can significantly impact the value of financially held assets. For example, if the local currency depreciates against foreign currency, foreign currency returns increase. It will motivate investors to shift their funds from domestic assets (stocks) to foreign assets. This phenomenon will depress the stock prices. In terms of empirical evidence, Abbas and Wang (2020) study found significant volatility spillover from exchange rate to stock prices in the USA market. Additionally, Wickremasinghe (2011) reported the long-term causal relationship from exchange rate to Sri Lankan share market. The Bahmani-Oskooee and Sohrabian (1992) study showed short-run bidirectional causality among exchange rate and S&P 500 index performance. However, they found no causality in the long run.

Gold Prices

In the financial market, gold is considered a "safe haven investment". It is the oldest form of money also used as a hedge against inflation. It is assumed that gold has no correlation with other types of assets. This non-existence of correlation is a prominent feature of gold, as, in this era of globalization, most of the other assets have significant correlation among them. Baur and Lucey (2010) found that gold proved to be a safe haven in extreme stock market conditions.
Shabbir et al. (2020) concluded a positive relationship between gold prices and stock prices. Raza et al. (2016), with the help of the nonlinear ARDL approach, empirically proved that gold prices have a positive association with the large emerging BRICS economies' stock prices. On the contrary, the impact was negative in the case of stock markets of Indonesia, Chile, Thailand, Malaysia and Mexico. Similarly, Adjasi (2009) study found the significant negative volatility from gold prices to stock prices in the market of Ghana during 1991-2007. Gilmore et al. (2009) observed the short term unidirectional causality from gold prices to large-capitalization companies of the S&P 500 index. They also reported that gold prices and large-cap stock prices restore long-term relationships by adjusting to disturbance.

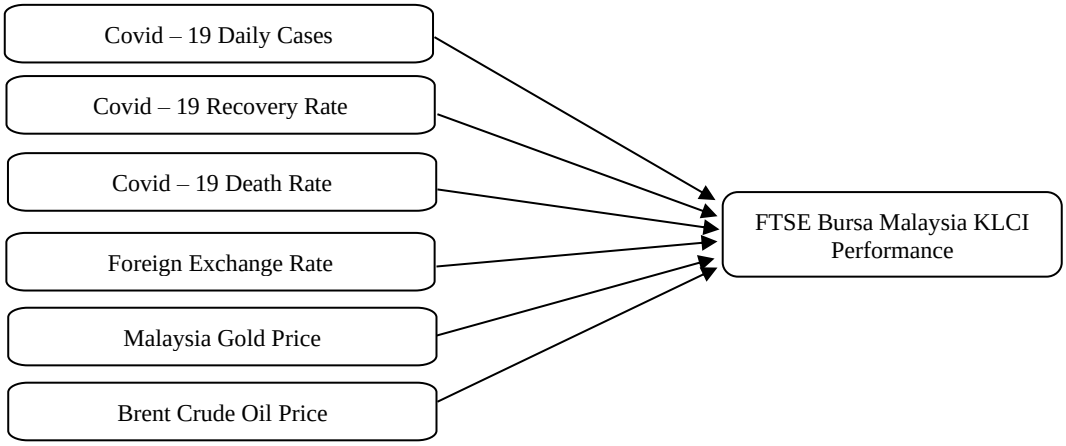
Crude Oil Prices

The crude oil market is known as the world's largest commodity market, and oil is considered the vital source of energy all over the world (Shabbir et al., 2020). Lee et al. (2020) found the significant impact of Brent oil prices on the stock prices of Malaysian companies. Inline, Gjerde and Saettem (1999) documented that the stock market accurately responds to the changes in oil prices in the Market of Norway. Additionally, Significant negative volatility from oil prices to stock prices was observed by Adjasi (2009). On the contrary, Shabbir et al. (2020) applied an autoregressive distributed lag test and established the significant positive effect of oil prices on stock prices in Pakistan. In contrast, Anderson and Subbaraman (1996) reported the insignificant relationship between oil prices and stock prices in the market of Australia. Raza et al. (2016) argued that historical fluctuations in global oil prices indicate that the world is going to enter the era of higher oil prices fluctuations. In the market of Nigeria, Adaramola (2012) reported that oil prices shocks are followed by a significant positive return in the short run, however, such return becomes negative in the long run.

