THE UNRESTRICTED MACROECONOMIC VARIABLES EFFECT ON STOCK MARKET MALAYSIA

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ABSTRACT

This paper to study the selected macroeconomic variables effect on Malaysia stock market. From the 60 monthly data observations, the effect of unrestricted variables on results in the stock market has been applied by several empirical tests in this paper. From the empirical test, gross domestic product and consumer price index have negative bond results in Malaysia, while money supply, actual effective exchange rate, and industrial index of production have the positive relationship with the stock market performance in Malaysia. The unit-root test results showed that all variables except for the price index of the market are not fixed at a stage, while all variables except money supply are stationary at first. Lastly, the Granger Causality Test and Johansen Co-integration Test have been carried out in discovering short-run and long-run relationship between the variables.

INTRODUCTION

The performance of the stock market is effect by unrestricted macroeconomic variables. Investors may take caution about the macroeconomic variables when they are getting in the stocks market. The unrestricted macroeconomic variables include gross domestic production (GDP), Industrial Production Index (IPI), Money Supply (M2), Real Effective Exchange Rate (REER) and Consumer Price Index (CPI) etc. All these variables are

significant which may bring impact to the stock market's performance.

The existence and volatility of unrestricted macroeconomic variables have a crucial effect on the stock market therewith affect the stock market prices (Omodero & Mlanga, 2019). Unrestricted macroeconomic variables suggest that stock market participants anticipate returns in higher or lower value during their investment in the stock market. According to Barakat, Elgazzar, and Hanafy (2016), the macroeconomic variable has an effect to the stock market deciding the interest of both economists and investors, as the interest may help policymakers to take precautions in the cause of forecasting the overall effects of all economic indicators and incorporate them into their policies. The investors would also be the beneficiary as the awareness could help the investors in decision making, as well as the society, get prepared for what it could bring.

A country's economic growth is much dependent on the stock market. The stock market is a platform of trading, where the stocks and shares are the traded commodity also contribution to the establishment and growth of a strong and competitive economy (Masoud, 2013). A stock market is a perfect place to create long-term capital and to buy and sell shares to investors to accumulate the country's reserves. Besides, stocks and shares exchange rates and quotes provide investors with a market value indication of their resources that can influence their consumption spending decisions (Pratten, 1993). The transfer of funds from people who own them without investment opportunities by using the bourgeois role in increasing development, economic productivity and improving social prosperity (Masoud, 2013). For example, an increasing stock market represents a rising economy and shows a sign of the industry's growth. The government, financial institutions and industry are monitoring the stock market developments closely to maintain a healthy of future stock markets (Hakimah et al., 2018). A large stock market can attract more investors to invest and boost economic growth, whether local or foreign.

An index of the stock market may help investors understand the performance of a stock market. Therefore, this paper will focus on the index of Malaysia Exchange Stock Market (KLSE) which is the Kuala Lumpur Composite Index (KLCI). KLCI is also the dependence variable in this study whereas independence variables which are the macroeconomic variables including GDP, IPI, M2, REER and CPI. KLCI was improved as a performance benchmark in 1986 and was used to build the index-tracking fund. However, KLCI was transited to FTSE Bursa Malaysia since the year 2009. The 30 Stock Tradable Index is representative, liquid and clear providing an enhanced index for domestic and foreign investors to enter the Malaysian market as part of the FTSE Bursa Malaysia Index Series (Factsheet, 2020).

According to Asmy, Rohilina, Hassama, and Fouad (2009), KLCI's pattern is a drastic shift in the movements of the index during the financial crisis-era, such as the Asian financial crisis of 1997. Malaysia as a developing country, both internal and external shocks were significant to a fragile stock market. Macroeconomic factors thus have a greater effect on Malaysia's return on investment (Hakimah et al., 2018). Many analysts and economists have tried many studies to create this relation purpose to investigate the unrestricted macroeconomic factors in the stock market. For example, Ibrahim and Yusoff (2001) found that Malaysia stock market performance relied on domestic factors particularly money supply rather than external factors. Besides, they also indicated that inflation and stock market obtain a positive relationship. Also, to maintain the stability of the Malaysian financial market, the weakness of macroeconomic policies will influence the future stock market (Nikmanesh et al., 2014).

PROBLEM STATEMENT

Today, folks purchase of economic instrument with numerous styles of a statement model to achieve profit within the stock exchange. However, stock costs area unit influenced by macroeconomy conditions. consistent with Ricky Chee (2015), domestic economics activities have had a sway on the stock exchange, and also the economics variables area unit smart for statement stock exchange movements. This analysis aims to look at the connection between economic variables within the stock exchange.

The economics variables area unit unremarkably utilized by forecasters to predict future economic developments that will affect the semipermanent movement of the stock exchange. The investment calls so apply to the utilization of historical economics information and completely different risk factors to justify the come-on money assets (Ricky and Lim, 2015). The economics variables usually want to examine the stock exchange that area unit industrial product index (IPI), finances (M2), real rate (RER) and shopper costs index (CPI). within the long-standing time, not all the economics factors would have a sway on the stock exchange.

With relevance the character of the stock exchange rate, the hypothesis implies, as an announcement, that the stock exchange rate persists within the short or future. The absence of co-integration with the stock exchange might contribute to the floating rate system. The rate contains a major semipermanent result on the stock exchange, consistent with Rahman, Sidek, and Tafri (2009). Additionally, dynamical the rate can influence the come of the stock exchange.

RESEARCH QUESTIONS

The research seeks to answer the following questions:
1. What are the implications of the Malaysian stock market of macroeconomic variables?
2. What are the ties between the Malaysian stock market and macroeconomic variables?

RESEARCH OBJECTIVES

The particular goals of this research are as follows:
1. To determine the relationship between the stock market and macroeconomic variables.
2. To define the impact on the stock market of macroeconomic variables.

LITERATURE REVIEW

Gross Domestic Product (GDP)

GDP refers to the market price of products and services produced within a country at a certain period, often a year (Leamer, 2009). GDP may determine the size of a nation's wealth, government spending, exports-imports and investment in the stock market. If the stock is in a good market, there a tendency to be a great deal of optimism encompassing the economy and the possibilities of different stocks (Lee, Ng, Soon, & Thou, 2017). For instance, when the GDP quantity is high, GDP may positively affect the stock market as the greater the nation GDP prove the nation has a stable economy and attract the foreign investment into the stock market.

Stock Market

Stock markets are similar to other market obtain buyers-sellers and goods (shares of companies) that are exchanged for a price. Even though, the goods are not demanded their needs, to increase their wealth to enhance

future consumption. So, the stock market attracted a lot of investors and speculators' objective is increasing their wealth quickly and lots of it. The stock market also useful financial instrument for companies to raise fund. However, there are difficult to predict the market movement as an unrestricted factor in this market such changes in the macroeconomic variables. Each country has its stock market such as Kuala Lumpur Stock Exchange (KLSE), New York Stock Exchange (NYSE), London Stock Exchange (LSE), Pakistan Stock Exchange (PSX), Borsa Istanbul, etc. For example, KLSE used KLCI as an indicator of Malaysia's stock market performance as well as Malaysia's economic status.

The ties between macroeconomic variables and the stock market have been widely performed in some studies. Variables often used like the GDP, M2, REER,(CPI and the IPI, have either an important or negligible relationship (Lee et al., 2017). According to the past research, Pilinkus (2009), Harasheh and Abu-Libdeh (2011) and Pearce (1983), investors and speculators may have a better decision-related stock market performance within this relevant information on those variables and financial market conditions.

