THE DETERMINANTS OF MALAYSIAN STOCK MARKET PERFORMANCE

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DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

(4) The word count of this research report is 18319 words.

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DEDICATION

Firstly, we would like to dedicate our research project to our beloved supervisor, Ms. Josephine Kuah Yoke Chin for her sincere guidance, advice, valuable supports throughout the completion of this research.

Next, we would like to dedicate our research to our respective family members and friends as an appreciation of their encouragement in completing this research and share our achievements with them.

Last but not least, this research is dedicated to the potential researchers in assisting them in their future studies.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey Fuller
ANOVA	Analysis of Variance
ARCH	Autoregressive Conditional Heteroscedasticity
ARDL	Autoregressive Distributed Lag
ARIMA	Autoregressive Integrated Moving Average
APT	Arbitrage Pricing Theory
BLUE	Best Linear Unbiased Estimator
BNM	Bank Negara Malaysia
CAPM	Capital Asset Pricing Model
CLRM	Classical Linear Regression Model
CME	Chicago Mercantile Exchange
CPI	Consumer Price Index
DF	Dickey Fuller
DSE	Dhaka Stock Exchange
EMH	Efficient Market Hypothesis
et al.	And others
EUH	Election Uncertainty Hypothesis
E-view 8	Econometric View 8
EXC	Exchange Rate

FDI	Foreign Direct Investment
FE	Fisher Effect
FTSE	Financial Time Stock Exchange
GLS	Generalized Least Squares
IFE	International Fisher Effect
IMF	International Monetary Fund
INF	Inflation Rate
ISE	Istanbul Stock Exchange
ISO	International Organization for Standardization
JB	Jarque-Bera
KLCI	Kuala Lumpur Composite Index
KLSE	Kuala Lumpur Stock Echange
KLSEB	Kuala Lumpur Stock Exchange Berhad
KSE	Karachi Stock Exchange
MLRM	Multiple Linear Regresssion Model
NSE	Nairobi Securities Exchange
NYSE	New York Stock Exchange
OECD	Organisation for Economic Co-operation and Development
OIL	Palm Oil Price
OLS	Ordinary Least Square
PP	Phillips-Perron
PPP	Purchasing Power Parity

PUH	Political Uncertainty Hypothesis
PVM	Present Value Model
R&D	Research and Development
RESET	Ramsey Regression Equation Specification Error Test
RM	Ringgit Malaysia
SES	Stock Exchange of Singapore
STI	Singapore Stock Market Index
TOL	Tolerance
UMVU	Uniformly Minimum Variance of All Unbiased Estimators
USD	United States Dollar
VAR	Vector Autoregressive Model
VECM	Vector Error Correction Model
VIF	Variance Inflation Factor
WLS	Weighted Least Squares

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PREFACE

Nowadays, the study about stock market performance in developing country is a very popular and interesting topic for many researchers. The effects the macroeconomic variables, palm oil prices and political events can be investigate by using multiple linear regression model.

This research could provide useful information or guidelines to several parties like policymakers, governments, investors, researchers and academicians who tend to get more understanding about Malaysian stock market performance.

ABSTRACT

This research examines the effect of selective variables on the Malaysian stock market performance from 1980 to 2013. From the 34 yearly data observations, this research applied several empirical tests to determine the impact of selective variables on stock market performance. From the empirical test, inflation has the positive relationship with Malaysian stock market performance, while exchange rate, palm oil prices and election has the negative relationship with Malaysian stock market performance. The Normality Jarque-Bera (JB) Test showed that the error terms are normally distributed and the model is significant at 5% significance level. Result from unit root test indicated that election is station at level and first difference while other variables are stationary at first difference. Lastly, Granger Causality Test and Johansen Co-integration Test have been carried out to discover the short and long run relationship between the variables. Granger Causality Test found that the causality between stock market performance and election year is no existed in this research.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

Fontanills and Gentile (2001) defined stocks as certificates or securities representing fractional possession of a company ownership where an investor bought as an investment. While, stock market is a market place comprises comprehensive facilitation of the transactions of shares of ownership in corporations (Fontanills & Gentile, 2001). Stock market performance is measured by stock index and stock return. Besides that, they are significantly affected by macroeconomic variables and political event of the country.

Chapter one is the introductory chapter that gives the idea and an overview of study content. All the research problems, research questions, research objectives and hypotheses will be presented in this chapter. The major purpose of this research is to explore the effect of macroeconomics factors, palm oil price and political event on stock market performance in Malaysia. Kuala Lumpur Composite Index (KLCI) will be used in this research to represent the stock market performance while exchange rate (RM/USD) and inflation (consumer price index, CPI) are the macroeconomic factors and the general election year represent the political event.

1.1 Research Background

1.1.1 Background of Economy in Malaysia

Malaysia is a successful non-western developing country that has achieved a modern economic growth over the last century. Malaysia aims to become a fully developed country before the year 2020. Hence, the Vision 2020

was unveiled by the former Prime Minister of Malaysia. On 28th of February in the year 1991, Vision 2020 is established by Tun Dr Mahathir Mohamad during the meeting of the Malaysian Business Council (Islam & Ismail, 2011). This vision comprises of its specific objectives and challenges that need to be achieved for the achievement of future goals.

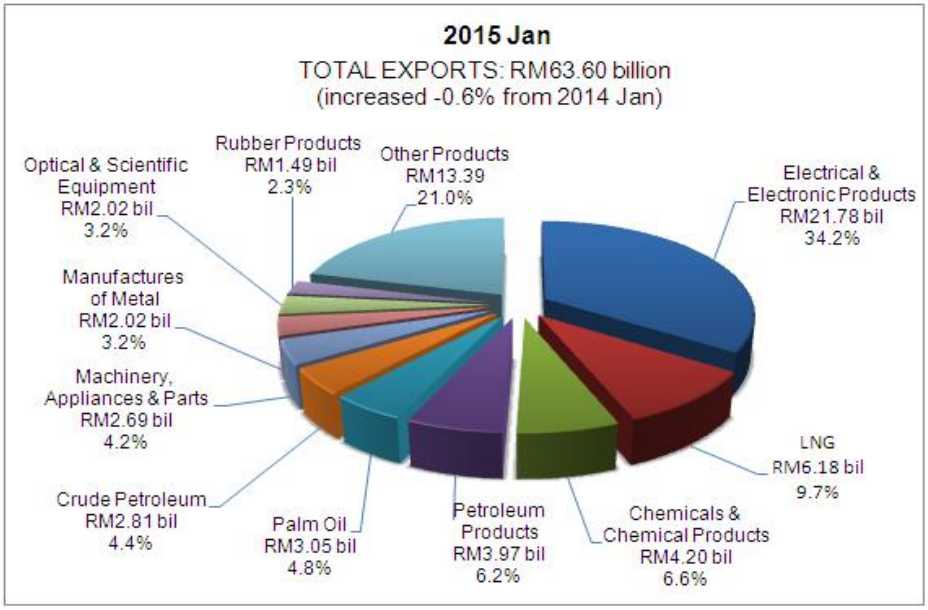
However, the economic growth of Malaysia had been slowed down due to the Asian Financial Crisis in 1997. Malaysian currency (Ringgit Malaysia, RM) had dropped severely and the government is compelled to cut down the spending and some of the large infrastructure projects have to be delayed. The unemployment rate and interest also increase dramatically during this crisis. On 1 September 1998, the Central Bank of Malaysia has implemented the selective exchange controls to recover the financial and economic stability. The controls that introduced by Bank Negara Malaysia is for restoring the monetary independence in this country (Central Bank of Malaysia, 2008). During the year 2008-09, Malaysia has faced an economy downturn again from the global financial crisis. According to Athukorala (2010), it is disseminated through the trade flows, capital flows and commodity prices. Furthermore, the share price in Malaysia had falls dramatically by 20% between the year 2007 and 2009 due to the crisis.

The Malaysian central bank, Bank Negara Malaysia (BNM) acts an important role in facilitating the financial and monetary stability to sustain the economic growth and make a favourable environment in the country. Moreover, BNM acts as an adviser and banker for the government. BNM will provide advices on the macroeconomic policies and the management of public debt to the government. It also has the authority to issue the nation currency and responsible to manage the country's international reserves. Besides that, BNM has played the important role in developing the financial system which includes financial institution and financial market (Central Bank of Malaysia, 2014).

Based on Yusoff (2005), the major trading partners with Malaysia include Singapore, United States, Japan and European Union. Besides that, the

new major trading partners with Malaysia consist of ASEAN and the East Asian countries. Malaysia is one of the largest palm oil, rubber and tin producers in the world. The main exported commodities from Malaysia include electronic equipment, petroleum products, crude petroleum, palm oil, rubber, chemicals products and so on (Matrade, 2015). The following chart shows the Malaysia's major export products accordingly:

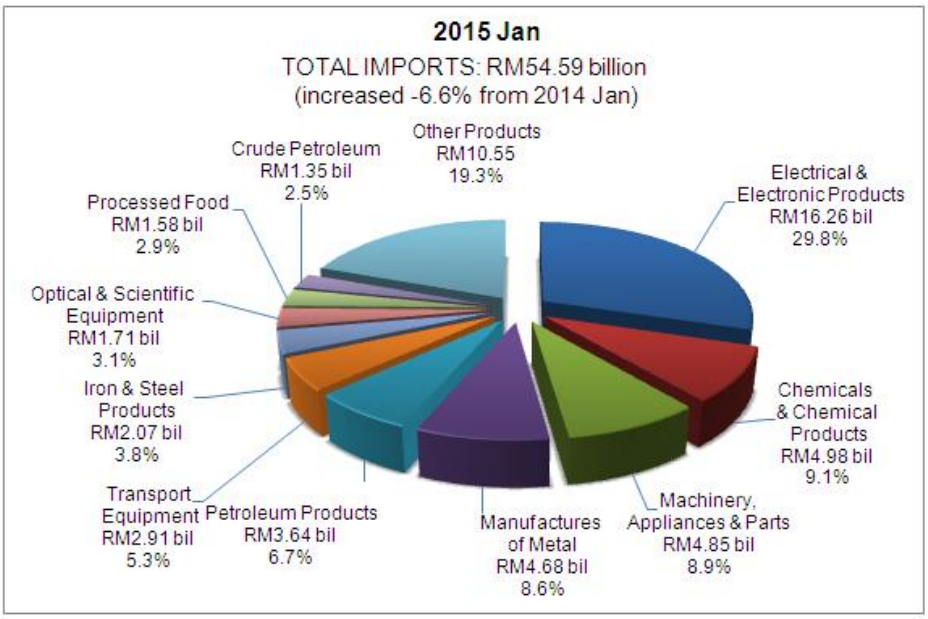
Figure 1.1.1a: Top Ten Major Export Products, 2015



Source: Department of Statistics Malaysia (2015)

On the other hand, the main commodities that are imported by Malaysia included electronic products, chemical products, manufactures of metal, machinery, petroleum products, vehicles, iron and steel products and so on (Matrade, 2015). The following chart shows that the Malaysia's major import products accordingly:

Figure 1.1.1b:Top Ten Major Import Products, 2015



Source: Department of Statistics Malaysia (2015)

1.1.2 Background of Malaysia Stock Market

Bursa Malaysia is one of the largest markets in South East Asia. Malaysia Stock Exchange market was first established in 1960, Singapore and Malaysia was traded in this market under a currency interchangeable agreement. In 1973, Singapore and Malaysia stopped the used of single currency and started to operate as separate exchange of both respective countries which are Stock Exchange of Singapore and Malaysia (SES) and Kuala Lumpur Stock Exchange (KLSEB). In year 1976, Kuala Lumpur Stock Exchange (KLSE) was incorporated as a limited company and it had taken over the business of KLSEB at the same time (Victoria, 2001).