Random Walk Theory

Random Walk Theory, often known as the random walk hypothesis, is a stock market mathematical model. The theory's proponents think that the prices of stock in the stock market follow a random walk, it assumes that the stock market moves in an unforeseen manner (Corporate Finance Institute, 2021). According to the hypothesis, the future stock price of each stock is independent of its past movement as well as the price of other stocks, as a result, any attempt to forecast future price movement, whether through fundamental or technical analysis is fruitless.
Since the random walk theory holds that it is difficult to foresee the movement of stock prices, it is also impossible for a stock market investor to outperform or beat the market in the long run (Corporate Finance Institute, 2021). It suggests that an investor cannot outperform the market without taking on a significant amount of additional risk. Consequently, the optimal plan for an investor is to invest in a market portfolio, which is a portfolio that closely resembles the total stock market and whose price perfectly reflects the movement of the prices of all stock in the market. Nevertheless, Malaysia stock market performance shown a declining wild fluctuation during covid 19 global pandemic since the January of 2020 and touched below the threshold of 1,600 point. A slew of recent performance reaffirming most of the investor might consistently outperform the entire market by short the position to take short term profit and resulted in the formation of an expanding high trading volume.

Figure 1: Conceptual Framework



RESEARCH METHODOLOGY

The quantitative data and secondary data are retrieved from Bloomberg Terminal and Kementerian Kesihatan Malaysia to conclude the dynamic relationship between covid-19 daily cases, covid-19 recovery rate, covid-19 death rate, foreign exchange rate, Malaysia gold price and world crude oil price in relation of co-movement to FTSE Bursa Malaysia KLCI performance. The time series data transformation into numerical data and statistics to generate descriptive outcome and contribution to the contemporary finance literature. Moreover, the daily secondary data ranging from Monday to Friday is retrieved from 18 March 2020, which the enforcement of Malaysia first movement control order until 31 December 2021 with sample size of 443. The quantification of independent and dependent variables in this study as in table 1.

Table 1: The Quantification of the Study Variables

Variable	Quantification	Unit of Measurement	Source
Dependent Variable			
FTSE Bursa Malaysia KLCI performance	Top 30 companies market capitalization listed on the Bursa Malaysia Main Board	Index	Blomberg Terminal
Covid -19 Variables Latent			
Daily Cases	Statistical data by Kementerian Kesihatan Malaysia	Number of Cases	Kementerian Kesihatan Malaysia
Recovery Rate			
Death Rate			
Control Variables Latent			
Foreign Exchange Rate	The market quotation price of USD / MYR	Rate	Blomberg Terminal
Malaysia Gold Price	The force of demand and supply of Malaysia gold price	Per ounce (MYR)	
Brent Crude Oil Price	The force of demand and supply of physical world crude oil price	Per barrel (USD)	

Data Analysis - Unit Root Test

The unit root test is used to determine the order of each of the study variables integration and is important for identify any stochastic trend. The series of data are collected to check the stationarity to prevent the result to be invalid (Gujarati & Porter, 2009). The procedure tis to ensure the level or the first difference of series are constant across the cointegration test. Most economists will argue that a macroeconomic time series contains unit root and its fluctuation over time might suggest a non-stationary trend. It is vital to have a stationary time series to avoid biased results which is called spurious regression. Therefore, in this study it employed the Augmented Dickey-Fuller (ADF) test is used to analyze the stationarity of the study variable to perform the regression of the series' first difference against the series lagged one and lagged difference terms with either a constant or a time trend. The equation of ADF unit root test is expressed as in equation 1.

$$\Delta Y_t = \mu + \delta Y_{t-1} + \sum_{i=1}^{k} a_i \Delta Y_{t-i} + \varepsilon_t \quad (1)$$