Industrial Product Index (IPI)

IPI can be a measure of the pace of change in the output of commercial goods in real terms over time for the manufacturing, mining and electrical sectors. The IPI is calculated based on adjustments in output volume and the total index of the Mining, Manufacturing and Electricity Index. The IPI offers a summary of the latest trend in manufacturing activities and is used for economic research (DOSM, 2020).
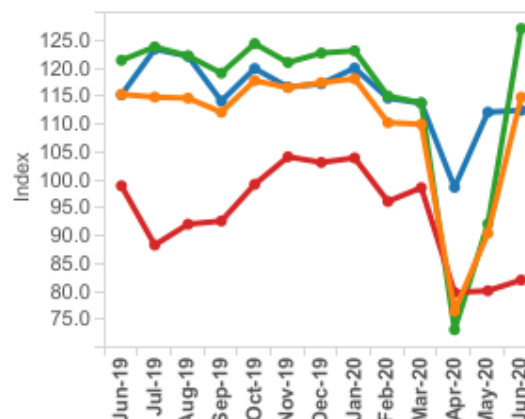

Figure 1 The industrial production index from June 2019 to June 2020

According to the Department of Statistics Malaysia (August 2020), the IPI increased by 26.2% in June 2020 compared to the previous month after the government allowed more industries to restart operations from May 2020. Based on the month-to-month comparison, the rise in IPI in June 2020 was attributed to the increase in all indices; the Manufacturing Index (36.8%), the Mining Index (2.4%).

Besides, there was an important association between GDP and the Industrial Output Index (Joseph & Jakkaphong, 2014; Chen, Roll, & Ross, 1985). Assume, therefore, that an increase in IPI could boost Malaysia's economic growth and increase the expected future cash flows of companies listed on the Kuala Lumpur Stock Exchange (KLSE).

Money Supply (M2)

The money supply is the total amount of money available in a country. Domestic credit is one of the factors contributing to changes in the amount of money. Various types of money supply are commonly classified as M1, M2 and M3, where it applies to each country in different terms. As a result, the money supply reflected the various forms of liquidity that each form of money has in the economy.

M1 is categorized as narrow money and quasi money (Sinah, 2018). M1 includes circulation coins and notes and other cash equivalents that can be easily converted into cash but not as suitable as exchange mediums.

M2 is a wider classification of money than M1, as it includes a highly liquid form of money in assets. M2 includes cash, bank deposits, savings deposits, money market securities and mutual funds. For example, saving deposits in banks that are bank accounts cannot write a check directly, but can easily withdraw the money from an automatic teller machine or bank. Other than that, many banks and financial institutions offer an opportunity to invest in money market securities with pooled individual investor deposits, which are likely to invest in government short-term bonds in a safe manner (OER, 2012). In short, M2 is the money that can be withdrawn and spent but is more efficient than the item in M1.

Economists tend to use the more widely defined concept of M2 when addressing money supply since modern economies often require transactions between various types of accounts (Chappelow, 2020). M1 and M2 are closely related. However, an increase in money supply is an acceptable but significant increase in the money supply would indicate that other economic problems and issues such as inflation and interest rates are emerging (Sinah, 2018).
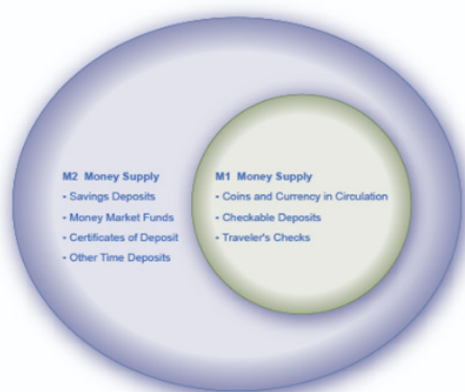

Figure 2 The relationship between M1 and M2 money

Real Effective Rate of Exchange (REER)

Based on the speculation, Real Effective rate of exchange (REER) is outlined because of the product of the nominal effective rate of exchange (NEER) and therefore the effective relative worth indices (Maxwell, 2004). alternative words, REER that is that the measuring of changes in relative costs levels that in each domestic and foreign currency costs explicit within the same currency unit (Brixiova & Thouraya, 2013). REER classifies as a major economic science variable as a result of it contributed to the economic process. Most policymakers and political economy can consistent with the REER fluctuation to style the new ways to stable the REER for increase the value. However, the movement of REER for external costs aggressiveness might take caution. Neither Associate in Nursing appreciation of the REER might mirror a deterioration of aggressiveness or changes in economic fundamentals doubtless to productivity gains (Brixiova & Thouraya, 2013).

Consumer Costs Index (CPI)

The Consumer Index (CPI) could be a calculation of the share amendment in getting value over time for a relentless 'basket' of merchandise and services reflective the typical purchase trend created by one community for a given amount of your time. 'Basket' is that the constant and quality of products and services, consisting of Associate in the Nursing object that prices area unit endlessly discernible over time. aside from that, CPI is that the consumer price index theory, since the value of living could be an explicit idea for every person and is outlined by the individual's preferences for varied varieties of product and services and therefore the prices at that that individual should purchase them (Wynne & Sigalla, 1994). the various index is employed to calculate inflation and therefore the index, that could be a calculation of the price index compared to the chosen base year (Subhani, Osman, & Gul, 2010). additionally, the CPI conjointly uses to calculate the inflation index, that is why the

CPI finds the securities market output to be a major variable.

Empirical Review

The relationship between the securities market and economics Variables. The past analysis support that there has been a correlation between the securities market and economic science variables. consistent with FAMA (1981), the securities market returns area unit completely related to economics variables like inflation, GDP, CPI, money supply and rate. Variation of stock returns influenced by time-varying anticipated returns and prediction of actual operation.

Furthermore, Yu (2011) support that economic science variables area unit powerfully related to the securities market. Yu (2011) counsel that preventing a stable securities market can entail economic process, a modest increase in finances, an occasional rate or rate of inflation, Associate in Nursingd an appreciation of the national currency. Over-increased finances would cause inflation anticipated to rise and negatively have an effect on the securities market, reciprocally moderately increased finances to satisfy upward economic activity would be contributing to the securities market.

Consistent with Rashid (2008), a correlation has been developed between securities market costs and economic science variables like shopper costs, industrial production, rate of exchange and market rate. There has been a long-run two-way correlation between stock costs and selected economic science variables, except for shopper costs, that solely contribute to stock costs (Rashid, 2008).

The relationship between the securities market and gross domestic product. Stock market's development influences the complete method of economic development (Nazir, Nawaz, & Gilani, 2010). Nazir et al. (2010) found that the economic process completely and considerably full of the securities market. this study is a trial to look at this relationship between the creation of the securities market and economic process with KSE's variable size and liquidity, Pakistan's FDI and HDI, and gross domestic product as a variable quantity.

Consistent with Reddy (2012), the gross domestic product could be an important variable that influences the securities market come. Stock costs and future gross domestic product growth area unit connected. dynamical in info regarding the course of the gross domestic product influence the stock worth can scale back borrowing type corporations, investment fall and gross domestic product growth slows (Carlstrom, Fuerst, & Ioannidou, 2002). Therefore, stock costs might use to predict future economic activity because of the two-way relationship between future GDP growth and stock costs.

Even though, some scientist argues that whether or not gross domestic product rate of growth is Associate in Nursing antecedent securities market come. throughout 2000-2013, despite the China economy has been developing deeply economy globally for the past 3 decades, the China securities market still exhibited poor performance (Lee et al., 2017). Additional, Mugambi and Timothy (2016) examined the impact of economic science variables on stock returns of listed banks within the national capital Securities Exchange (NSE). mistreatment normal statistical procedure (OLS) model found that gross domestic product had Associated in Nursing insignificant impact at the five-hitter level of significance.

An analysis from Amarasinghe (2016) found that the IPI contains a positive relationship with the chosen sector index in the country, like potable, Food and Tobacco. The result showed a high correlation and a significant positive impact between the IPI and therefore the selected stock. additionally, Francisco and Loredana (2016) examined the link between the America securities market

and a few connected America economic science factors. They acknowledged that the IPI contains a positive and vital relationship with the America securities market. They claim that higher costs on the securities market area unit related to higher IPI values. Moreover, Amado (2015) rumoured that industrial output accounted for a roughly common fraction of the annual movements available costs in 3 European countries: France, Deutschland and therefore the UK. So, the movement in industrial output influences the stock returns of those countries into consideration.