In order to respond in global trends and enhance competitive position in the global trade market, Kuala Lumpur Stock Exchange (KLSE) was renamed to Bursa Malaysia Berhad in year 2004. On year 2007, Bursa Malaysia was listed on the Main market called as Bursa Malaysia Securities Berhad. Moreover, it also attained the International

Organization for Standardization (ISO) certifications at the same time. In year 2009, Bursa Malaysia Berhad was took the new strategies which is partnership with Chicago Mercantile Exchange (CME) vision to reach globalization. Bursa Malaysia Berhad holds the 75% interest in Bursa Malaysia Derivatives Berhad, while CME hold the remaining 25% equity stake (Sih, 2012).

Kuala Lumpur Composite Index (KLCI) was parts of strategic initiative of Bursa Malaysia to assure the national economy is evolving consistent with the global economy. KLCI which only included Top 30 companies of Malaysia in the Bursa Malaysia (Roshaiza, Sisira & Svetlana, 2009).

In year 2009, the KLCI was upgraded to the FTSE Bursa Malaysia KLCI and serves as the market indicator for the Malaysian stock market. Bursa Malaysia and it index partner, FTSE International Limited (FTSE) had incorporated the KLCI with internationally implemented methodology of index calculation which offer a more tradable, investable and traceable managed index. Such transformation empowers Malaysian stock market to provide extensive of investable and attractive opportunities to the investors (Bit, Chee & Zainudin, 2010).

Figure 1.1.2: FTSE Bursa Malaysia Kuala Lumpur Composite Index

Source: Trading Economics (Periods: January 1977 to February 2015)

The line graph above shows the overall performance of stock market in Malaysia from the January 1977 to February 2015. The Malaysia Stock Market (FTSE KLCI) index point in January 2015 is 1781.26 and increase to 1806.42 index point in February 2015. FTSE Bursa Malaysia Kuala Lumpur Composite Index is averaged at 760.57 points from 1977 to 2015. The highest index point is record in May 2014 which is around 1887.07 and the lowest index point is around 89.04 in April 1977.

1.2 Problem Statement

Stock market provides the opportunity for company to raise the capital through exchange the company ownership with investor. Stock market is a significant part of the financial system and act as a source of financing a new venture based on its expected profitability (Kalim & Shahbaz, 2009). Stock market index is the benchmark and measurement of stock market performance. Stock market index always being used as the indicator of the economy performance (Nordin, Nordin & Ismail, 2014).

The relationship between macroeconomic variables and the stock market performance in developed country had well been studied over the past decades. Shubita and AL-Sharkas (2010) study on the relationship between macroeconomics factors in stock return of New York Stock Exchange while Tangjitprom (2012) investigate the macroeconomic factors that influence Thailand stock market. Therefore, it is motivated to conduct the research in Malaysia to determine the macroeconomic variables that significantly affect Malaysian stock market performance since there are only few researches on developing country.

Filis (2010), Kang and Ratti (2013), Nandha and Hammoudeh (2007) and Odusami (2009) had tried to discover the relationship between oil and stock return. However, it is still ambiguous and lack of study that which type of oil will

significant affect the stock returns. Therefore, this research will include palm oil price to study the connection between palm oil price and Malaysian stock market performances since Malaysia is one of the major producer and exporter of palm oil (Malaysia Palm Oil Council, 2014).

Mazol (2013) studied the average stock return of both developed and developing countries in pre-election periods and post-election period. Chrétien and Coggins (2009) investigate the relationship between election outcomes and financial market return in Canada. Yet, it is lack of the research especially on the Asian countries. Therefore this research will include the election year as the dummy variable to examine the relationship between election and stock market performance in developing country. The Malaysian election year means the year Malaysia held the General Election to elect the member of House of Representatives and State legislative assemblies of Malaysia. Besides the qualitative variable like election year, there are quantitative variables included in this research such as palm oil price, exchange rate and inflation.

In conclusion, the focus of this research is to identify how the macroeconomic variables and other variables (palm oil price and election year) affect the stock market performance in Malaysia.

1.3 Research Questions

1. How macroeconomic variables affect the Malaysian stock market?

2. Does the exchange rate (RM/USD) have significant effect on Malaysian stock market performance?

3. Does the inflation rate (CPI) have significant effect on Malaysian stock market performance?

4. Does the palm oil price have significant effect on Malaysian stock market performance?

5. Does the political event have significant effect on Malaysian stock market performance?

6. Do the variables stationary?

7. Does long run relationship exist between dependent variable and the selected independent variables?

8. Do the independent variables and dependent variables possess granger causality relationship in short run?

1.4 Research Objectives

1.4.1 General Objective

The purpose of this research is to explore the effect of macroeconomics factors, palm oil prices and political event on stock market performance in Malaysia from 1980 to 2013.

1.4.2 Specific Objectives

Objective 1: To identify the relationship between macroeconomic variables and the stock market performance.

Objective 2: To determine the influence of exchange rate on stock market performance in Malaysia.

Objective 3: To explore the response of inflation on stock market performance in Malaysia.

Objective 4: To study how the palm oil price affects the stock market performance in Malaysia.

Objective 5: To observe whether there is relationship between the political event and the country's stock market performance.

Objective 6: To investigate the stationary of dependent and independent variables.

Objective 7: To study whether there is a long run relationship between dependent and independent variables.

Objective 8: To examine granger causality relationship among the variables.

1.5 Hypotheses of the Study

The macroeconomic variables chosen in this research to represent independent variables are Exchange Rate (RM / USD) and Consumer Price Index (CPI). Besides that, Palm oil price is another independent variable included in this research. Furthermore, we included the election year as the dummy variable to represent the political event. In addition, Kuala Lumpur Composite Index (KLCI) is chosen to capture the stock market performance in Malaysia.

1.5.1 Exchange Rate

H_0: There is an insignificant relationship between exchange rate and stock market performance.

H_1: There is a significant relationship between exchange rate and stock market performance.

Exchange rate refers to the price of one currency used to exchange for other currency. This research employs the exchange rate of Ringgit Malaysia against US dollar (RM/USD). According to Kibria, Mehmood, Kamran, Arshad, Perveen and Sajid (2014), the stock returns and exchange rate have an association. The foreign investors will pull back their investment during the depreciation of investing country's currency. Therefore, it will increase the cash outflows of the country, decrease the foreign direct investment in stock market and hence decrease the stock price. This result is consistent with Ouma and Muriu (2014) and Adam and Tweneboah (2008) which also found that the depreciation of local currency will decrease the stock price. For the import dominated country, the cost of the production will increase when the exchange rate increase. Thus, the profit of the country will decrease and worsen the stock market performance. So, we expect that H_1 statement is supported.

1.5.2 Inflation (Consumer Price Index, CPI)

H_0: There is an insignificant relationship between consumer price index and stock market performance.

H_1: There is significant relationship between consumer price index and stock market performance.

Most of the countries are facing the increment of the commodity price due to economic and political event such as economic growth, financial crisis, speculation attack and war. This increment of commodity price named inflation. This research is using the consumer price index to represent

inflation. An increase of inflation will bring uncertainty and discourage future economic activity (Eita, 2012). Furthermore, high inflation will increase the potential investors' living cost and thus shifting the monetary resources from investments to consumption (Adam & Tweneboah, 2008). This is difficult for government to control inflation at optimum level since low inflation rate will lead to unhealthy economy condition as the high inflation does. From the previous study, inflation is proved to be significant determinant of the return on Nairobi Securities Exchange (Ouma & Muriu, 2014). According to Nicholas, Artikis and Eleftheriou (2011), the inflation is significance to the equity return in 16 emerging economies. Thus, the inflation is expected to have significant effect on stock market performance.

1.5.3 Palm Oil Price

H_0: There is an insignificant relationship between palm oil price and the stock market performance.

H_1: There is a significant relationship between palm oil price and the stock market performance.

Palm oil is one of the largest exports commodities for Malaysia. Its price volatilities are suspected to have impact on the Malaysian stock market performance. In accordance with the research of Nordin, Nordin and Ismail (2014), the price of palm oil is positively significant in affecting the Malaysian stock market index. From here, we expected that the statement of H_0 is not true to explain the relationship between the palm oil price and stock market performance.

1.5.4 Election Year (Dummy)

H_0: There is an insignificant relationship between election year and stock market performance.

H_1: There is significant relationship between election year and stock market performance.

Election year will be including in this research as the qualitative variable. In Malaysia, House of Representative and State Legislative Assemblies will be reform in approximately every five year. Economic policy will be reconsider based on the cabinet's perspective of future economic trend. According to Oehler, Walker and Wendt (2012), corporate performance will be influence by election results due to the changing in government expenditure and tax policies. Moreover, country politics have significant effect on income distribution and prosperity which will affect the activities in the stock market (Alesina & Jeffrey, 1987). The uncertainty that come from the general election will influence the investor's perspective on the future stock market movement. Therefore the general election was expected to have significant effect on the stock market performance.

1.6 Significance of the study

This research focus on how the macroeconomics factors, palm oil price and political event affect Malaysian stock market performance from 1980 to 2013. This research may useful for academic sector and provides some indications to the policymakers, Malaysian government, and investors.

According to Nordin et al. (2014), with the indication from the research, policymakers were able to recognize the variables that they need to focus when influencing the stock market index. Hence, policymakers can capture a bigger picture on the effect of macroeconomics factors to the Malaysian stock market.

Policymakers are able to make better prediction about the behaviour of stock market in order to achieve the monetary goals (Bekhet & Othman, 2012).

Besides policymakers, this research also helps governments on regulate the movement of stock market index which may influence the nation's economy growth. Without the intervention of government on stock market, nation's economy may not grow consistent with the economy policy. This is because the quality of state regulation has positive influence on the nation economic growth (Jalilian, Kirkpatrick & Parker, 2006). This research may also support government to increase the stock market efficiency and reduce speculative activities. The stock price will fully reflect the all relevant and available information if the market becomes efficient (Onour, 2009).

This research will bring benefit to investors since the research may help investors to make better prediction about the movement of stock prices whenever the changes of macroeconomic factors happened (Aurangzeb, 2012). Furthermore, the research may also assist investors proactively strategize their investment decision (Bekhet & Othman, 2012). For the researchers and academicians, this research will be useful for them to discover more to investigate the factors that affect Malaysian stock market. Result from this research might enhance the theoretical framework of the stock market movement's factors from the perspective of developing economics such as Malaysia (Rahman, MohdSidek, &Tafri, 2009).

1.7 Chapter Layout

Chapter 1 consists of introduction to this research and followed by the research background, problem statement, research questions, research objectives, hypotheses and significance of the study.