Data Analysis - The Johansen Co-integration Test

The Johansen co-integration test is a procedure for testing co-integration and the data analysis will further investigate long run co-movement of the covid-19 daily cases, covid-19 recovery rate, covid-19 death rate, foreign exchange rate, Malaysia gold price and world crude oil price in relation to FTSE Bursa Malaysia KLCI performance. Nonetheless, the trace test and maximum eigenvalue test of co-integration vectors to develops a co-integration connection through computing the independent and dependent variables long run equilibrium. Nonetheless, the optimum lag length to be determined to ensure that the model's accuracy and to maintain a dependability of the study model (Gujarati, 2009). The trace test and maximum eigenvalue test as in the equation 2 and 3 respectively.

$$\lambda_{trance}(r) = -T \sum_{i=r+1}^{g} \ln (1 - \lambda_i) \quad (2)$$

$$\lambda_{trance}(r) = -T \sum_{i=r+1}^{g} \ln (1 - \lambda_i) \quad (3)$$

The Johansen Co-integration model in this study as in the equation 4.

$$\mathrm{KLCI_t} = \alpha + \beta_1 \mathrm{CDC_t} + \beta_2 \mathrm{CRR_t} + \beta_3 \mathrm{CDR_t} + \beta_4 \mathrm{FX_t} + \beta_5 \mathrm{MGP_t} + \beta_6 \mathrm{BCOP_t} + \varepsilon_t \quad (4)$$

Where,

$\mathrm{KLCI_t}$	=	FTSE Bursa Malaysia KLCI index at time t
α	=	Constant
$\beta_1 \mathrm{CDC_t}$	=	Covid-19 daily cases at time t
$\beta_2 \mathrm{CRR_t}$	=	Covid-19 recovery rate at time t
$\beta_3 \mathrm{CDR_t}$	=	Covid-19 death rate at time t
$\beta_4 \mathrm{FX_t}$	=	Foreign exchange at time t
$\beta_5 \mathrm{MGP_t}$	=	Malaysia Gold Price at time t
$\beta_6 \mathrm{BCOP_t}$	=	Brent Crude Oil Price at time t
ε_t	=	Error term

The Vector Error Correction Model (VECM) is developed by Engle and Granger to investigate any long-term relationship exist between the selected time series data and to generalized vector autoregression which is restricted to co-integrated data sets which are non-stationary. The co-integration regression examines the long run relationships among the level series of study variable in the study, whilst the development of VECM is to assess presence of dynamic adjustments amid at the first differences of the independent variable (Diebold & Watson, 1996). The VECM applied in this study as in the equation 5.

$$\Delta yt = \alpha\beta' y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-i} + \varepsilon_t \quad (5)$$

DATA ANALYSIS

Unit Root Test

The test result of ADF in table 2 is observed the study variables are not stationary at level and have unit root where values of test statistic are more than critical values of significance level. It indicating that, the data are influence by the nature of the trend. Furthermore, with further examined at ADF frist different, the each of the study variables are stationary and no unit root exists to proceed for statically analysis. In the Johansen cointegration test to answer the research objective of this study, the the cointegration test rule of thumb required the data to be stationary at first different to precisely to generate the desired explanation on the long-term effect between study variables.

Table 2: The Unit Root Test of Augmented Dickey Fuller

	LEVEL		FIRST DIFFERENCE	
Variables	**Intercept**	**Trend & intercept**	**Intercept**	**Trend & intercept**
KLCI	0.1026	0.1584	0.0000***	0.0000***
Recovery	0.1426	0.1887	0.0000***	0.0000***
Mortality	0.7594	0.5282	0.0000***	0.0000***
Daily Confirmed	0.1151	0.1088	0.0000***	0.0000***
Forex	0.1165	0.6997	0.0000***	0.0000***
Gold	0.0121	0.1294	0.0000***	0.0000***
Brent crude oil price	0.7438	0.1191	0.0000***	0.0000***

Note: *, **, *** indicates the rejection of the null hypothesis at 10%, 5%, 1% significance levels. Lag lengths for the Augmented Dickey–Fuller unit root are based on schwarz information criterion.

The Johansen Co-integration Test

In the table 3, the null hypothesis of no co-integration between the study variables are rejected because the test statistics from trance statistics and maximum eigenvalue statistic is greater than 5% significance level. Hence, it sufficient evidence to conclude that the study variables are co-integrated and the test implying that there are two co-integrating vectors in the long-run relationship on the Max-Eigen Statistic and three co-integrating vectors in the long-run relationship on the Trace Statistic. In that, it can further be examined by the VECM for the existence of long run relationship between dependent variable and independent variable.