Moreover, Alireza and Jack (2000) obtained similar results to support the existence of a major between the stock costs levels and industrial production in six European political economies. They were victimisation quarterly information from Gregorian calendar month 1962 to April 1994 for France, Germany, Italy, European country, Switzerland and UK by victimisation variance decomposition strategies to support the robust instructive power of economics variables in contributive to the forecast variance of stock costs. Humpe and Macmillan (2009) applied a cointegration analysis to model the semipermanent relationship between industrial production and stock costs within the United States and Japan. The result showed the stock costs area unit absolutely influenced by informatics.

However, Quadir (2012) declared that the connection between industrial production and therefore the come on the stock exchange was statistically insignificant between Gregorian calendar month 2000 and Gregorian calendar month 2007. In July 1997-June 2005, Kandir (2008) analyzed the role of economics factors within the clarification of the Stamboul securities market. Empirical studies have shown that industrial development doesn't appear to own a considerable impact on the stock come on the Stamboul securities market. throughout 1990-2009, for France, Germany, Italy, the UK and therefore the US, stock costs were not considered full of industrial

development, significantly within the post-Euro era (Laopodis, 2011).

According to Fama (as cited in Lee et al., 2017), short-term industrial production information is tough to live in predicting the returns of the stock exchange. Therefore, the long-run industrial production information from 1953 to 1987 want to examine the connection between industrial production and stock returns.

The Relationship between Stock Market and M2

Husain and Mahmood (1999) examined the causative relationship between cash in hand and therefore the stock exchange in the Islamic Republic of Pakistan from Gregorian calendar month 1991 to Gregorian calendar month 1999. The result showed by associate degree increased Dickey-Fuller take a look at a short-term and semipermanent co-integration between the stock costs and cash in hand. The empirical results showed dynamic in cash in hand influence dynamic available costs in each short and end of the day, advocate that the stock exchange isn't economical order to cash in hand amendment (Husain & Mahmood, 1999).

Maskay (2007) shown a correlation and causative relationship between cash in hand and stock costs in his paper. His results were upheld by the economical market hypothesis. The stock costs determined by an anticipated amendment in cash in hand neither than unlooked-for changes within the cash in hand. Similar results found by Flannery and Protopapadakis (2002). They conclude the money provide was affected stock exchange come and come volatility within the United declared market over the 1980 to 1996 amount.

A positive relationship between economic indicators (including the money supply) additionally incontestable by Menike (2006) supports that cash in hand and stock

costs within the conditions of national capital securities market (CSE) obtains a positive relationship from September 1991 to December 2002. As a state by Bird et al. (2005), within the conditions of the Taiwan securities market there a positive impact of the money provide on stock returns. However, a study was done by Tarika, Seema and Varsha (2011), nominal the money provide insignificantly affect the stock exchange in Taiwan. They examined the information from the amount 2003 to 2008 for the Taiwan securities market by victimisation associate degree ANNEXURE Regression methodology.

Moreover, some studies make sure the negative relationship between cash in hand and stock costs. Empirical results showed the uni-directional causative relationship between stock costs and cash in hand in the Islamic Republic of Pakistan from Gregorian calendar month 1992 to Gregorian calendar month 2009 (Khalid et al, 2013). They found that stock costs have a negative important short-term causative impact on the Islamic Republic of Pakistan however stock costs area unit insignificant semipermanent impact on the money supply. Therefore, Khalid et al (2013) were steered that money provide doesn't verify stock costs at the end of the day as inefficient concerning the money provide. consistent with Cornell's (as cited in Khalid et al, 2013), higher cash demand comes with risk increase as cash demand is absolutely associated with risk and risk aversion. Thus, investors holding stocks creating them less engaging and so equity costs fall for requiring a better risk premium (Sellin, 2001).

The Relationship between Stock Market and REER

According to Alexandra and Livia (2007), the rate of exchange was leading variables for stock costs. They know unilateral relation relations from the stock costs to the rate of exchange. Cointegration and farmer relation tests had been applied to look at the bi-directional influences between stock costs and exchange rates throughout the amount 1999 to 2007. Foreign flows were considerably associated with the stock exchange in a rising market like Asian country, Indonesia, Korea, Taiwan and India (Griffin, Nardari, & Stulz, 2004).

A one-way relationship exists between the 2 variables (the rate of exchange and stock prices). Abdalla and Murinde (1997) conducted the study by victimisation monthly information for Gregorian calendar month 1985 to July 1994 on the rising monetary markets of India, Korea, Islamic Republic of Pakistan and therefore the Philippines. They bought the facts that a one-way relationship exists in these countries except the Philippines. Additional, Rafay et al (2014) additionally found a one-way relationship from the stock exchange to rate of exchange on the rising monetary markets the Islamic Republic of Pakistan.

In the different hand, FTSE Bursa Asian nation Hijrah jurisprudence Index plays a vital role economy as a result of it leads major economic variables like rate of interest, cash in hand, CPI and rate of exchange and rate of the exchange showed a major and negative relationship with stock exchange (Vejzagic & Zarafat, 2013). once stock costs increase can raise the foreign investment flows to guide to a healthy rate of exchange reciprocally index number varies from the equilibrium could result in negative affected (Lee et al., 2017).

Bhattacharya and Mukherjee (2003) were employed unit-root test methods, co-integration and long-term Granger non-causality test in his research. The findings showed that stock prices and the effective real exchange rate on the Indian stock exchange market there was no causal relation (Bhattacharya & Mukherjee, 2003). As a result, the stock market cannot be used as a leading indicator of potential exchange rate growth in India. Also, Suraini et al. (2015) examine the relationship between Pakistan's stock market and its exchange rate market. They found

that there was no relationship between the exchange rate and the stock price, and both variables were independent of each other. The data was monthly from January 2004 to December 2009 and the KSE-100 index was used as a proxy for stock prices, while the Pak Rupee currency was used against the US Dollar (Rs/US$). Demand and supply movements decide the stock price on the Pakistan market, and thus the exchange rate cannot affect the efficiency of the stock price (Suriani, Kumar, Jamil, & Muneer, 2015).

The Relationship between Stock Market and CPI

Inflation has been differentiated between two forms of inflation that are unpredictable and predicted (Geetha, Mohidin, Chandran, & Chong, 2011). Unexpected inflation is beyond what economics and consumers anticipated, while expected inflation has resulted in economists, regulators and consumers adopting the strategy. When inflation is predicted, people are less likely to keep money in currency, over time the value of money depreciated as a result of inflation. Geetha et al. (2011) studied the relationship between inflation and stock returns in Malaysia, the United States and China. The result has shown that there is a long-term relationship between planned and unexpected stock-return inflation among these countries, but only China has a short-term relationship between these variables.

Much of past research in the developed economies have shown a negative association between stock-market returns and inflation. Adrangi, Chatrath, and Sanvicente (2002) examine the negative relationship between stock returns and inflation rates in the markets of the developed economies of Brazil. Fama's long-term proxy hypothesis support that there is a negative relationship between real stock returns and inflation. The negative relationship between real stock returns and inflation rates for Brazil continues even after the negative relationship between CPI and real activity has been purged (Adrangi et al., 2002).

Subhani et al. (2010) found that there was a statistically important and negative relationship between CPI and Pakistan's stock market volume between January 2004 and August 2009. They clarified that each market participant interprets the CPI announcements differently as the amount of trading on the stock market declines. Also, a correlation between the inflation rate and the Pakistan Stock Exchange (PSX) market in the year 2009 and year 2015 has been determined by Ramzan (2016). The Vector Autoregressive Estimate (VAC) method shows a negative sign that the inflation rate has a negative impact on Pakistan's stock market results.

Some scholars have suggested that there is a negative correlation between inflation and stock market results, whereas others have recorded a positive association. The paper examined the correlation between inflation and return on the stock market in Bangladesh and submitted monthly data for the period 2004 to 2013. The study found a short-term positive inflation relation with Bangladesh's stock market and a positive short-term loss of unexpected inflation can raise the company's property value (Ahmed, Islam, & Khan, 2015). Also, Omotor (2010) supports this positive correlation between inflation and the stock market. He found that stock market returns could provide an effective hedge against inflation in Nigeria. Investors in decision-making should perhaps perceive equities as long-term holdings against inflation's loss of buying power (Omotor, 2010).