Chapter 2 is the review of the past studies that related to stock market performance. Besides that, the connection between the independent variables and dependent variable will be studied as well during the literature review.

Chapter 3 covers the methodology of this research. All the methodologies applied such as data collection methods, sampling design, data processing and data analysis methods will be explained more specifically in this chapter. A conclusion will be drawn as a linkage to next chapter.

Chapter 4 will proceed with the diagnostic checking, statistical tests and data analysis. The patterns and analyses of the outcomes that related to the research questions and hypotheses of this research will be expressed in this chapter.

Chapter 5 will summarize the statistical analyses and discuss the major findings and the implications of this research. Furthermore, this chapter will cover the limitations of this research and thus provides some recommendations for future research.

1.8 Conclusion

This chapter had carried out an overview of Malaysia's background and developed the research questions and objectives for this research. Besides that, the importance and contribution for this research has been discussed in this chapter. A review on other empirical studies related to stock market performance and its connection with macroeconomic factors and political event will discuss in the following chapter.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

The research background, problem statement, research questions, research objectives, hypotheses and significance of the study has been discussed in previous chapter. Next, the review of literature, theoretical models and conceptual framework will be discussed in this chapter. Literature review basically is about the summarization, assessment and expression on the different past empirical researches to help the future researchers in deciding the nature of research study topic. Furthermore, the literature review can assist them with a further understanding related to the studies done by previous researchers and get some guidelines to strengthen the existing limitations in the previous researches. In addition, review of the literature can give strong evidence to determine the independent variables that will significantly affects the dependent variable by adopting various methodologies to test the results between the variables.

2.1 Review of Literature

The literature review is a logical presentation of the related empirical studies or theoretical articles conducted by previous researchers. It helps to ensure that no other relevant or significant variables are omitted. Besides that, the literature review contributes the basis for developing a better theoretical framework to proceed with further exploration and hypothesis testing.

2.1.1 Stock Market Performance

Stock market performance is an indicator of public confidence and prediction on company future performance and development. Company

can raise capital easily through stock market if public has high demand on company's stock. Investors determine the stock market performance through several factors such as stock price, stock return and stock index. Kuala Lumpur Composite Index (KLCI) is the most widely used as the indicator of stock market performance in Malaysia. There are top 30 companies in Malaysia comprised in KLCI. These companies' performances have significant effect on the nation's economic growth. Policymakers will include KLCI into consideration when develop economy policies to stimulate nation's economy.

In general, stock market performance is reflected by the companies' performances. The investors will anticipate movement of stock market by the capability of companies in future development and sustainable operation. Different investors will have different investment objective and different willingness to assume the risk. Hence, the investors will have different desired stock market performance. Long term investor will perceive a long term consistent growth in stock market while short term investor would like to invest in assets that with high fluctuation performance in order to earn considerable capital gain. The investors may diversify the unsystematic risk through portfolio investment.

Besides companies' performance, availability and accuracy of information will also influence the investment decision of investors. The time taken for the investors to react on the information spread in the market will influence profit opportunity. The faster the investors react on the information, the larger the profit or lower the loss the investors perceived. Investors often react pessimistically from negative media content on stock market performance. Hence, it will lead to downward pressure on stock price and temporarily high trading volume (Tetlock, 2007).

Investor sentiment is also one of the factors that influence stock market performance. The sentiment of investors has positive effect on the probability of occurrence of stock market crisis within one year (Zouaoui, Nouyrigat & Beer, 2010). Stock market movements may lead to bull

market when most of the investors have confidence on the future economic trends. Bull market often happened when the economic recover from financial crisis or economic booming in developing countries. However, investor's confident will be fading when the nation is facing economy recession. The increase of uncertainty in future economic trend during economy recession may cause the collapse of stock market and eventually lead to bear market.

In this research, several macroeconomic variables, palm oil price and one political event that contributed to the Malaysian stock market performance will be examined from 1980 to 2013. The macroeconomic variables are exchange rate (RM/USD) and inflation (CPI) while the political event is the general election year (dummy). Kuala Lumpur Composite Index (KLCI) is used to capture stock market performance in this research.

2.1.2 Exchange rate

Exchange rate refers to a value of one country's currency exchange for another country's currency (Singh, Metha & Varsha, 2011). Exchange rate can be quoted directly or indirectly by dealers. Direct quote is where the value of one foreign currency in denomination of domestic currency while indirect quote is the value of one domestic currency in denomintation of foreign currency. According to Pramod and Puja (2012), the effect of exchange rate toward stock price is rely significantly on the level of nation's international trade on its trade balance. The more active the nation in the international trade or international market, the greater effect of exchange rate on stock price. Furthermore, if the country is import oriented country, the effect of exchange rate will be more significant on domestic stock prices (Pramod & Puja, 2012).

Previous empirical studies show that the exchange rate will be fluctuates as the inflationary processes in the country. According to the Cristiana and

Carmen (2012), the equity market and the evolution of the exchange rate are two interactive time series in the case of Korean. Another researcher Robert (2008) used the Box-Jenkins Autoregressive Integrated Moving Average (ARIMA) model to test the time series relationship between exchange rate and stock market index. However, the results show that there is no relationship between exchange rate and stock market in Brazil, Russia, India and China.

According to Aisyah, Noor Zahirah and Fauziah (2009), exchange rate demonstrated long run effect on Malaysian stock market. It is consistent with the result of Hussain and Mohamed Ibrahim (2012) which stated that exchange rate has the both long run and short run influence on the Malaysia stock market. In the recent study by Mutuku and Ng'eny (2015), exchange rate is found has positive impact on stock market. The appreciation of domestic currency will reduce the competitive of domestic exporters and increase the price advantage of imported goods. The revenue of domestic companies will depreciate due to price disadvantage of its output and will decrease the stock prices (Pramod & Puja, 2012). Sensoy and Sobaci (2014) also found when U.S dollar appreciates against Turkish Lira will increase Turkish stock market return.

However, there are several studies proved exchange rate has negative influence on stock market performance. Haque and Sarwar (2012) found that there is a significant negative relationship between exchange rate and equity returns in textile sector. This indicates the appreciation of home currency stimulate the export in textile sector. This result is consistent with the study of Chiou (2007); Mohammad, Hussain, Jalil, and Ali (2009); P. Singh (2014); Singh et al. (2011) and Tsai (2014) which found the exchange rate and stock market tend to move in opposite direction. Therefore exchange rate is expected to has negative relationship against stock market performance in Malaysia where corresponding with the finding of Aisyah, Noor Zahirah and Fauziah (2009).

2.1.3 Inflation

The inflation rate reflects the decrease of purchasing power due to upward movement in general price of goods and services. It is expressed in term of percentage terms. There are many ways to measure the inflation of a country. The most popular instrument is the Consumer Prices Index (CPI) which measures the variation of the cost to the average consumer of obtaining a basket of services and goods that maybe changed or fixed at a specific time period (International Monetary Fund [IMF], 2004). It is commonly calculated by using Laspeyres formula. According to Geetha, Mohidin, Chandran and Chong (2011), inflation occurs either when the prices of goods and services shoot up or when more money is required to buy a same goods or pay for a same services. Furthermore, they categorized the inflation rate into expected and unexpected. Expected inflation is the outcome that governments and economists plan on year to year while the unexpected inflation is what beyond their expectation or out of their expectation. People are preferred not to hold the more cash on hand if inflation is expected to avoid loses value of money over the time (Geetha et al., 2011). The main finding from Geetha et al. (2011) proved that there is a long term co-integration between expected and unexpected inflation with the stock performance for Malaysia, United States and China. Yet, the short run co-integration between these variables does not exist for all the countries except for China.

There are also some empirical studies which have studied the relationship between the macroeconomic variables and the stock market performance in Malaysia. Ibrahim and Aziz (2003) had applied Co-integration test to examine the long run relationship of the inflation and stock market. However, their result was inconsistent with the result of Bekhet and Mugableh (2012) that employed Pesaran, Shin and Smith (PSS) bounds tests approach in their study. This bounds test has shown the existence of long run and short run equilibrium relationship between inflation and stock market. Specifically, CPI is negatively related with stock market in long

run but positively associated in short run while the research of Ibrahim and Aziz (2003) revealed a positive impact of CPI on the stock market performance in long run. The result of Bekhet and Mugableh (2012) is consistent with the Co-integration result of Sohail and Hussain (2009) who are focus on stock prices in Pakistan. The results are proved again by Haque and Sarwar (2012) in their study of examining the association among macro-determinants and stock returns.

Besides that, the Granger causality test has also been carried out by few researchers to examine the causal relationship among the variables. According to Garza-Garcia and Yue (2010), they applied Granger Causality test resulted that there is a significant relationship between the inflation and Chinese stock prices. Next, Ali (2011) discovered a unidirectional causality from CPI to Dhaka Stock Exchange (DSE) all-share price index. Another study by Mohd Thas Thaker, Rohilina, Hassama and Amin (2009) indicated that the inflation granger caused the Athens stock market in short term. Yet, the recent researchers found that there is no Granger causal relationship between the inflation and stock performance (Kibria et al., 2014).

After taking into account all the past researches, it is estimated that there is inverse relationship between inflation or CPI and stock market performance as a high inflation in a country is tend to increase the residents' living cost and move the monetary resources from investment to consumption. This causes the demand of securities instrument offered in the market decreases and lowers down the price.

2.1.4 Palm oil price

Palm oil is the largest component of consumable oil and a significant and multifunction input for food and non-food industries (Gan & Li, 2014). Based on Malaysia Palm Oil Council (2014), Malaysia is the second

largest palm oil producer in the world which has contributed 39% of world's production and 44% of world's export. Saiti, Ali, Abdullah and Sajilan (2014) had employed wavelet analysis in examining the causality between Kuala Lumpur Composite Index (KLCI), palm oil price and exchange rate. The result indicated that there is causality between stock price and commodity prices which represent by palm oil price in long run while insignificant wavelet-cross-correlation from level one to four. Nordin et al. (2014) that tested the impact of palm oil price on Malaysia stock market performance. The Autoregressive-Distributed Lag (ARDL) test showed that all the variables included by the researcher are important and positively affecting the index of Malaysian stock market in both short run and long run.

From the past studies, palm oil price is expected possess a positive relationship with the stock market returns. As the palm oil price increase, it will increase the earning as well as the value of the company especially for the plantation company, thence increase the company stock price and push the market up.

2.1.5 General election

Malaysia is a democratic country that implements the constitutional monarchy. According to Malaysia's constitution, the general election must be conducted once for every five years to determine the member of House of Representatives and State Legislative Assemblies. According to Goodell and Vahamaa (2013), election uncertainty hypothesis (EUH) explained the relationship between stock market performance and general election. The EUH stated that the uncertainty of winner party in the election has the negative impact to stock market volatility. The uncertainty of the election result will be higher if the ruling party and parliamentary opposition have same poll advantage. Besides the EUH, Goodell and Vahamaa (2013) also mentioned the political uncertainty hypothesis (PUH) that explained the

uncertainty is negatively related to the asset valuations. This indicates the uncertainty from the election will reduce the stock price.