Table 3: Johansen Cointegration test results

Hypothesized no. of CE(s)	Eigenvalue	Trace Statistic	Critical Value	Max-Eigen Statistic	Critical Value
r = 0	0.385579	317.2518	125.6154**	181.6791	46.23142**
r ≤ 1	0.154278	135.5727	95.75366**	62.50142	40.07757**
r ≤ 2	0.081092	73.07125	69.81889**	31.54452	33.87687
r ≤ 3	0.054111	41.52673	47.85613	20.75019	27.58434
r ≤ 4	0.033204	20.77655	29.79707	12.59529	21.13162
r ≤ 5	0.020583	8.181257	15.49471	7.757390	14.26460
r ≤ 6	0.001136	0.423867	3.841466	0.423867	3.841466

Note: *, **, *** indicates the rejection of the null hypothesis at 10%, 5%, 1% significance levels. Lag lengths of eight for the Johansen Cointegration are based on schwarz information criterion.

In the table 4, it shown the normalized co-intergrating coefficient in the VECM model between independent variables of Covid-19 variables latent and control variable latent with the dependent variable of FTSE Bursa Malaysia KLCI performance in this study model. The Covid-19 latent variable of recovery and daily confirmed cases is significant at 1% significance level, which indicating an important variables in explaining the long-term effect toward FTSE Bursa Malaysia KLCI performance. Nonetheless, the gold and brent crude oil price is significant at 10% in explaining the long-term effect between dependent and independent variables. However, the Covid-19 latent variable of mortality rate and control variables of foreign exchange rate are insignificant in explaining the existence of long-term relationship with FTSE Bursa Malaysia KLCI performance.

Table 4: Normalized Co-intergrating Coefficient

Variables	Coefficient	Std. Error	t-Statistic	Prob.
Dependent: FTSE Bursa Malaysia KLCI performance				
C	1012.9940			
Recovery	0.2380	0.01576	-15.1027	0.0001***
Mortality	-0.2579	0.04311	5.9821	0.2332
Daily Confirmed	-1.7485	2.39801	0.7291	0.0001***
Forex	-259.2943	1175.5624	0.2206	0.4128
Gold	0.3912	0.2548	-1.5350	0.0628*
Brent crude oil price	15.6944	9.8352	-1.5957	0.0557*

Note: *, **, *** indicates the rejection of the null hypothesis at 10%, 5%, 1% significance levels. Lag lengths of eight for the Vector Error Correction Model are based on schwarz information criterion.

CONCLUSION

In this study, it concluded that found Covid-19 daily recovery rate, confirmed cases, gold and brent crude oil price has long run relationship with FTSE Bursa Malaysia KLCI performance. The Covid-19 pandemic had brought lots of uncertainties to the global stock market. The MCO executed by government had exhausted economic performance and caused crucial impact to stock market performance. To control the spread of pandemic, there are restrictions on travel and movement, which leads to temporarily closure of business activities and operations. This slowdown of economy would cause insolvency and bankruptcies in some firms, which eventually endangered the financial system. In line with the empirical finding by Kotishwar (2020) and Çelik et al. (2020), stated that Covid-19 pandemic has significant adversely affected all selected stock market indices in long run. Furthermore, David, Inácio, & Tenreiro Machado (2021) pointed out that Covid-19 pandemic has significant cointegration with all selected stock market indices. Which caused the stock market have difficulties in recovering fast when compared to other pandemics such as EBOLA, MERS and SARS due to the harsh restrictions on the business activities to control the pandemic.