Proposed Theoretical Framework

Independents variable   Dependent variable
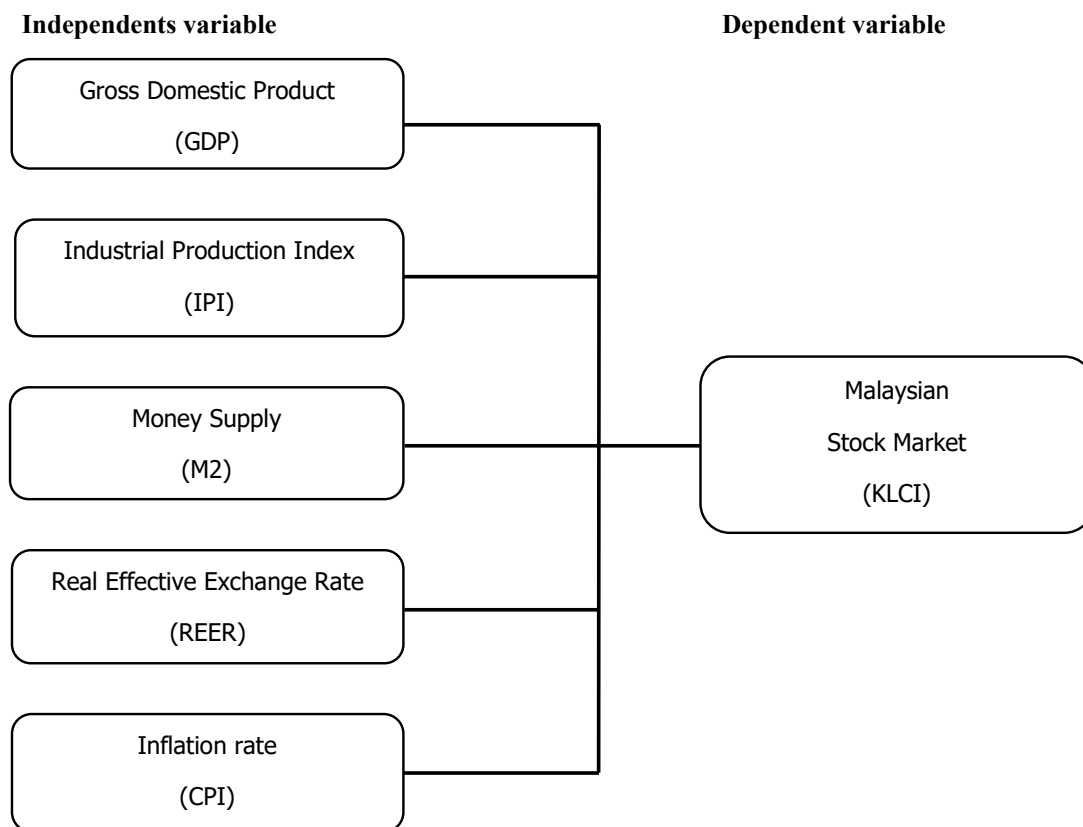

Figure 3 Proposed framework

The framework in Figure 3 shows the factors in a stock market index such as gross domestic product (GDP), industrial production index (IPI) money supply (M2), real effective exchange rate (REER) and inflation rate (CPI). The framework was formed in the basic form to provide a better illustration of the particular independent and dependent variables. The dependent variable will influence by independent variables. This research concentrates on the period from January 2013 to December 2017 on monthly data.

Research Hypothesis

H_0: There is a significant relationship between GDP and the Malaysian stock market.
H_1: There is no significant relationship between GDP and the Malaysian stock market.

There was some research cited about GDP is a significant factor in the stock market to boost the economic well. Nazir et al. (2010), Peddy (2012) and Carlstom (2002) mention that there is a significant and bilateral relationship between GDP growth and stock prices. Mugambi and Timothy (2016) proved that GDP had an insignificant impact at 5% level of significance with stock return as GDP affected by financial conditions and consumer certainty affected the stock exchange market fundamentally.

H_0: There is a significant relationship between the IPI and the Malaysian stock market.
H_1: There is no significant relationship between the IPI and the Malaysian stock market.

IPI is playing significantly variables in the relationship with the stock market among macroeconomic variables. Growth in IPI may increase national income and stimulate the domestic economy. According to Amarasinghe (2016), Franciso and Loredana (2016), Humple and Jack (2000) showed the positive connection between IPI and the stock market. However, Kandir (2008) and Laopodis (2011) mentioned that stock prices were not affected much by IPI Quadir (2012) founded that the IPI is insignificant influence the stock exchange market performance.

H_0: There is a significant relationship between M2 and the Malaysian stock market.
H_1: There is no significant relationship between M2 and the Malaysian stock market.

The review study which investigated by Maskay (2007), Flannery and Protopapadakis (2002) and Menike (2006) have a positive significant and causal relationship between money supply and the stock market. Eventhough, Khalid et al. (2013) money supply does not determine stock prices in the long run and insignificant long-run effect on money supply but stock prices have a negative significant short-run causal effect on the money supply.

H_0: There is a significant relationship between REER and Malaysian stock market.
H_1: There is no significant relationship between REER and Malaysian stock market.

REER categorized as a macroeconomic variable as policymakers will use it to make a decision. Abdalla and Murinde (1997) and Rafay et al. (2014) founded a unidirectional relationship exists among REER and the stock market. Vejzagic and Zarafat (2013) and Griffin et al. (2004) support that the REER obtain a significant connection between those two variables. Suraini (2015) mentioned that the exchange rate may not affect the stock price efficiency hence the stock price is determined by demand and supply in the market.

Bhattacharya and Mukherjee (2003) also recommend that the exchange rate cannot be used as leading in the stock market.

H_0: There is a significant relationship between CPI and the Malaysian stock market.
H_1: There is no significant relationship between CPI and the Malaysian stock market.

CPI also use to measure the price index for inflation hence a lot of the past research in the industrialized economies have shown a negative relationship between stock market return and inflation. Adrangi et al. (2002), Subhani et al. (2010) and Ramzan (2016) indicated the inflation and stock market are negative corrections. Also, some reported the positive association like Ahmed et al. (2015) found a short-run positive connection and Omotor (2010) support that a positive connection between inflation and the stock market.

METHODOLOGY

Research Design

Quantitative data was undertaking during this research. Quantitative data based on the historical data, it is necessary to explain the changes of data from its historical (North, 1963). Quantitative data is the value of the data in the form of counts or numbers where each data set has a specific numeric value. Quantitative data is used to measure the data and to generalize the findings of the survey to the population of interest. Quantitative analysis is therefore intended to establish the relationship between these independent variables and the mathematical method with the dependent variable.

Apart from that, the ordinary least square (OLS) used in this paper as a quantitative analysis to describe the effect of these macroeconomic variables on the output of the stock market. Also, it provides researchers with the resources they need to provide their hypothesis to determine their investigation.

Data

This study to examine the unrestricted macroeconomic variables effect on the stock market. The variables that are representative of stock market movement are a gross domestic product (GDP), industrial production index (IPI), money supply (M2), the real effective exchange rate (REER) and inflation rate (CPI). All the variables data series provided by Bloomberg sourced from the International Monetary Fund (IMF) and data stock market index provided by Kuala Lumpur Stock Exchange (KLSE). All the data series are monthly data Jan 2013 to Dec 2017. CPI represented inflation during the period. The exchange rate represented that Malaysia's exchange rate against USD dollar while M2 expressed the money supply with domestic currency in the monetary market.