The study on the relationship between general election and stock market performance has been carried out by other researchers. Ejara, Nag and Upadhyaya (2012) stated that there is significant relationship between election and stock market regardless which party has poll advantage. This result was consistent with the finding in Bialkowski, Gottschalk and Wisniewski (2008) which found that the stock index return variance of 27 Organisation for Economic Co-operation and Development (OECD) countries is higher within the election period.

Besides that, the study of Wong and McAleer (2009) which is more focus on the presidential election cycle had discovered that the US stock price is influence by the presidential election cycle. Wong and McAleer (2009) found that the stock prices will depreciate in the first half year and achieved through in second year, but it will start to increase from second half year of presidential cycle and reached a peak in third and fourth year. Besides, the study of Mazol (2013) contributes to the literature of stock return during election cycle in both developing and developed countries. Mazol (2013) stated that the mean of the stock return of developed countries reduce in pre-election periods while increase in developing countries. In the post-election period, the average return of developed counties dropped since the risk from uncertainty election result is eliminated after the announcement of election result. However, the election cycle has no impact on developing countries during post-election.

Nippani and Arize (2005) found that the Canadian and Mexican stock markets appear to be negatively affected by the delay of United States presidential election in 2000. The effect of general election on domestic stock market performance will spread to foreign stock market if there is high correlation in stock market performance between the countries. According to Fuss and Bechtel (2008), return of small-firm stock is depending on the probability of the ruling party or parliamentary

opposition winning the election. As a developing country, small and medium industries contribute significant effect on the Bursa Malaysia and the political event in other developed countries such as US may influence domestic stock market performance. Hence, the general election is expected has significant negative effect on stock market performance.

2.2 Review of Relevant Theoretical Models

2.2.1 Capital Asset Pricing Model (CAPM)

Capital Asset Pricing Model (CAPM) was developed on the work of Markowitz (1959) on model of portfolio choice by Lintner (1965) and Sharpe (1964). It is a fundamental theory that linked the return and risk for all assets. In other words, CAPM measures the additional return an investor should expect when they willing to take a little extra risk (Gitman & Zutter, 2012). The CAPM can be written in an equation as below:

$$\bar{R}_i = R_F + \beta_i(\bar{R}_M - R_F)$$

Where:

$\bar{R}_i$ = cost of equity = required rate of return

R_F = risk free rate of return

β_i = beta (captures the systematic risk)

$\bar{R}_M$ = return on market portfolio

There are several assumptions under CAPM which are all investors are rational, risk adverse, price takers and able to borrow and lend money at risk free rate. Besides that, all investors must have the same holding period and there is perfect information for all investors at the same time. Furthermore, CAPM assumes that security markets are perfectly competitive and there are no taxes and transaction costs (Gitman & Zutter, 2012). Theriou, Aggelidis and Maditinos (2010) found that there is a

positive relationship between the beta coefficient and equity cost or required rate of return in up market while appear negative effect in down market. The result is in line with the equation above. CAPM has become one of the popular models used to determine the stock return due to its good theoretical background and simple representation (Tangjitprom, 2012). However, its unrealistic assumptions have led to many arguments and the Arbitrage Pricing Theory (APT) was subsequently created by Ross (1976) to overcome the shortcoming in CAPM (Eita, 2012; Fama & French, 2004).

2.2.2 Arbitrage pricing theory

According to Ross (1976), Arbitrage pricing theory (APT) is an idea that the asset or portfolio investment's return can be anticipate through the linear effect of macroeconomic variables on market's return. Arbitrage pricing theory is an alternative to forecast the stock returns besides using Capital Asset Pricing Model (CAPM) (Kuwomu & Owusu-Nantwi, 2011). Arbitrage pricing theory formula as the equation below:

$$\mathbf{E}(r_j) = r_f + b_{j1}RP_1 + b_{j2}RP_2 + b_{j3}RP_3 + b_{j4}RP_4 + \ldots + b_{jn}RP_n$$

Where:

$\mathbf{E}(r_j)$ = the expected return of asset or portfolio investment

r_f = the risk-free rate

b_j = the sensitivity of the asset return to the particular factor

RP = the risk premium associated with the particular factor

According to Iqbal and Haider (2005), APT treated the security return has linear function to a set of common factors. Every market equilibrium will be evaluate by a linear relationship between expected return of each assets and the factors that affect its return if there is absence of arbitrage profits (Roll & Ross, 1980). Chen, Roll & Ross (1986), demonstrated that there

are systematic influences between stock market returns and a set of economic state variables such as industrial production, inflation, oil price and consumption.

2.2.3 International Fisher Effect

A currency will increase or decrease in value proportionally to the changes in nominal rates of interest. The theory of International Fisher Effect (IFE) was important in finance and economics field because it binds inflation, interest rates and exchange rates together. It is the combination Fisher Effect (FE) and Purchasing Power Parity (PPP) (Fisher, 1930). The theory declared that the currencies with higher interest rates will tend to depreciate or decrease in value because high nominal interest rates generally reflect the expected rate of inflation (Madura, 2010). International Fisher Effect can be calculated based on this equation:

$$\mathbf{E} = \frac{\mathbf{i_1} - \mathbf{i_2}}{\mathbf{1} + \mathbf{i_2}} \approx \mathbf{i_1} - \mathbf{i_2}$$

Where,

E = percentage change in the exchange rate

$\mathbf{i_1}$ = Country A interest rate

$\mathbf{i_2}$ = Country B Interest rate

Emil (2002) stated that the nominal interest differential can use to examine the future exchange spot rate. The real interest rates will be equalized across the world via arbitrage process. In other words, the variation in the observed nominal rates will be stemming from the variation in expected inflation rates. Furthermore, variations in expected inflation that are included in the nominal interest rates are presumed to influence the future exchange spot rate. Adler and Lehmann (1983) found that there is significant variation in the relationship between exchange rate and

inflation rate differential. In the long run, the relationship between exchange rate and inflation rate differential was not perfect but it used of inflation differentials in predict the long-run movements in exchange rates (Hakkio, 1986). Eda (2008) founds that the interest rate differential between two countries is an unbiased predict of the future changes in spot exchange rates if the real interest rates are equal across the countries.

2.2.4 Purchasing Power Parity (PPP)

Purchasing power is the financial ability to acquire the products and services. In economic, Purchasing Power Parity (PPP) theory plays an important role for the researchers to carry out their researches. This theory is developed by a Swedish economist, Gustav Cassel in the year 1921. It has been a long history in economic, This theory is presented after the World War I happened during the international policy contest considering about the suitability of foreign exchange rates between the industrialized nations after the dynamic inflations occurred during and after the war. According to Taylor and Taylor (2004), PPP assumed that the nominal exchange rate among two countries' currencies must be constant to the ratio of total price levels between the nations. Hence, both nations will have the same currency exchange rate and the purchasing power. However, this theory is about the relationship between the endogenous variables and the model of exchange rate is incomplete. Therefore, PPP is the extension and variation of Law of One Price. According to Moffett, Stonehill and Eiteman (2011), Law of One Price states that the identical products have to sell in the same price in all different markets and provided that there is no transportation costs exist and same taxes applied in both markets. Even if the price for a specific product is denominated in different currency, the Law of One Price states that the price of the product should still be the same. There is a formula for comparing the product prices which require a process to convert one currency to another. For example:

$$P^{¥} = P^{\$} \div S^{\$/¥}$$

Where:

$P^{\$}$ = Price of product in United States (in dollars)

$P^{¥}$ = Price of product in Japan (in yen)

$S^{\$/¥}$ = Spot exchange rate (in yen per dollars)

If the Law of One price is stand for all products and the markets are efficient, a PPP exchange rate will exist by contrasting the prices of goods and services stated in different currencies which imply the absolute PPP theory. In other words, the absolute PPP declares that the spot exchange rate is identified by the relative prices of identical products. On the other hand, a relative PPP is observed if the assumptions of the absolute PPP are not achieved (Moffett, Stonehill & Eiteman, 2011). The relative PPP stated that the ratio of exchange rate change throughout a period is equal to the variation of price changes in different nations. If the spot exchange rate between two nations initiate in equilibrium, any alteration in the differential inflation rate between them tends to offset over the long run by an equal but opposite direction of the variation in the spot exchange rate. The major explanation for PPP is that in case of a nation faces higher rate of inflation compared to its trading partners and the nation maintains its exchange rate, the products that the nation exports are less competitive with the foreign substitute goods while the imported products will have more price advantages over the domestic priced products. The PPP theory can be conclude that it can hold up well over the long-run but badly for the short-run.

2.2.5 Efficient Market Hypothesis (EMH)

According Fama (1970), an efficient market refers to the market in which the stock prices react and reflect all the available and possible information quickly and accurately. Efficient market hypothesis implies that there is no overvalued or undervalued stock in stock exchange because the stock prices always reflect all relevant information. Therefore, EMH suggests that profiting from the prediction on the stock price movements is very rare which means that no arbitrage profit. The market efficiency can be categorized into weak, semi-strong and strong form.

Yalçın (2010) explained weak market efficiency refer to historical information that already reflects to the current share prices. Therefore the prediction of the future price movements based on historical price is unprofitable. This is consistent with Random Walk theory from research of Fama (1965) which indicates that past history information cannot be used to predict the future in any meaningful way. Semi-strong form market efficiency represents that the historical data and all publicly information fully reflected in share prices. This implies that investors are unable to earn advanced profit from the fundamental analysis. However, investors that have insider information still can earn superior profit in the weak form and semi-strong form market efficiency. Strong form market efficiency express that the share price will reflect all the information including the private information that are now publicly available. Therefore, there is no investors can earn abnormal profit in the strong form market efficiency because the share price will always fair with all information.