On the other hand, the empirical analysis of mortality rate of Malaysia scenario shown no correlation between mortality rate and FTSE Bursa Malaysia KLCI performance, which the results are inconsistent with the most of the emprical findings such as Al-Awadhi et al (2020), Ali et al (2020), Gherghina et al (2020), Onali (2020), and Burdekin (2020). The major reason been the pandemic was under controlled after government's efficient implementation of early preparedness, the healthcare system, detecting confirmed case, and movement control order as well as the national immunization system. Furthermore, the health system was also managed to cope with the urging needs of hospital beds and ventilation, and the Malaysia government had budget to purchase the ventilations and personal protective equipment. Furthermore, the Malaysia government progressively allowed commercial industry

to reoperate business and allowed people for travelling, but with severe standard operating procedures, to encourage consumption to boost the economy of Malaysia that keep in check with economic transaction.

In a nutshell, the in Covid-19 global pandemic has stun Malaysia economic growth as well as the Bursa Malaysia performance has been significantly deteriorated and touched below the threshold of 1,600 point. The long run impact relationship among the various Covid-19 variables and Bursa Malaysia performance should be given necessary attention by researchers to make sure that the stability of Malaysia stock market improves and therefore remains competitive to drive the economic growth of the country. Therefore, the objectives of this study and its empirical findings are not only important to investor and businesses, but also to relevant agency policy makers in formulate holistic method stabilize the stock market. Moreover, this study provides the knowledge for formulating economic and government policies necessary for stabilizing and stimulating the economy of a country. The conceptual model in this study also lays a theoretical framework for establishing the contemporary disease-stock performance relevance, finance foundation basis and further contribution to the finance literature review.

REFERENCES

Abbas, G., & Wang, S. (2020). Does macroeconomic uncertainty really matter in predicting stock market behavior? A comparative study on China and USA. *China Finance Review International*, 10(4), 393–427.

Abuzayed, B., & Al-Fayoumi, N. (2021). Risk spillover from crude oil prices to GCC stock market returns: New evidence during the COVID-19 outbreak. *The North American Journal of Economics and Finance*, 101476.

Adaramola, A. O. (2012). Oil price shocks and stock market behaviour: The Nigerian experience. *Journal of Economics*, 3(1), 19–24.

Adjasi, C. K. D. (2009). Macroeconomic uncertainty and conditional stock-price volatility in frontier African markets: Evidence from Ghana. *The Journal of Risk Finance*, 10(4), 333–349.

Ahmed, S. (2020). Impact of COVID-19 on performance of Pakistan stock exchange. *In Available at SSRN 3643316*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3643316

Anderson, M., & Subbaraman, R. (1996). Share prices and investment. *Reserve Bank of Australia*. Discussion Paper. 9610.

Ashraf, B. N. (2020). Stock markets' reaction to COVID-19: Cases or fatalities? *Research in International Business and Finance*, 54, 101249.

Aslam, M. (2020). Using the kalman filter with Arima for the COVID-19 pandemic dataset of Pakistan. *Data in Brief*, 31, 105854.

Baek, S., Mohanty, S. K., & Glambosky, M. (2020). COVID-19 and stock market volatility: An industry level analysis. *Finance Research Letters*, 37, 101748.

Bahmani-Oskooee, M., & Sohrabian, A. (1992). Stock prices and the effective exchange rate of the dollar. *Applied Economics*, 24(4), 459–464.

Baker, S. R., Bloom, N., Davis, S. J., Kost, K., Sammon, M., & Viratyosin, T. (2020). The unprecedented stock market reaction to COVID-19. *The Review of Asset Pricing Studies*, 10(4), 742–758.

Baur, D. G., & Lucey, B. M. (2010). Is gold a hedge or a safe haven? An analysis of stocks, bonds and gold. *Financial Review*, 45(2), 217–229.

Branson, W. H. (1981). Macroeconomic determinants of real exchange rates. *National Bureau of Economic Research*.

Chia, R. C.-J., Liew, V. K.-S., & Rowland, R. (2020). Daily new Covid-19 cases, the movement control order, and Malaysian stock market returns. *International Journal of Business and Society*, 21(2), 553–568.

Dornbusch, R., & Fischer, S. (1980). Exchange rates and the current account. *The American Economic Review*, 70(5), 960–971.
Elengoe, A. (2020). COVID-19 outbreak in Malaysia. *Osong Public Health and Research Perspectives*, 11(3), 93.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Financeinance*, 25(2), 383–417.