Table 1 The variables and the proxy

Variables	Proxy	Units	Explanation
Stock Market	KLSE	Index	Kuala Lumpur Stock Exchange
Gross Domestic Production	GDP	Current Prices	Gross domestic production in Malaysia
Industrial Production Index	IPI	Index	Industrial Production Index in Malaysia
Money Supply	M2	Ringgit Malaysia (RM)	Money of category 2 in Malaysia's stock market
Real Effective Exchange Rate	REER	Per cent	Real effective exchange rate in Malaysia
Consumer Price Index	CPI	Index	Inflation in Malaysia

Sampling Design

There are two varieties of sampling strategies, particularly chance sampling and non-probability sampling. The chance of sampling is that every member of the population incorporates an acknowledged non-zero chance of being chosen. In different words, likelihood sampling could be a portion of the population. The chance sampling approach involves sampling, systematic sampling and representative sampling, though non-probability sampling doesn't need random choice.

Sampling Size

The sampling size is the number of observations selected and analysed in the population. Sampling size is crucial to the accuracy of the results, therefore the sample size must be moderate, the large samples will waste resources and the small size of the sampling results may be wrong. Thus, 60 sample sizes are chosen to assess how unregulated macroeconomic variables impact the stock market.

Data Processing

There are two approaches for conducting analysis, such as quantitative and qualitative data. Quantitative data is the value of the data in the form of counts or numbers where each data set has a specific numeric value. Quantitative data is used to measure the data and to generalize the findings of the survey to the population of interest. Qualitative data is the data that is approximating and characterizing. Qualitative data classified in statistical data and sequential data. It is a compilation of textual data that represents the essence of things and defines the category of things. Hypotheses have been tested to address research questions and to achieve research goals.

Data collection is a method for the collection of data from all available sources. The goal is to find answers to the research issue, to test the hypothesis and to analyze the findings. Data collection approaches can be divided into two categories: primary data and secondary data.

Primary data is the one when the data are collected first-hand by the researcher. By using primary data, the researchers can

collect the data and information for the study. Researchers can collect the primary data using the surveys, questionnaires and interviews. For example, the primary tool that we have used in the study is a questionnaire.

However, the data that has been published in books, newspaper, journal and online portals which are called secondary data. Secondary data is previously collected research data that researchers can access. It also the data that have been collected by someone else and already been passed through the statistical process. Purpose of secondary data is to increase the sample size of studies and to improve the efficiency and speed with which currently resources are used. Through the primary and secondary data, the researcher can improve their knowledge regarding the important aspects of the topics.

In this study, the data collected are being interpreted and analyse through descriptive analysis. The data are also being run through the E-views software to research for this data analysis. Descriptive data analysis is used to describe the basic features of the data in the study. Descriptive data analysis also provides summaries about the sample and the measures. E-views foremost function is to perform econometrical and statistical analysis include the diagnostic checking, hypothesis testing, t-statistic and f-statistic test.
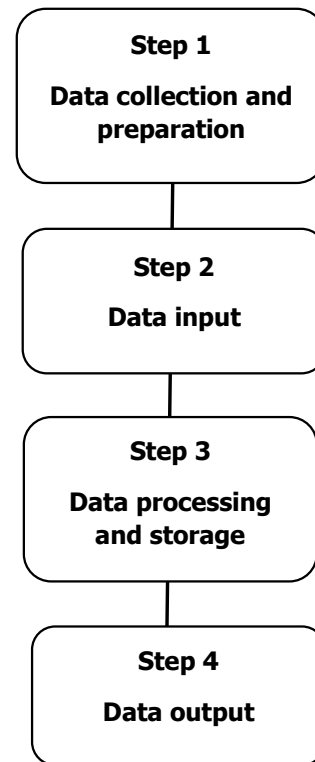

Figure 4 Data processing step

Step 1: Collected the secondary data from Bloomberg.

Step 2: Summarize the data and methodologies applied by the literature review. Then, determine the data and methodologies being run through by E-Views in this study.

Step 3: T-test, F-test, Normality test, serial correlation LM test has been applied by the E-Views with the data collected. Thus, save and keep a certain result for further explanation.

Step 4: Applied the empirical results to analyse and interpret.

Multiple Linear Regression Model

The variables are transformed into their natural logarithms before the analysis to ensure the data is normally distributed. Multiple regression is a method used to evaluate the relationship between one dependent variable and several independent variables. At least two independent regression variables. Therefore, the multiple regression form used in empirical

studies is: **LKLSE(t) = C + C(1)*LGDP(t) + C(2)*LIPI(t) + C(3)*LM2(t) + C(4)*LREER(t) + C(5)*LCPI(t) + e(t)**

N = 60 observations

LKLSE(t) = Natural logarithm of the Kuala Lumpur Stock Exchange at month t.

LGDP(t) = Natural logarithm of gross domestic product (GDP) at month t.

LIPI(t) = Natural logarithm of industrial production index (IPI) at month t.

LM2(t) = Natural logarithm of money supply of category 2 at month t.

LREER(t) = Natural logarithm of real effective exchange rate (REER) at month t.

LCPI(t) = Natural logarithm of consumer price index (CPI) as measure of inflation rate at month t.

e(t) = The error term.

Diagnostic Checking

Diagnostic Checking is the process to prevent the adverse effects caused by the wrong measurement from the regression model. Diagnostic Checking often applies by a researcher to run the regression model to get accurate results. Diagnostic checking is considered to be particularly important in applied econometrics such as heteroskedasticity or serial correlation of error terms, structural changes in regression coefficients, nonlinearity, functional misspecification or omitted variables (Zeileis & Hothorn, 2002).

Multicollinearity

Multicollinearity occurs when the explanatory variables are very highly correlated with each other. Other words, this problem occurs when the independent variables are perfectly correlated with each other in the regression model. The extent of multicollinearity is simply to look at the matrix of correlations between the individual variables.

Corr	x_2	x_3	x_4
x_2	-	0.2	0.8
x_3	0.2	-	0.3
x_4	0.8	0.3	-

Figure 5 The extent of multicollinearity

Furthermore, the Variance Inflation issue (VIF) or Tolerance (TOL) determine the presence of multiple regression. once price|the worth} of VIF equal or over than 10; TOL value almost zero means that the model acquires serious multiple regression. If the multiple regression issues existed, the variances of the freelance variables would possibly become lager (Mansfield & Helms, 1982).

Heteroscedasticity

Heteroscedasticity (heteroskedasticity) refers to matters beneath that the variable variability is inconsistent round the spectrum of values of the second variable that predicts it (Taylor, 2013). different words to mention, the residual variances do not seem to be constant, however totally different for every observation. The scatterplot of those variables conjointly produces a cone-like form, because the scatter (or variability) of the variable quantity (DV) widens or narrows because the price of the variable quantity (IV) will increase (Taylor, 2013). White check and ARCH check area unit general in this heteroscedasticity is that the best approach, as the area unit few assumptions concerning the kind of heteroscedasticity. The White check obtains R2 from the auxiliary regression and multiplies it by the number of observations suspected of inducement heteroscedasticity, whereas the ARCH is employed to classify and model the ascertained statistic.

Autocorrelation

Autocorrelation refers to the degree of association between values of comparable variables across varied knowledge observations. Autocorrelation of the regression will occur if the model is incorrectly outlined within the multivariate analysis. Autocorrelation will trigger issues in ancient analyzes (such as OLS) that presume the independence of observations. Autocorrelation may be calculated exploitation a number of the Durbin-Watson (DW) data point and Breusch-Godfrey Serial Correlation LM lumen check ways. The DW may be a check for the first-order autocorrelation. The DW check ends up in a variety from zero to four, if the worth on the brink of two doesn't reject the null hypothesis since there's no proof of autocorrelation whereas rejecting the null hypothesis if the worth is on the brink of zero or four suggests the next positive or negative autocorrelation, severally. but the Breusch-Godfrey check may be an additional general check for a high degree of serial correlation. If the check data point reaches the crucial price of the applied math tables, deny the null hypothesis of no autocorrelation.

Ramsey's RESET

Ramsey's RESET test which is a general test for misspecification of functional form. Ramsey's RESET test to ensure the regression was created correctly as an incorrect model leads to biased and inconsistent results.