2.2.6 Present Value Model

Present value is today's value of dollar of a future amount (Gitman & Zutter, 2012; Ross, Westerfield & Jaffe, 2010). In other words, it is the amount of money that an investor has to invest today at a particular

interest rate throughout a specified period in order to get equal future amount. This process of calculating the present value is known as discounting cash flow. The present value can be calculated using the following equation:

$$\mathbf{PV} = \frac{FV_n}{(1+r)^n}$$

Where:

FV_n = future value at the end of period n

PV = present value (initial principal)

r = interest rate

n = number of periods (typically years)

Based on Osisanwo and Atanda (2012), the present value model (PVM) or discounted cash flow is a model connected the stock price to future expected cash flows and the discount rate of these cash flows. A stock price is affected by those macroeconomic determinants that affect the future cash flows or discount rate by which the cash flows are discounted (Maku & Atanda, 2010; Osisanwo & Atanda, 2012). The basic formula of common stock valuation is:

$$\mathbf{P_0} = \frac{D_1}{(1+r_s)^1} + \frac{D_2}{(1+r_s)^2} + \ldots + \frac{D_t}{(1+r_s)^t}$$

Where:

P_0 = value of common stock

D_t =per-share dividend expected at the end of year t

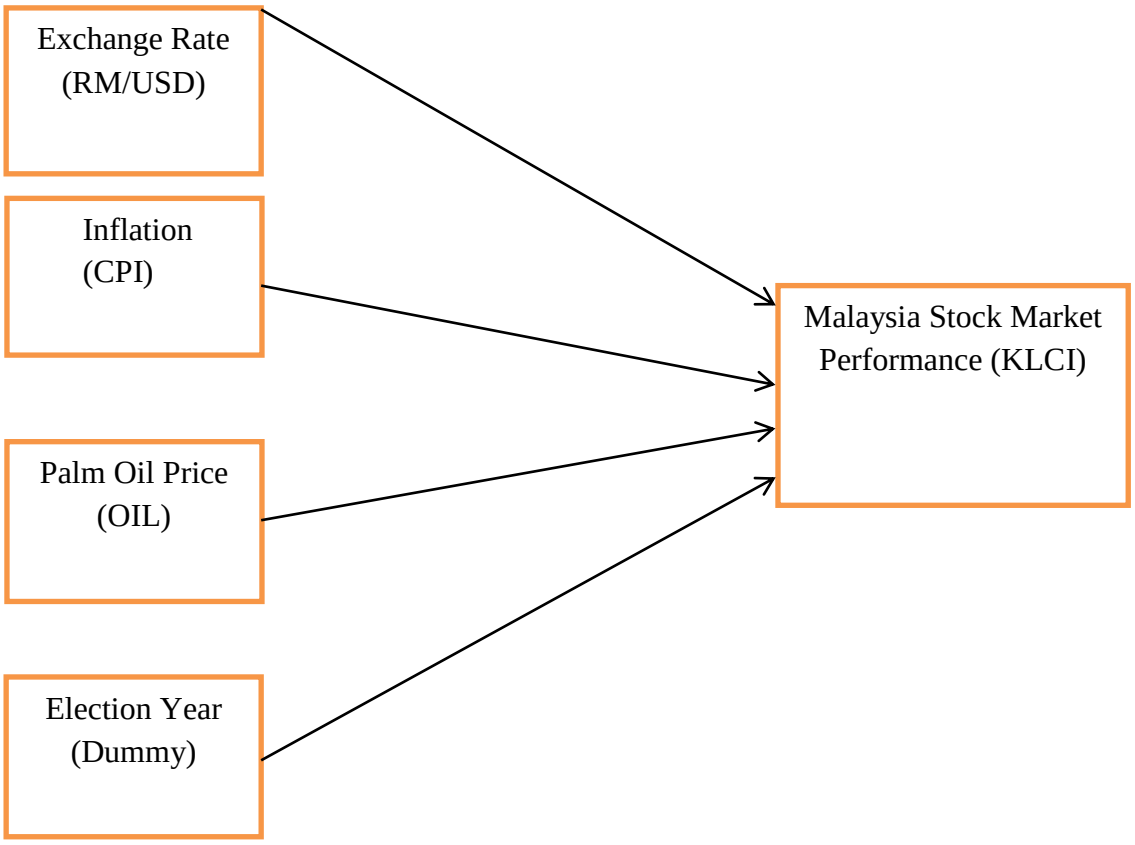
r_s = required return on common stock

From the formula above, it is clear that the present value of stock price is basically the discounted value of its expected dividend. Based on Hsing, Phillips and Phillips (2013), the interest rate has a negative relation to present value. A higher interest rate will lower down the present value of future dividends and also the stock prices. The benefit of the PVM is that it can be applied in measuring the long-run relationship between stock

market and macroeconomic variables (Maku & Atanda, 2010; Osisanwo & Atanda, 2012).

2.3 Proposed Theoretical Framework

Independent Variables: **Dependent Variable:**



The figure above demonstrated the framework that presents the relationship between the stock market performance and the selected variables. KLCI has bilateral unilateral relationship with Exchange Rate (RM/USD), Inflation (CPI), Palm Oil Price and Election Year (Dummy). Due to the lack of previous studies, the framework was created in a basic form to provide a better picture on the respective independent and dependent variables intended to proceed with the further research.

The output of the dependent variable will influence by the independent variables which are individual and have no effect on other independent variables. This research study focuses on the time period between 1980 and 2013 on yearly basis.

2.4 Conclusion

The literature review related with this research topic has been done in this chapter. Firstly, the summary of findings and methodologies employed by previous researchers have been carried out in this chapter to show the connection between Malaysia stock market performance which represented by Kuala Lumpur Composite Index (KLCI) and each of the independent variables. Furthermore, some of the theoretical models have been discussed in this chapter followed by theoretical framework to provide a clear picture for the relationship between the dependent and independent variables.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This research is trying to study the influence of macroeconomic variables, palm oil prices and political event on Malaysia's stock market performance. There are two macroeconomic variables which are exchange rate (RM/USD) and inflation rate (CPI). Besides that, palm oil price is another independent variable in this research and general election as the dummy variable. This research will cover from 1980 to 2013 and included 34 observations for the sample size. All the data expect for dummy variable is derived from the World Bank Data and Data Stream. The date of the general election can be derived from the journals, news and official website of election such as Suruhanjaya Pilihan Raya Malaysia. Some econometric tests are carried out to ensure the model is fulfilling all the assumptions of Classical Linear Regression Model in order to achieve Best Linear Unbiased Estimator (BLUE) for all the variables included in this research.

3.1 Data Collection Method

All the variables except dummy variable in this research are using secondary data derived from University Tunku Abdul Rahman's (UTAR) Library DataStream. The data collected from UTAR Library DataStream are quantitative and time series data. For the dummy variable in this research, "0" indicates that there is no election in the particular year while "1" indicates that there is election in the particular year. There are total 8 times general elections within the period 1980 to 2013 in Malaysia.

3.1.1 Secondary data

This research gathers the data of all variables based on annual basis from 1980 to 2013. The detail of the data is stated in the table below:

Table 3.1.1: Sources of Data

Variables	Proxy	Units	Explanation	Data sources
Stock Market Performance	KLCI	Index	Kuala Lumpur Composite Index (price close) in Bursa Malaysia	Reuters
Exchange Rate	EXC	RM/USD	Direct quote of Ringgit Malaysia per US Dollar	Central bank of Malaysia
Inflation	CPI	Consumer Price Index	Consumer price index by taking the year 2010 as the base year	Department of Statistics, Malaysia
Palm Oil Price	Palm	$/mt	Price of palm oil in dollar per metric ton	World Bank Commodity Price Data
Election	Election	Election year	General Election in Malaysia	Journals, news and official website

This research also refers to journals, articles and text books as additional information besides the data collection of each variable. The determination of the

unit measurement for each variable will be more precise and consistent with the theory under the guidance of additional information.

3.2 Sampling Design

3.2.1 Target Population

This research aims to explore the relationship between macroeconomic variables and Malaysian stock market performance. Besides, the effect of changes in palm oil price and general election towards Malaysian stock market from 1980 to 2013 also will be study in this research. In other words, this research targets on Malaysian stock market which is Bursa Malaysia in examining the relationship between the dependent variable which is Kuala Lumpur Composite Index (KLCI) and the selected independent variables which are exchange rate (RM/USD), inflation rate (CPI), palm oil price and general election year in the period from 1980 to 2013. KLCI is the indicator of Malaysian stock market performance because it comprises of 30 top companies in Malaysia which have significant impact on the country's economic performance. Besides that, all the data used in this research is based on annual basis.

3.2.2 E-views 8

In this research, all the hypothesis testing and diagnostics checking will be run by using E-views 8. The main function of E-views 8 is to perform econometrical and statistical analysis. It is suitable for this research since this software is developed for the researches which are using time series data, cross-section or longitudinal data and this research is focus more on the time series data. E-views can help to manage and run the data efficiently and it is combined with the flexible and consumers oriented

technology and interface. It also able to produce graphs and tables for the presentation purpose and has a 64-bit Window large memory support.

Many econometric tests planned to conduct in this research can be completed by using E-views 8. By the way, the model used in this research, Ordinary Least Square (OLS) model is suitable to run by using E-views due to its features comprise of OLS method. The result of the OLS can used to test in the other normal tests like t-test and F-test to check the significance of the variables and model.

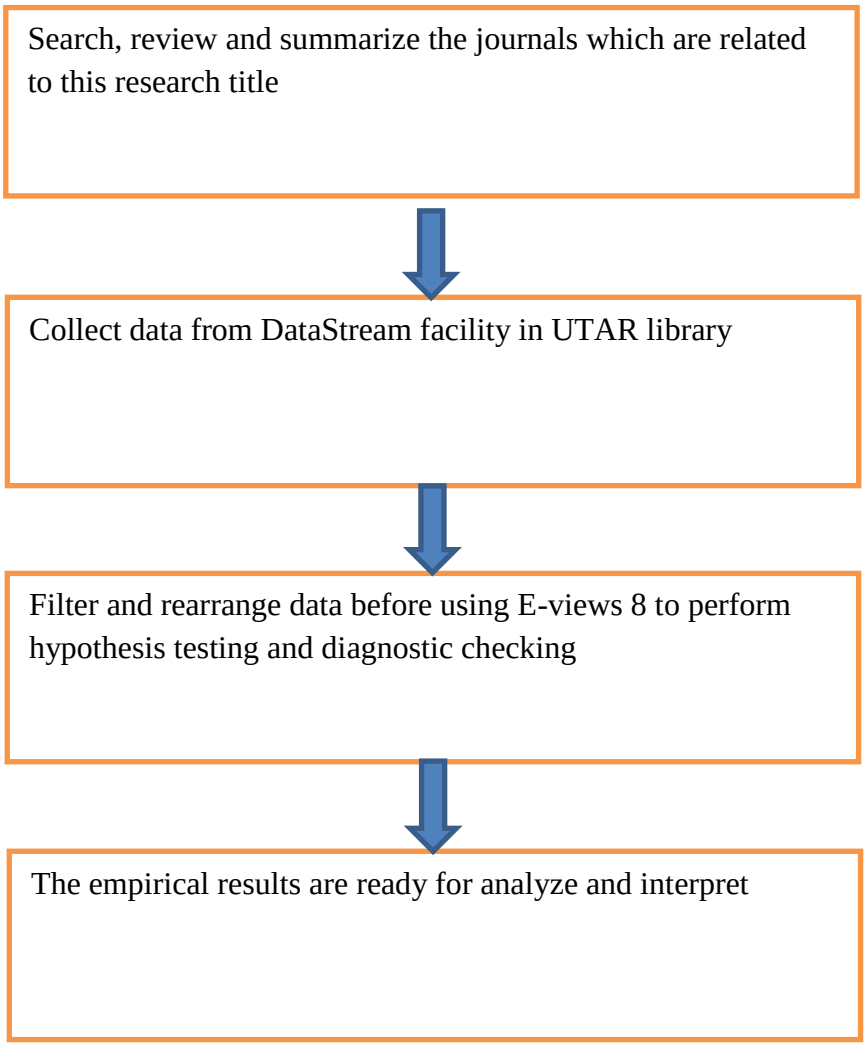
All the detection tests to detect the econometric problems like multicollinearity, heteroscedasticity, autocorrelation and model specification will be run by E-views 8 and the remedial test will be used appropriately to handle the econometric problems as well. The stability test or unit root test and normality test will be implementing to examine the stationary and normality distribution of the error term of the model. In addition, the additional test such as Johansen Co-intergration test and Granger Causality test will also be run by using this software to test the relationship between these variables.