Gavin, M. (1989). The stock market and exchange rate dynamics. *Journal of International Money and Finance*, 8(2), 181–200.

Giglio, S., Maggiori, M., Stroebel, J., & Utkus, S. (2021). The joint dynamics of investor beliefs and trading during the COVID-19 crash. *Proceedings of the National Academy of Sciences*, 118(4).

Gilmore, C. G., McManus, G. M., Sharma, R., & Tezel, A. (2009). The dynamics of gold prices, gold mining stock prices and stock market prices comovements. *Research in Applied Economics*, 1(1), 1–19.

Gjerde, Ø., & Saettem, F. (1999). Causal relations among stock returns and macroeconomic variables in a small, open economy. *Journal of International Financial Markets*, 9(1), 61–74.

Lee, K. Y.-M., Jais, M., & Chan, C.-W. (2020). Impact of covid-19: evidence from Malaysian stock market. *International Journal of Business and Society*, 21(2), 607–628.

Malkiel, B. G. (2003). The efficient market hypothesis and its critics. *Journal of Economic Perspectives*, 17(1), 59–82.

Malkiel, B. G. (2011). The efficient-market hypothesis and the financial crisis. Rethinking Finance: *Perspectives on the Crisis (Proceedings of a Conference). Russel Sage Foundation.*

Phan, D. H. B., & Narayan, P. K. (2020). Country responses and the reaction of the stock market to COVID-19—A preliminary exposition. *Emerging Markets Finance and Trade*, 56(10), 2138–2150.

Queku, I. C., Gyedu, S., & Carsamer, E. (2020). Stock prices and macroeconomic information in Ghana: speed of adjustment and bi-causality analysis. *International Journal of Emerging Markets*.

Raza, N., Shahzad, S. J. H., Tiwari, A. K., & Shahbaz, M. (2016). Asymmetric impact of gold, oil prices and their volatilities on stock prices of emerging markets. *Resources Policy*, 49, 290–301.

Ross, S. A. (1976). The Arbitrage Theory of capital asset pricing. *Journal of Economic Theory*, 13, 341–360.

Shabbir, A., Kousar, S., & Batool, S. A. (2020). Impact of gold and oil prices on the stock market in Pakistan. *Journal of Economics, Finance and Administrative Science*.

Tang, K. H. D. (2020). Movement control as an effective measure against Covid-19 spread in Malaysia: an overview. *Journal of Public Health*, 1–4.

Wang, Q.-J., Chen, D., & Chang, C.-P. (2021). The impact of COVID-19 on stock prices of solar enterprises: A comprehensive evidence based on the government response and confirmed cases. *International Journal of Green Energy*, 18(5), 443–456.
Wickremasinghe, G. (2011). The Sri Lankan stock market and the macroeconomy: an empirical investigation. *Studies in Economics and Finance*, 28(3), 179–195.

Worldometer. (2021). COVID-19 Coronavirus Pandemic. https://www.worldometers.info/coronavirus/

Yagli, İ. (2020). The impact of COVID-19 on emerging stock market volatility: Empirical evidence from Borsa Istanbul. *Ekonomi Politika ve Finans Araştırmaları Dergisi,* 5, 269–279.

Yan, B., Stuart, L., Tu, A., & Zhang, T. (2020). Analysis of the Effect of COVID-19 on the stock market and investing strategies. *Available at SSRN 3563380.*

William Choo Keng Soon
Faculty of Business and Finance
Universiti Tunku Abdul Rahman, Malaysia
Email: chooks@utar.edu.my

Dinesh Kumar a/l Saundra Rajan
Faculty of Business and Finance
Universiti Tunku Abdul Rahman, Malaysia
Email: dineshk@utar.edu.my

Cheah Chee Keong
Faculty of Business and Finance
Universiti Tunku Abdul Rahman, Malaysia
Email: cckeong@utar.edu.my

Kong Yin Mei
Faculty of Business and Finance
Universiti Tunku Abdul Rahman, Malaysia
Email: kongym@utar.edu.my

Nurul Ikma Binti Haris
Faculty of Business and Finance
Universiti Tunku Abdul Rahman, Malaysia
Email: nurulikma@utar.edu.my