Jarque-Bera Normality Test

Jarque-Bera normality test is to investigate the residuals for normality by testing whether the coefficient of skewness and the coefficient of excess kurtosis are jointly zero. The Jarque-Bera test statistic is shown as below:

$$W = T\left[\frac{\bar{b}_1^2}{6} + \frac{(\bar{b}_2 - 3)^2}{24}\right] \sim \chi^2(2)$$

H^0: Error term is distributed normally.
H^1: Error term is not distributed normally.

Based on the significant probability value, reject the null hypothesis (H^0) if the p-value is less than 0.05 (5%) or t-value is large than the critical value whereas error term is not normally distributed. Inversely, accept H^0 if the p-value is larger than 0.05 (5%) or the t-value is smaller than the critical value, that error term is normally distributed.

T-statistics Test

The t-statistic, which is determined based on the ratio of the approximate coefficient to its standard error, is used to evaluate the hypothesis that the coefficient is equal to zero. Other words to say, the T-test demonstrates the importance of the variations between classes. To view the t-statistic, consider the probability of observing the t-statistic, provided that the coefficient is equal to zero. Given the p-value, whether it refuses or supports the statement that the true coefficient is zero against the two-sided alternative, it varies from zero.

The hypothesis described below:

H^0: The independent variables insignificantly related dependent variable ($\boldsymbol{\beta i = 0, i = 1, 2, 3, 4}$).
H^1: The independent variables significantly related dependent variable ($\boldsymbol{\beta i \neq 0, i = 1, 2, 3, 4}$).

If the probability value (p-value) lower than the significant level at 5% (0.05) of a zero-coefficient rejected H^0 at 5% significance level. Also, the null hypothesis rejected if the test statistic value lower than the low critical value or exceed the upper critical value inversely accept the H^0.

F-statistics Test

The F-statistic recorded in the regression output is based on the hypothesis that each of the slope coefficients (excluding constant or intercept) in the regression is zero. Also, the F-statistical test is to calculate the importance of the whole model. However, the F-test is a joint test such that even though all the t-statistics are negligible, the F-statistics can be very important.

The hypothesis for the F-statistics test shown below:

H^0: $\beta 1 = \beta 2 = \beta 3 = \beta 4 = 0$

H^1: $\beta 1 \neq \beta 2 \neq \beta 3 \neq \beta 4 \neq 0$

If the p-value lower than the significance level at 5% (0.05) therefore rejected H^0 at 5% significance level. If F-test value lower than the low critical value or exceed the upper critical value also rejected H^0. Therefore, all of the coefficients except the intercept coefficient are zero.

Stationarity

Stationarity testing is necessary to determine the characteristics of each sequence. Assuming the modelling is stationary covariance, the time series is stationary if its mean and variance are constant over time. The three-principle requirement must be fulfilled by a stationary set. The test for the stability of the variables is to prevent a spurious result. Much of the analysis shows that the majority of the time series of macro-economics is not stationary but has a deterministic pattern, thus causing problems for econometrics, given the usual properties t-statistics and Durbin Watson statistic (DW) under non-stationary data conditions, and measurements such as R-squares split results. In this analysis, the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are used to assess the order of integrations that is useful in analytical work as they are free from the size problems that have affected many root tests. The lag duration is chosen using the Akaike Knowledge Criterion (AIC) for ADF. The hypothesis tested that the variables under study have a unit root for stationary selection which is the null hypothesis (H^0); the alternative hypothesis (H^1) tested the variables that understudy do not have a unit root for stationary selection which are shown below:

H^0: The variable has a unit root (non-stationary).

H^1: The variable does not have a unit root (stationary).

if the p-value of unit root test less than the 5% level of significance, rejected H^0, therefore, the variable is stationary at a 5% significance level. If the t-statistic for variables is greater than the critical value, implying that the null hypothesis of unit root is rejected.

Cointegration Test

More technically, co-integration means that a linear combination of non-stationary variables may be stationary after the order of integration of each variable has been determined. The study performs the cointegration analysis to determine whether the time series of the variables display a stationary process in a linear combination which is called the cointegration equation and reflect a long-run equilibrium relationship between the dependent and independent variables. First, Granger (1969) suggested the idea of co-integration, which was further developed by Engel and Granger (1987). This analysis will use the Johansen and Juselius (1988) co-integration test. Where the Johansen and Juselius cointegration test takes the form of the following equation:

$$\Delta Y_t = Y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-i} + BX_t + \varepsilon_t$$

Trace statistic and maximal eigenvalue statistic are employed to determine the number of cointegrating relationships. The two methods also used to compare with the critical values tabulated in Osterwald-Lenum (1992).

Vector Error Correction Models (VECM)

Vector Error Correction Model (VECM) is that there often a long-run disequilibrium correlation between two or more variables, but in short-run, there may be disequilibrium. Therefore, VECM is used to determine the short-run relationship between variables. If there could be at least one cointegration relationship between the dependent and independent variables, then the causal relationship among these variables can be determined by estimating the Vector Error Correction Model (VECM). The null hypothesis (H[0]) tested that the variables under study do not have a long-run relationship while the alternative hypothesis (H[1]) tested the variables that understudy has a long-run relationship which is shown below:

H[0]: The variables do not have a long-run relationship.
H[1]:The variables have a long-run relationship.

Granger Causality Test

Various tests have been suggested to identify the direction of causality between the dependent and independent variables due to the unknown direction of the causal relationship between the variables. Granger causality test which is the most well-known test proposed by Granger (1969) applied in this study will attempt to establish the short-term feedback relationships among the financial and real sector. While analysing the data which allow specifying the long-tun dynamics of the

model and capturing potential endogeneity the VECM approach also applied. The null hypothesis (H[0]) tested that the variable X understudy does not granger causes the variable Y while the alternative hypothesis (H[1]) tested the variable X understudy does granger causes the variable Y which are shown below:

H[0]: Variable X does not granger causes variable Y.
H[1]: Variable X does granger causes variable Y.

DATA ANALYSIS

Ordinary Least Square (OLS) Method

$LKLSE(t) = C + C(1)*LGDP(t) + C(2)*LIPI(t) + C(3)*LM2(t) + C(4)*LREER(t) + C(5)*LCPI(t) + e(t)$

$LKLSE(t) = -2.865035 - 0.081880\ LGDP(t) + 0.090377\ LIPI(t) + 0.532985\ LM2(t) + 0.636786\ LREER(t) - 0.011919\ LCPI(t)$

LKLSE(t) = Natural logarithm of the Kuala Lumpur Stock Exchange at month t.
LGDP(t) = Natural logarithm of gross domestic product (GDP) at month t.
LIPI(t) = Natural logarithm of industrial production index (IPI) at month t.
LM2(t) = Natural logarithm of money supply of category 2 at month t.
LREER(t) = Natural logarithm of real effective exchange rate (REER) at month t.
LCPI(t) = Natural logarithm of a consumer price index (CPI) as a measure of inflation rate at month t.
e(t) = the error term.

Table 2 E-views result

Independent variable	Actual sign	Coefficient	p-value	Significant level
LGDP	NEGATIVE	−0.081880	0.0002	0.05
LIPI	POSITIVE	0.090377	0.0000	0.05
LM2	POSITIVE	0.532985	0.0000	0.05
LREER	POSITIVE	0.636786	0.0000	0.05
LCPI	NEGATIVE	−0.011919	0.4014	0.05
$R^2 = 0.670155$	Adjusted $R^2 = 0.639614$			

R^2 calculates the portion of the variance in the dependent variable evaluated by the independent variables in the linear regression model. Whereas based on the number of independent variables the adjusted R^2 adjusts the statistic in the model. From Table 2, R^2 = 0.670155means that 67.02% of the variation in stock return in Kuala Lumpur is explained by the total variation in GDP, IPI, M2, REER and CPI. Whereas adjusted R^2= 0.639614 shows 63.96% of the sum of variation in stock market performance in Kuala Lumpur described by the sum of variation among these variables after considering into account the degree of freedom.