3.3 Data Processing

In the literature review of this research, there are at least 30 journals concern with this research title "The Determinants of Malaysian Stock Market Performance" are reviewed. Summary is conducted to analyze and study the findings and results of the journals. In the other hand, the data of all variables except dummy variable in this research were obtained from UTAR library while the data of dummy variable which is election was collected from the journals, news and official website of election such as Suruhanjaya Pilihan Raya. The data will be filter and rearranged in the Microsoft Excel for convenient used in further research stage which is diagnostic checking. The diagnostic checking will be carrying out

through E-views 8 and the output will be illustrated. The flow of data processing is shown as below:

Figure 3.3: Diagram of Data Processing



3.4 Data Analysis

3.4.1 Multiple Linear Regression Model

According to Gujarati and Porter (2009), Multiple Linear Regression Model is a model that comprises of two or more independent variables. It is used to estimate dependent variable from the output of a set of estimated independent variables. This model can also predict each of the explanatory variables' impacts on the dependent variable. There are some assumptions to fulfill in order to achieve a Best Linear Unbiased Estimator (BLUE) of the regression model. The model is said to be BLUE in which all the estimators must be in linear form, minimum error of estimation, the expected value of coefficients are equal or near to the actual value of those coefficients and the model consists of minimum variance.

Economic Function:

lnKLCI = f [Exchange Rate (EXC), Inflation (CPI), Palm Oil price (PALM), General Election (Election)].

Economic Model in Logarithm Form:

$$Y_t = \beta_0 + \beta_1 X_t + \beta_2 X_t + \beta_3 X_t + \beta_4 X_t + \varepsilon_t$$

$$\mathbf{lnKLCI_t = \beta_0 + \beta_1\ lnExc_t + \beta_2\ lnCPI_t + \beta_3\ lnPalm_t + \beta_4\ Election_t + \varepsilon_t}$$

Where:

$lnKLCI_t$ = the natural logarithm form of Kuala Lumpur Composite Index (KLCI) at year t.

$lnExc_t$ = the natural logarithm form of exchange rate (EXC) at year t.

$lnCPI_t$ = the natural logarithm form of consumer price index (CPI) at year t.

lnPalm$_t$ = the natural logarithm form of palm oil prices (OIL) at year t.

Election$_t$ = Election at month t where 0 indicates no election in the specific year and 1 indicates election occurs in the specific year.

ε_t = Error term

3.4.2 Ordinary Least Squares

The method of ordinary least squares (OLS) is founded by Carl Friedrich Gauss in 1795. According to Hutcheson (2011), the OLS procedure is the simplest type of estimation procedure used to analyze data and forms the fundamentals of many others technique such as Generalised Linear Models and Analysis of Variance (ANOVA). It is the one of the most popular and powerful methods of regression analysis because it can traces the model assumptions such as constant variance, linearity and the effects of outliers easily by using the simple graphical methods (Hutcheson & Sofroniou, 1999). However, to fulfill the properties of an OLS estimate, seven assumptions must be satisfied (Gujarati & Porter, 2009).

1) The regression model is linear in the parameters.
2) Fixed X values in repeated samples
3) Variation and no outlier in the values of X variables.
4) Zero mean value of disturbance.
5) No autocorrelation or serial correlation between error terms
6) Constant variance of error term.
7) The number of observation, n is required to be excess the number of parameter to be measured.

The OLS estimators will have the Uniformly Minimum Variance of all unbiased estimators (UMVU) if it fulfilled all the assumptions above (Michaelmas, 2010).

3.4.3 Diagnostic Checking

3.4.3.1 Multicollinearity

Multicollinearity is the occurrence of exact, linear relationship among some or all explanatory variables of a regression model (Gujarati & Porter, 2009). It will indistinct the influence of explanatory variables on the regression model. Therefore, multicollinearity is a problem because the P-value can be misleading.

This problem can arise when the independent variable takes only a limited field of values as the sample from the population. Multicollinearity can also cause by the existence of physical constraints in the population being sampled. Besides that, the polynomial term that included in the model can cause the model specification and lead to multicollinearity. Last source of multicollinearity is when the model has more independent variables than the sample size. Multicollinearity problem can be solving by the model specification. The independent variables should be redefined and transform the variables that are correlated with a new variable that conserve the original information. Dropping one of the variables that is highly correlated should be considered when facing multicollinearity problem in the model. Since the sample size is also one of the sources of multicollinearity, therefore increase the sample size with new data may solve the multicollinearity problem (Paul, 2006).

Multicollinearity can be detected in several methods. The high R-squared but few significant t ratios in the model and high pair-wise correlation coefficients between independent variables may indicate the existence of multicollinearity. Multicollinearity can

also be detects through the Variance Inflation Factor (VIF) and Tolerance (TOL). VIF is the determination of the variance that exists due to the correlation of independent variables while the TOL is the inverse of VIF. Hair, Anderson, Tatham, and Black (1995) suggest there are inconsequential collinearity if VIF less than 10. Therefore, if the value of VIF exceeds 10 or TOL near to 0, there is a serious multicollinearity problem.

$$\mathbf{VIF} = \frac{\mathbf{1}}{\left(\mathbf{1} - \mathbf{r_{ij}^2}\right)} \qquad \mathbf{TOL} = \frac{\mathbf{1}}{\mathbf{VIF}}$$

3.4.3.2 Heteroscedasticity

Based on William (2002), heteroscedasticity problem refer to inconsistent variances of error term in the model. Heteroscedasticity typically caused by model misspecifications, measurement error and nature of data. Heteroscedasticity will come out with three consequences on OLS estimators. First, the coefficients of OLS estimators remain constant and still unbiased as the independent variables are uncorrelated with the error terms. Second, the estimators of OLS become inefficient due to higher variance. Finally, heteroscedasticity tend to underestimate the variances and standard errors and thence none of the hypothesis testing, nether t statistics or F statistic is reliable (Long & Laurie, 1998).

According to Michael (2015), there are a few methods used to detect heteroscedasticity in two ways, which are formal way and informal way. Graphical method is one of the informal ways and formal ways which are Glesjer test, Park test, White test and Breusch-Pagan-Godfrey test. These tests are only applicable on cross-sectional data. However, Engle (1982) has proposed

Autoregressive Conditional Heteroscedasticity (ARCH) test to detect heteroscedasticity problem on time-series data. Whenever the heteroscedasticity problem is occurred, there are two types of remedial measures can be applied to solve this problem, which are Weighted Least Squares (WLS) and Generalized Least Squares (GLS).

The hypotheses for this test are stated as below:

H_0 : There is no heteroscedasticity problem.

H_1 : There is heteroscedasticity problem.

The level of significant, α is 0.05. The decision rule is to reject H_0 if the probability value is lower than α value. Otherwise, do not reject the H_0.

3.4.3.3 Autocorrelation

Autocorrelation means that there is a relationship among error terms. In other word, the error terms of the observations are related to each other. The regressions must fulfill all the assumptions of Classical Linear Regression Model (CLRM). One of the CLRM assumptions is no autocorrelation or serial correlation between the error terms. However, autocorrelation is the violation of this assumption. There are two types of autocorrelation which are pure serial correlation and impure serial correlation. The pure autocorrelation is happened due to the underlying distribution of the error term of the true specification of an equation. In contrast, the impure autocorrelation is made by the specification bias like an incorrect functional form and omitted variables. In general, there are three reasons that cause the autocorrelation exist. First is inertia, it is an important characteristic of most economic time series such as the gross domestic product to exhibit the business cycle. Second

is excluding the variables and lastly is the incorrect functional form. There are two ways to detect the problem which are using the Durbin's h test and Breusch-Godfrey LM test for the research which is using the time series data (Gujarati & Porter, 2009).

The hypotheses for this test are stated as below:

H_0 : There is no autocorrelation problem.

H_1 : There is autocorrelation problem.

The test statistic for Durbin's h test is stated as below:

$$h = \left(1 - \frac{d}{2}\right)\sqrt{\frac{n}{1 - n\left(SE(\hat{\gamma})\right)^2}}$$

The decision rule of Durbin's h test is H_0 will be rejected if the test statistic value is more than upper critical value or less than lower critical value. Otherwise, do not reject the H_0.

While the test statistic value for Breusch-Godfrey LM test is:

$$(n - p)R^2$$

The decision rule is to reject H_0 if probability value is lower than $\alpha = 0.05$. Otherwise, do not reject the H_0.

3.4.3.4 Model Specification

Based on (Gujarati & Porter, 2009), model specification is an econometric problem where the model arises of any one or combination of the situation below:

i) Omitting important or relevant variables.
ii) Including irrelevant variables
iii) The model is presented in wrong functional

According to Jarvis, Mackenzie and Podsakoff (2003), model specification will misleading the result of the research become inconsistent with the theoretical expectation. The inclusion and exclusion of any variables need to be justified in a proper way and consistent with the theoretical to avoid misleading results (Ahking, 2002). In order to avoid such problems, all the variables included in the model need to be consistent with the theory. The review of previous studies can help to minimize these problems and increase the accuracy of estimation.

Normally, model specification can be trace from t-test, F-test, R^2 and adjusted R^2 to indicate how far the regressors are significant and explained the regressand. These tests can help the researchers to identify whether the model is including or excluding important variables. However, for the wrong functional form of the model, a review on past studies and study the trend of the error term are needed to detect model specification. Some studies found that the existence of impure autocorrelation is due to model specification.

The hypotheses for this test are stated as below:

H_0 : The model is correctly specified.
H_1 : The model does not correctly specified

The level of significant, α is 0.05. The decision rule is to reject H_0 if the probability value is lower than α. Otherwise, do not reject the H_0.

A Ramsey RESET test is carried out to view the stability of specification error in order to detect the model specification. The test statistic for Ramsey RESET test can be computed by using the formula below:

$$\mathbf{F}= \frac{\left(R^2_{\text{unrestricted}} - R^2_{\text{resricted}}\right) / \left(k_{\text{unrestricted}} - k_{\text{restricted}}\right)}{\left(1 - R^2_{\text{unrestricted}}\right) / \left(n - k_{\text{unrestricted}}\right)}$$

Before compute for the test statistic to compare with the critical value from F table where $F_{\alpha,\ 2,\ n-3}$, a restricted model and an unrestricted model need to be develop from the origin model to retrieve the R^2 for restricted and unrestricted model.

3.4.4 Normality Test

The function of normality test is to examine the normal distribution of disturbance in the model. Disturbance, also named error term is the random variable that represents the factors that also affect the stock market index but is not taken into account. This research has applied Jarque-Bera Test to carry out normality test. Jarque-Bera Test was named after Carlos Jarque and Anil K. Jarque-Bera Test was computed based on skewness and kurtosis measure of the OLS residuals (Jarque & Bera, 1987).

The hypotheses for this test are stated below:

H_0 : Error terms are normally distributed.

H_1 : Error terms are not normally distributed.

The decision rule is that reject H_0 if probability value is lower than the significant level, $\alpha = 0.05$. Otherwise, do not reject the H_0.