Descriptive Statistics

Table 3 Descriptive Statistic for the stock market (KLSE)

	KLSE	GDP	IPI	CPI	REER	M2
Mean	1744.127	96.63153	23.23420	111.3367	95.53033	1551677.
Median	1751.750	41.43637	9.955809	112.6500	97.75000	1573255.
Std. Dev.	79.13175	113.3787	26.03844	13.49125	5.786362	105373.2
Skewness	0.070432	1.177107	0.934273	−6.353201	−0.682248	−0.182870
Kurtosis	1.844675	2.973536	2.443320	46.54567	2.086660	1.962562
Jarque-Bera	3.386549	13.85757	9.503387	5144.196	6.740100	3.025110

Table 3 shows the descriptive statistic for the logs among these variables, KLSE, GDP, IPI, CPI, REER, and M2 that employed in the empirical analysis. The comparison of the mean and median during the sample year from the year 2013 to the year 2017. The examination of skewness shows that CPI, REER and M2 are negatively skewed, which means that the negatively skewed variables have increased during the sample period. Kurtosis figures indicate that the variables are leptokurtic with negative skewness, provided that the non-normal distributions were also supported by the Jarque-Bera statistics reported in the table.

Hypothesis Testing

The purpose of this part is to investigate the relationship between the dependent variable and the different independent variables. T-statistics examined the significance of each independent variable, while the F-test examined the significance of the estimated regression model.

T-statistics Test

A significance level of 5% had been used to define the significant relationship between the dependent variable and independent variables.

Gross Domestic Product (GDP)

H^0: An insignificant relation between GDP and KLCI index.
    H^1: A significant relation between GDP and KLCI index.
    Since the p-value (0.0002) is lower than 5% (0.05) significance level, therefore rejected H^0 at 5% significance level. While the GDP is significantly related to the KLCI index with significance level at 5%.

Industrial Production Index (IPI)

H^0: An insignificant relation between IPI and KLCI index.
    H^1: A significant relation between IPI and KLCI index.
    Since the p-value (0.0000) is lower than 5% (0.05) significance level, therefore rejected H^0 at 5% significance level. While the IPI is

significantly related to the KLCI index with significance level at 5%.

Money Supply (M2)

H^0: An insignificant relation between M2 and KLCI index.
H^1: A significant relation between M2 and KLCI index.
Since the p-value (0.0000) is lower than 5% (0.05) significance level, therefore rejected H^0 at 5% significance level. While the money supply 2 is significantly related to the KLCI index with significance level at 5%.

Real Effective Exchange Rate (REER)

H^0: An insignificant relation between REER and KLCI index.
H^1: A significant relation between REER and KLCI index.
Since the p-value (0.0000) is lower than 5% (0.05) significance level, therefore rejected H^0 at 5% significance level. While the REER is significantly related to the KLCI index with significance level at 5%.

Consumer Price Index (CPI)

H^0: An insignificant relation between CPI and KLCI index.
H^1: A significant relation between CPI and KLCI index.
Since the p-value (0.4014) is over than the 5% (0.05) significance level, therefore accepted H^0 at 5% significance level. The CPI no sufficient evidence related to the KLCI index with significance level at 5%.

F-statistics Test

F-test examined the significance of the estimated regression model among these variables.
  H^0: $\beta 1 = \beta 2 = \beta 3 = \beta 4 = \beta 5 = 0$
  H^1: As a minimum, an independent variable is distinct from zero, i=1, 2, 3, 4, 5
  Since the p-value (0.0000) is lower than the 5% (0.05) significance level, therefore rejected H^0 at 5% significance level. While the model is significantly related to the KLCI index with significance level at 5%.
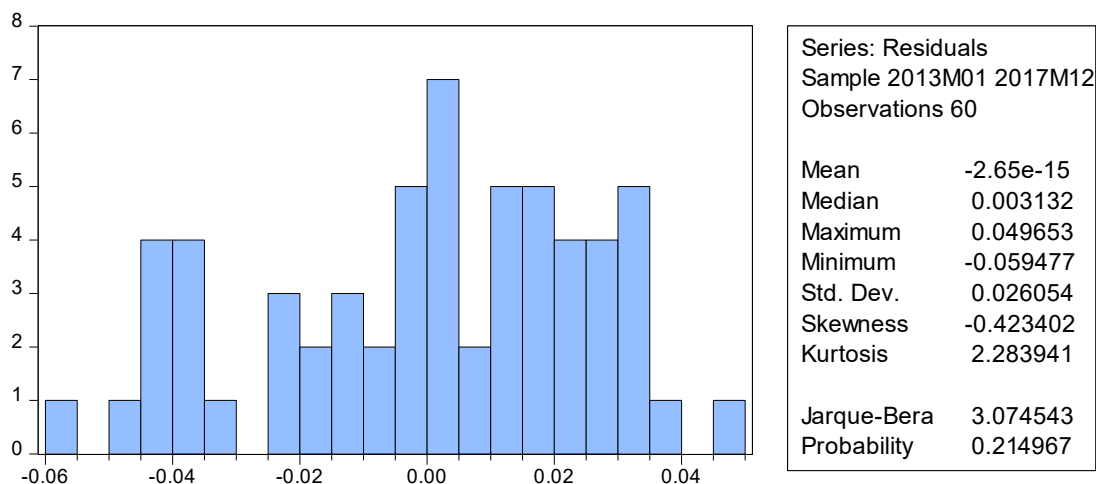
Normality Test (Jarque-Bera Test)

Series: Residuals	
Sample 2013M01 2017M12	
Observations 60	
Mean	-2.65e-15
Median	0.003132
Maximum	0.049653
Minimum	-0.059477
Std. Dev.	0.026054
Skewness	-0.423402
Kurtosis	2.283941
Jarque-Bera	3.074543
Probability	0.214967

Figure 6 Jonquière Test

H^0: Error term is distributed normally.

H^1: Error term is not distributed normally.
Accepted H^0 since the p-value (0.214967) is over than the significance level at 5% (0.05) therefore the error term is normally distributed at the significance level of 5%.

Unit Root test

The hypothesis tested that the variable under study have a unit root for stationary selection which is called the null hypothesis (H^0) tested while the alternative hypothesis (H^1) tested the variables that understudy do not have a unit root for stationary selection which are shown below:

H^0: The variable has a unit root (non-stationary).

H^1: The variable does not have a unit root (stationary).

Table 4 Unit Root Tests

| Variables | Trend and Intercept | | | |
| | ADF | | PP | |
	At Level	First Difference	At Level	First Difference
LKLCI	0.5129	0.0000	0.5029	0.0000
LGDP	0.5449	0.0000	0.5449	0.0000
LIPI	0.1764	0.0000	0.1764	0.0000
LM2	0.9839	0.0177	0.9903	0.0000
LREER	0.4219	0.0000	0.3661	0.0000
LCPI	0.0000	0.0000	0.0000	0.0001

Table 4 summarized the results of the ADF and PP tests, which are an appropriate and formal test procedure for the determination of stationary or non-stationary variables. The null hypothesis formed as there is a single root against the alternative hypothesis that there is no single root. The ADF and PP tests indicate that all variables are found to be non-stationary in levels. The p-value for all variables at the level I(0) is less than the 5 per cent (0.05) level of significance, thus failing to reject the null hypothesis of the presence of the root unit. After applying the first difference to the time series, the p-value of the variables is lower than the 5 per cent (0.05) level of significance except for CPI, implying that rejected the null hypothesis of the unit root at the level and all variables are stationary at the first difference I(1).

Johansen Co-integration Test

H^0: There is does not exist a long-run relationship between the variables.

H^1: There is does exist long a run relationship between the variables.

Table 5 Johansen's Cointegration Tests

Null Hypothesis	Trace Statistic	5% Critical Value	Max-Eigen Value Statistics	5% Critical value
	85.88960	95.75366	42.88193	40.07757
	43.00767	69.81889	19.00781	33.87687

As noted in Table 5, the null hypothesis of no cointegration failed to reject as shown by trace statistics less than the critical value. While the null hypothesis of no cointegration rejected by max Eigenvalue over than the critical value.

Granger Causality Test

Granger Causality test is used to investigate the direction of causality relationships between the selected independent variables and Kuala Lumpur Stock Exchange (KLCI index) in this research.