The test statistics of Jarque-Bera (JB) Test is stated as below:

$$\mathbf{JB= n}\left[\frac{\mathbf{S^2}}{\mathbf{6}} + \frac{\mathbf{(K-3)^2}}{\mathbf{24}}\right]$$

Where,

n = Sample Size

S = Skewness

K= Kurtosis

3.4.5 T-Test

William Sealy Gosset (1908) had developed the t-test statistic. This statistic is used to examine whether the independent variables which consist of exchange rate, inflation, palm oil price and political event are individually significant in illustrating the dependent variable, Kuala Lumpur Composite Index (KLCI) in this research. According to De Winter (2013), T-test statistic is suitable for the researches that have extremely small sample sizes in which the number of parameter is less than or equal to five. However, this test statistic cannot check the overall performance of the model. T-test statistic is based on one of the assumptions which is the error terms are normally distributed. This research will use the E-views 8 to conduct the T-test statistic and the values of each parameter will be showed out. Besides that, the p-value of every parameter can also be acquired from the output (Gujarati & Porter, 2009).

The hypotheses for this test are stated as below:

H_0 : There is no significant relationship between the independent and dependent variable ($\beta_i = 0, i = 1, 2, 3, 4$).

H_1 : There is a significant relationship between the independent and dependent variable ($\beta_i \neq 0, i = 1, 2, 3, 4$).

The test statistic for T-test is stated as below:

$$t = \frac{\hat{\beta}_i - \beta_i}{se(\hat{\beta}_i)}$$

The decision rule of this test is reject H_0 if the test statistic value is smaller than lower critical value or larger than upper critical value or the probability value is smaller than the significance level, α =0.05. Otherwise, do not reject H_0.

3.4.6 F-Test

Ronald Aylmer Fisher (1924) had developed the F-test statistic which used to measure significance of the entire model. By using the E-views 8, the F-test statistic value and p-value can be obtained from the output (Gujarati & Porter, 2009).

The hypotheses for this test are stated as below:

H_0 : The overall model is insignificant.

H_1 : The overall model is significant.

The decision rule of F-test states that the H_0 will be rejected if F-test statistic value is lower than the lower critical value or higher than the upper critical value or the probability value is lower than the significance level, α= 0.05. Otherwise, do not reject the H_0.

3.4.7 Unit Root Test

"Stationary test" is another common name for unit root test. It is used to examine the stability of the properties whether a series contains of unit root and the integrated order of the variables (Al Mukit, 2012; Atmadja, 2005; Hosseini, Ahmad & Yew, 2011; Mohammad et al., 2009). A time series is considered stationary if it has no unit roots and tends to fluctuate around its mean value. In other words, the mean and the variance for this type of time series are time independent and constant throughout the time (Brooks, 2008; Gujarati, 2004; Libanio, 2005; Phillips & Xiao, 1999). In contrast, non-stationary time series will tend to have time varying mean and variance or either one. In line with Asteriou and Hall (2007), when the time goes to infinity, the variance of non-stationary time series will approach to infinity. The properties of stationary time series can also expressed in equation term as below:

Constant mean: $\mathbf{E}(y_t) = \mu$

Constant Variance: $\mathbf{var}(y_t) = \sigma^2$

According to Glynn, Perera and Verma (2007); Issahaku, Ustarz and Domanban (2013); Mahadeva and Robinson (2004), stability of time series is important for estimation due to the assumptions of classical regression model that the dependent and independent variables must have a constant mean and variance. Running the regression or applying the classical regression procedure on non-stationary data will create misleading, questionable and spurious results (Ali, 2011; Mahadeva & Robinson, 2004; Naik & Padhi, 2012; Ouma & Muriu, 2014). Furthermore, all the results for hypothesis testing become invalid because the usual t-ratios will not follow the t-distribution while the F-statistic will not follow the standard F- distribution. Hill, Griffiths and Judge (2001) indicated that most of the time series of macroeconomic variables such as inflation rate and exchange rate were non-stationary. Therefore, the stationary test should be carried out to enhance the reliability and accuracy of the model developed.

Augmented Dickey-Fuller (ADF) test is the most popular type of stationary test applied by most of the researcher like Admadja, (2005); Hosseini et al. (2011); Mohammad et al. (2009);) Maku and Atanda (2010); Paytakhti Oskooe (2010); D. Singh (2010); P. Singh (2014) and Ozean (2012) in their study of the relationship between stock market and macroeconomic variables. ADF test is the extension of Dickey- Fuller (DF) test due to the presence of serial correlation in the error terms by removing all the structural effect in time series (Gujarati, 2004; Libanio, 2005; Mahadeva & Robinson, 2004).

The hypotheses for this test are:

H_0 : All variables are not stationary and have unit root.

H_1 : All variables are stationary and do not have unit root.

In this research, the H_0 will be rejected if the probability value of unit root test is less than the significant level, $\alpha = 0.05$. Otherwise, do not reject H_0.

According to Mahadeva and Robinson (2004), the idea of ADF test is to add sufficient lagged dependent variable to eliminate the autocorrelation problem in the error term. Researcher can determine the optimal lag length by either refer to the data frequency or based on minimum value of information criterion (Brooks, 2008). Based on Hosseini et al. (2011), ADF test is limited by its number of lags. The increase in the number of lags in the model will decrease the degree of freedom as well as the standard error and lower the value of test statistic. Phillips-Perron (PP) test developed by Phillips and Perron (1988) as an alternative unit root test for ADF test (Maghayereh, 2003; Vejzagic & Zarafat, 2013; Quadir, 2012; Issahaku et al., 2013; Sohail and Hussain. 2009, 2012; Naik & Padhi, 2012) PP test modifies the test statistic by using the nonparametric statistical method and therefore no lagged dependent variables are required in the existence of autocorrelation in error terms (Brooks, 2008; Glynn et al., 2007; Gujarati, (2004).

3.4.8 Johansen Co-integration test

Based on Gujarati and Porter (2009), cointegrated occur when two or more time series variables are integrated and non-stationary in the same order. The Johansen Co-integrating test is a test for determining the number of co-integration that allows for more than one co-integration relationship. Furthermore, this test is used to examine whether the co-integration vectors hold the long run equilibrium relationship. "Trace Test" and "Maximum Eigenvalue Test" are the two types of Johansen test used to estimate the co-integration ranking. Johansen Co-integration test take its starting point in the Vector Autoregressive Model (VAR) and will be convert into Vector Error Correction Model (VECM) when the error correction term was included in the model (Hjalmarsson & Osterholm, 2007). VECM will only apply in this research when the selected variables are co-integrated. When there is Co-integration, it stated that the selected variables have the long run equilibrium relationship.

The hypotheses of this test are stated as below:

H_0 : There is no long run relationship between the variables.

H_1 : There is long run relationship between the variables.

The decision rule is to reject H_0 if the probability value is lower than the level of significance, $\alpha = 0.05$. Otherwise, do not reject H_0.

3.4.9 Granger Causality Test

Based on Clive Granger (1969), Granger Causality Test is created to examine whether a time series regression is useful in forecasting another and determine the ability of estimating the future values of a time series adopting past values of another time series. The test is applicable in time series data analysis for examining the short run causality effect between

the variables. An independent variable is said to granger cause the dependent variable through a series of t-test and F-tests on lagged values of the independent variable in short run analysis. Hence, this test is suitable for the research to study the causal relationship between the dependent variable and independent variables individually. By adopting this test, it can also assist the research in determining the unidirectional or bidirectional causality between the variables. However, this test will not show the positive or negative sign for the causal effects (Gujarati & Porter, 2009). According to Guisan (2001), this test is able to eliminate the limitation of cointegration test which is it does not shows any relevant information on the direction of causality, it only measure the variables whether are correlated. In addition, Granger test can be used to determine the causal effects for non-stationary data (Zapata, Hudson & Garcia, 1988). In order to examine the granger causality between the variables, the Wald F test is used in this research.

The hypotheses of this test are stated as below:

H_0 : Variable X does not granger causes the variable Y.

H_1 : Variable X does granger causes the variable Y.

The test statistic for Wald F test is stated as below:

$$F = \frac{(SSE_{reduced} - SSE_{full})/(K_{full} - K_{reduced})}{SSE_{full}/(n - K_{full} - 1)}$$

The decision rule of Granger Causality is reject H_0 if the test statistic value is more than the critical value or the probability value is smaller than the significance level, α=0.05. Otherwise, do not reject H_0.

3.5 Conclusion

This research studies the relationship between the Malaysian stock market performance (KLCI) and the independent variables such as exchange rate (RM/USD), inflation (CPI), palm oil price, and general election. All the data is collected through the DataStream facility provided by Universiti Tunku Abdul Rahman (UTAR). Furthermore, several tests will be conduct to test the relationship between dependent variable and the selected independent variables which comprise of T-test, F-test, Unit root test, normality test, Johansen Co-integration test and Granger causality tests. Besides that, all the tests used to detect and solve multicollinearity, autocorrelation, heteroscedasticity, model specification will also be carried out in this research. The empirical result of these tests would be presented in the following chapter.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

This chapter concentrate on interpreting the empirical results from the methodologies applied in this research. The tests will be run are Ordinary Least Squares (OLS) method, T-Test, F-Test, Normality Test, Unit Root Test which consists of Augmented Dickey Fuller (ADF) Test and Phillips-Perron (PP) Test, Johansen Co-integration Test, Granger Causality Test and diagnostic checking which including Multicollinearity, Heterosedasticity, Autocorrelation and Model Specification. All the results will be expressed in table form followed by explanation and analysis.

4.1 Ordinary Least Square Method

$$\mathbf{lnKLCI_t = \beta_0 + \beta_1 lnExc_t + \beta_2 lnCPI_t + \beta_3 lnPalm_t + \beta_4 Election_t + \varepsilon_t} \quad \mathbf{(1)}$$

$$\mathbf{lnKLCI_t = -2.941158 - 1.708989\ lnExc_t + 2.897855\ lnCPI_t - 0.156994\ lnPalm_t - 0.084503\ Election_t} \quad \mathbf{(2)}$$

Where:

$lnKLCI_t$ = the natural logarithm form of Kuala Lumpur Composite Index (KLCI) at month t.

$lnExc_t$ = the natural logarithm form of exchange rate (EXC) at month t.

$lnCPI_t$ = the natural logarithm form of consumer price index (CPI) at month t.

$lnPalm_t$ = the natural logarithm form of palm oil prices (OIL) at month t.

$Election_t$ = Election at month t where 0 indicates no election in the specific month and 1 indicates election occurs in the specific month.

Table 4.1: E-views result

Independent Variable	**Expected Sign**	**Actual Sign**	**Coefficient**	**p-value**
lnExc	Negative	Negative	-1.708989	0.0029
lnCPI	Negative	Positive	2.897855	0.0000
ln Palm	Positive	Negative	-0.156994	0.3926
Election	Negative	Negative	-0.084503	0.4542
R^2= 0.813923		**Adjusted R^2**= 0.788257		

R^2 is used to measure the percentage of variation in dependent variable is explained by total variation of independent variables while the $\bar{R}^2$ measured the fitted regression line after considered the sample size and regressors. Based on Table 4.1, R^2 = 0.813923 indicated that 81.39% of variation in Malaysian stock market performance is explained by the total variation in exchange rate, inflation, palm oil prices and election year. On the other hand, $\bar{R}^2$= 0.788257 implied that 78.83% of the total variation in Malaysian stock market performance is explained by the total variation in exchange rate, inflation, palm oil prices and election year after take into account the degree of freedom.