H^0: Variable X does not granger causes variable Y.

H^1: Variable X does granger causes variable Y.

Table 6 Granger Causality Test

Variables	LKLCI	LGDP	LIPI	LM2	LREER	LCPI
LKLCI	-	0.5377	0.3281	0.7660	0.0464	0.7824
LGDP	0.1041	–	–	–	–	–
LIPI	0.0213	–	–	–	–	–
LM2	0.2702	–	–	–	–	–
LREER	0.2881	–	–	–	–	–
LCPI	0.2555	–	–	–	–	–

Table 7 The null hypothesis

Null Hypothesis	p-value
LGDP does not Granger Cause LCPI	0.1636
LCPI does not Granger Cause LGDP	0.6161
LIPI does not Granger Cause LCPI	0.1868
LCPI does not Granger Cause LIPI	0.5924
LKLSE does not Granger Cause LCPI	0.7824
LCPI does not Granger Cause LKLSE	0.2555
LM2 does not Granger Cause LCPI	0.7217
LCPI does not Granger Cause LM2	0.2661
LREER does not Granger Cause LCPI	0.2868
LCPI does not Granger Cause LREER	0.1583
LIPI does not Granger Cause LGDP	0.3880
LGDP does not Granger Cause LIPI	0.3357
LKLSE does not Granger Cause LGDP	0.1041
LGDP does not Granger Cause LKLSE	0.5377
LM2 does not Granger Cause LGDP	0.4733
LGDP does not Granger Cause LM2	0.8804
LREER does not Granger Cause LGDP	0.0316
LGDP does not Granger Cause LREER	0.3378
LKLSE does not Granger Cause LIPI	0.0213
LIPI does not Granger Cause LKLSE	0.3281
LM2 does not Granger Cause LIPI	0.9315
LIPI does not Granger Cause LM2	0.7927
LREER does not Granger Cause LIPI	0.0164
LIPI does not Granger Cause LREER	0.3777
LM2 does not Granger Cause LKLSE	0.7660
LKLSE does not Granger Cause LM2	0.2702
LREER does not Granger Cause LKLSE	0.0464
LKLSE does not Granger Cause LREER	0.2881
LREER does not Granger Cause LM2	0.5469
LM2 does not Granger Cause LREER	0.4170

After examining the long-run equilibrium for KLCI and these variables, the dynamic interaction between these variables. The results in Table 7 indicated that Granger-causality runs between stock market the selected independent variables. Based on this result, can conclude that there is an LKLCI does granger causes the LIPI and LREER do granger causes the LKLCI, LIPI and LGDP.

FINDING AND CONCLUSION

Finding

The objectives of this study were to establish the effects of the macroeconomic variables and the relationship between these variables, the GDP, IPI, M2, REER and CPI on the performance of the Kuala Lumpur Stock Exchange.

Panel style below exploratory analysis was adopted for the study. Panel monthly information on macroeconomic variables and KLCI was collected from 2013 to 2017 and the data were derived and converted into logarithmic form.

Ordinary Least Square (OLS) regression was applied to investigate the relationship between the dependent variable (KLSE) and various independent variables which are GDP, M2, REER, CPI, and IPI. The multiple regression resulted in the following linear relationship: LKLSE(t) = -2.865035 -0.100467 LGDP(t) + 0.099902 LIPI(t) + 0.341153 LM2(t) + 0.618102 LREER(t) -0.011495L CPI(t) + e(t). The results indicated a positive and significant relationship between the Industrial Production Index, money supply 2 and Real Effective Exchange Rate. One per cent increase in IPI, M2 and REER, KLSE was predicted to increase by 9.9%, 34% and 61%. However, negatively and significant relationship was found between the stock market and GDP and inflation. A one per cent unit increase with GDP and inflation, the stock market drops 10% and 1.14% units.

The findings of this research show that there is a significant relationship between the performance of the stock market and the macroeconomic variables in a stable macroeconomic environment. These findings ensure that macroeconomic variables affect the stock market differently from how they affect the aggregate stock market, as concluded by Mugambi and Timothy (2016) that there is a negative but insignificant relationship between GDP and bank stock prices.

Empirical evidence from this study shows a negative and significant relationship between the stock market and GDP. According to the World Bank database, Malaysia's stock market capitalization decreased by 35% from 2013 to 2016. The relative decline in market capitalization may have resulted in a lack of correlation with economic GDP since small market price movements have a potentially smaller impact on aggregate wealth. Moreover,

a decrease in purchasing power over the amount of money supply with GDP may increase inflation in the future and damage the stock market. The decision-making process, therefore, chooses to obtain funds to lower the risk on the stock market.

The findings of the study also show a positive and significant relationship between the stock market and the IPI. When the industrial production index boosts this economy, it is shown that the country of production has a hopeful outlook or is optimistic through the development and positive effects (Lee et al., 2017).

Based on past research, there was insignificantly between an index of industrial production and stock market index, Laopodis (2011) reported relationship between industrial production and stock market return was statistically insignificant in Euro when the post-Euro period. However, IPI positively affects on Malaysian stock market as Malaysia is developing business sector which implies a country does not rely on industrial production index because they are considered that as a developed economy. Developing countries and emerging markets normally kept a good relationship between industrial production rate and stock market performance (Ozbay, 2009).

In this study indicates a positive relationship between money supply with the Malaysian stock market performance. According to the review studies, Maskay (2007) and Menike (2006) are positive relationships with the stock market performance. Babak (2012) stated higher money supply gives advantages to the firms in the market by giving them more chances to contribute and also to grow. Therefore, the government may expand the money supply to support up stock market performance as the investor tend to get more capital to make their investment in the stock market when money supply in the market expand by making the stock market to be more dynamic and in well perform. Besides, lower the required reserve for the banks are

permitted loans to the public by broadening money supply. Thus, an expansionary monetary implementation may help to boost up the stock market performance.

The results of the study also showed a positive and significant relationship between the exchange rate and the performance of the stock market. When the local stock market decrease cause aggregate demand decrease and stock prices fall. So the domestic currency will depreciate when the exchange rate going up and the imported product will expensive than domestic product. Thus, foreign investors boost up its stock market performance therefore they will come and do invest their capital in domestic countries in the stock market. Also, if the currency depreciates, foreign investors will get more value for their foreign currency, however, equally, depreciation will decrease their returns when converting local currency back to foreign currency for repatriation (Mugambi & Timothy, 2016).

Empirical evidence from the study showed a negative and negligible relationship between inflation and market results. According to Adrangi et al. (2002) and Ramzan (2016) proved that CPI has a negative relationship with the stock price. If a country obtains high CPI may lead to a decline in the stock market. In additional, Naghdi, Kaghazian and Kakoei (2012) stated that the stock price index has a negative but insignificantly impact on inflation during the financial crisis. From previous research, when inflation goes up, assuming value estimation of stock should drop and consequently set of diminishing on the stock price. If an investor is risk seeker, they may invest a large amount of stock that offers a higher yield during inflation.

The governing body can purchase treasury securities in the freedom market. The government can lower down the interest rate purpose to attract more investor borrowing from them. Decision making the monetary policy and fiscal policy to alter interest rate

and money supply level to moderation inflation in the nation. Furthermore, expanding the money supply to protect the stock market also one of the ways from being weak and inactive. In this research study, by manipulating macroeconomic variables with better understanding through the policies implemented for policymakers is imperative. Therefore, the real effective exchange rate will be steadier. At the point, the country's investment rating will be increasing when the risk premium reducing.

Conclusion

In short, this research found the outcome of importance between the output of the stock market and the macroeconomic variables in Malaysia. Most of the macroeconomic variables included gross domestic production (GDP), Industrial Production Index (IPI), Money Supply (M2), Real Effective Exchange Rate (REER) and Consumer Price Index (CPI) proved that significantly related with the stock market performance of Malaysia. Other than that, there are several limitations experienced in this research which brings some problem in studying the topic. Last but not least, the recommendation is discussed in this research to reference for future researchers.

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