4.1.1 T-test

H_0 : There is no significant relationship between the independent and dependent variable ($\beta_i = 0, i = 1,2,3,4$).

H_1 : There is a significant relationship between the independent and dependent variable ($\beta_i \neq 0, i = 1,2,3,4$).

Decision Rule: Reject H_0 if probability value is lower than significant level, α. Otherwise, does not reject H_0.

Table 4.1.1: Results of t-tests

Independent Variable	Significant Level, α	p- value	Decision Making	Conclusion
lnExc	0.05	0.0029	Reject H_0.	Significant.
lnCPI	0.05	0.0000	Reject H_0.	Significant.
ln Palm	0.05	0.3926	Do not reject H_0.	Insignificant.
Election	0.05	0.4542	Do not reject H_0.	Insignificant.

From Table 4.1.1, exchange rate and inflation are significantly affecting the stock market performance in Malaysia. However, the palm oil prices and election year are insignificant in determining the Malaysian stock market performance.

The E-views result in this research stated that the exchange rate is significant but negatively affects the Malaysian stock market performance. It is in the line with the prior expectation as stated in Chapter 2. Such relationship is similar with the outcomes of the studies carried by Acikalin, Aktas and Unal (2008); Adjasi, Harvey and Agyapong (2008); Agrawal, Srivastav and Srivastava (2010); Adam and Tweneboah (2008); Ibrahim and Aziz (2003) and Ibrahim and Wan Yusoff (2001). The reason is the depreciation of domestic currency will decrease the value of cash inflows to the domestic foreign companies, thence fail to attract the new foreigners to invest in domestic country and increase the tendency for the current participants to exit from the market. This will force the stock price to decrease. Ibrahim and Wan Yusoff (2001); Al Mukit (2012); Singh, Tripathi and Lalwani (2012) have found that the exchange rate is significantly affect the stock market performance.

Next, Consumer Price Index (CPI) is found to have positive effect on Malaysian stock market performance. This finding is consistent with the

research of Kuwornu, Ghana and Victor (2011) and Issahaku, Ustarz and Domanban (2013) who prove that CPI has positive relationship with the stock market returns in Ghana but inconsistent with the estimation. Inflation could imply a lower unemployment rate, higher production and income level thus leading to higher stock price or stock performance. Furthermore, investors will tend to request for higher return or profit during high inflation to compensate the potential risk of lower purchasing power. In other words, the higher the inflation, the higher the stock price to compensate the investor. However, some researchers found that consumer price index is significant but has negative relationship with New York Stock Exchange prices because high inflation will lead to a lower export and finally results in current account deficits. This shows that country purchasing power is lower hence the stock price will be decrease (Omran & Pointon, 2001; Shubita & Al-Sharkas, 2010). Besides that, the author such as Kimani and Mutuku (2013) and Saleem, Zafar and Rafique (2013) also prove that consumer price index is significant in explaining the stock market performance.

Besides that, the movement in palm oil prices for this research has a negative effect on the movement on Malaysian stock market performance. However, the t-test results declared that the palm oil prices are not individually important in explaining the stock market performance since there are many other commodities can be used to capture the stock market performance such rubber, crude oil and electronic products. This finding is supported by Saiti, Ali, Abdullah and Sajilan (2014) who found that there is insignificant relationship between palm oil price and stock performance using wavelet analysis. These outcomes are opposite to the prior expectations and the result from Nordin et al. (2014) which indicated that there is a significant and positive relationship between the palm oil prices and stock market performance.

Finally, the E-views results show that the Election (dummy variable) has negative relationship with the ln KLCI which is consistent with the prediction made in Chapter 2. This result is in the line with the Nippani

and Arize (2005) which found a negative relationship between America President election and Canadian and Mexican stock market performance. This is due to the uncertainty and unclear economic direction of the nation. It will become even more uncertainty if the popularity between two parties is nearly equally matched. However, the election is found insignificant to the stock market performance in this research. The result is identical with the studies of Abidin, Old and Martin (2010), Chretien and Coggins (2009) and Jones and Banning (2009). The insignificant effect of election on stock market performance indicates that the company's performance is not affected by the election. This is due to the advancement of information technology lead to the growth of multinational organization which can diversify the political risk.

4.1.2 F-test

H_0 : The overall model is insignificant.

H_1 : The overall model is significant.

Decision Rule: Reject H_0 if probability value is lower than significant level, α. Otherwise, does not reject H_0.

Table 4.1.2: Result of F-test

Significant Level, α	**p- value**	**Decision Making**	**Conclusion**
0.05	0.0000	Reject H_0.	Significant.

The F- test is used to measure the overall significance of the model. As shown in Table 4.1.2, the probability value is less than the significance level therefore the H_0 is rejected indicating that the entire model in this research is important in explaining the stock market performance.

4.2 Diagnostic Checking

4.2.1 Multicollinearity

Multicollinearity is the problem happen when there is a relationship among independent variables either exact or in linear form. There are three types of methods to examine multicollinearity problem.

Method 1: High R^2 but few significant t-ratios

Based on Table 4.1, the R^2 = 0.813923 which is considered high and implies that almost 81.39% of variation in dependent variable is explained by the total variation in independent variables. Furthermore, based on Table 4.1.1, the p-value of lnExc and lnCPI which are 0.0029 and 0.0000 respectively are smaller than the significance level, $\alpha = 0.05$. In other words, lnExc and lnCPI are individually significant at 5% significance level. In conclusion, it is expect no multicollinearity problem exists in the model.

Method 2: High pair-wise correlation coefficients

Table 4.2.1a: Pair-wise Correlation Coefficients

	lnExc	**lnCPI**	**lnPalm**	**Election**
lnExc	1.000000	**0.795876**	0.050488	0.018894
lnCPI	**0.795876**	1.000000	0.475081	0.038628
lnPalm	0.050488	0.475081	1.000000	-0.043226
Election	0.018894	0.038628	-0.043226	1.000000

From Table 4.2.1a, it found that there is high correlation between lnExc and lnCPI which with the correlation more than 0.50. Therefore, it is suspect the multicollinearity problem exists in the model.

Method 3: Variance Inflation Factor (VIF) / Tolerance (TOL)

Table 4.2.1b: VIF and TOL Results

	R^2	VIF = $1/(1 - R^2)$	TOL = $1 - R^2$
lnExc lnCPI	0.633418	2.72792625	0.366582
lnExc lnPalm	0.002549	1.002555514	0.997451
lnExc Election	0.000357	1.000357127	0.999643
lnCPI lnPalm	0.225702	1.291492423	0.774298
lnCPI Election	0.001492	1.001494229	0.998508
lnPalm Election	0.001868	1.001871496	0.998132

Based on Table 4.2.1b, it is found that all the VIFs are less than 10 and TOLs were close to 1. This implies no serious multicollinearity problem in the model.

In a nutshell, the model does not consist of multicollinearity problem in this research.

4.2.2 Heteroscedasticity

The heteroscedasticity problem refers to the inconsistent characteristic of variances of error term. It can be tested by using Autoregressive Conditional Heteroskedasticity (ARCH) Test in this research.

Table 4.2.2: Autoregressive Conditional Heteroskedasticity (ARCH) Test

Autoregressive Conditional Heteroskedasticity (ARCH) Test	
p- value = 0.1730	$\alpha = 0.05$

H_0 : There is no heteroscedasticity problem.

H_1 : There is heteroscedasticity problem.

Decision rule: Reject H_0 if probability value less than significant level, α. Otherwise, do not reject H_0.

Conclusion: Do not reject H_0 since the probability value of 0.1730 is more than α= 0.05. Hence, there is no heteroscedasticity problem in the model.

4.2.3 Autocorrelation

Autocorrelation problem occurs when the error term for an observation is related to error term of another observation. The autocorrelation problem is tested by using Breusch-Godfrey Serial Correlation LM Test in this research.

Table 4.2.3: Breush-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test	
p-value = 0.0610	α = 0.05

H_0 : There is no autocorrelation problem.

H_1 : There is autocorrelation problem.

Decision rule: Reject H_0 if probability value less than significant level, α. Otherwise, do not reject H_0.

Conclusion: Do not reject H_0 since the probability value of 0.0610 is more than α =0.05. Hence there is no autocorrelation problem in the model.

4.2.4 Model Specification

The Model Specification problem is tested by using Ramsey Regression Equation Specification Error Test (RESET) Test in this research.

Table 4.2.4: Ramsey Regression Equation Specification Error Test (RESET) Test.

Ramsey Regression Equation Specification Error Test (RESET) Test	
p- value = 0.6316	$\alpha = 0.05$

H_0 : The model is correctly specified.

H_1 : The model does not correctly specified

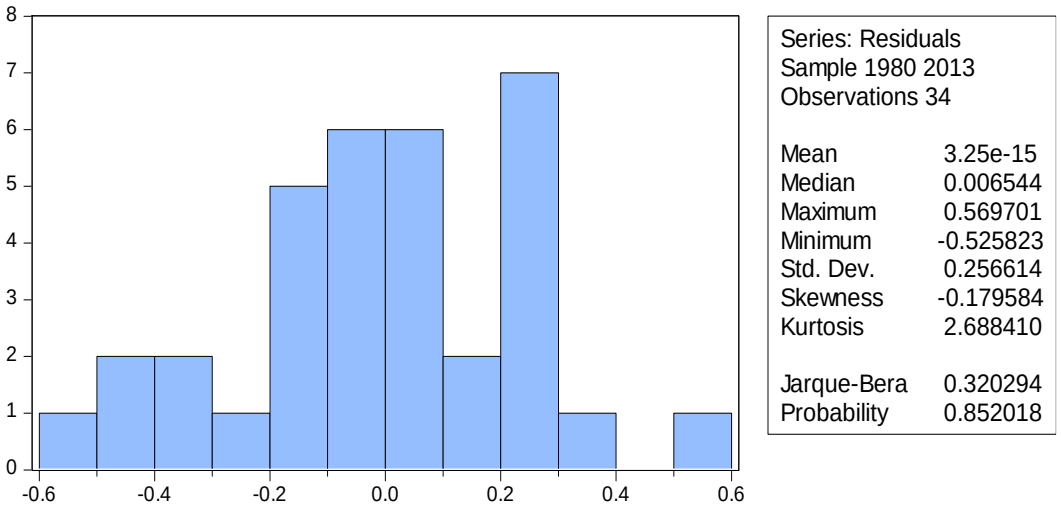
Decision rule: Reject H_0 if probability value less than significant level,α.. Otherwise, do not reject H_0.

Conclusion: Do not reject H_0 since the probability value of 0.6316 is more than α= 0.005. Hence, the model in this research is correctly specified.

4.3 Normality Test

The normality error terms are tested by using Jarque-Bera test in this research.

Table 4.3: Jarque-Bera Test



H_0 : Error terms are normally distributed.

H_1 : Error terms are not normally distributed.

Decision rule: Reject H_0 if probability value less than significant level.α. Otherwise, do not reject H_0.

Conclusion: Do not reject H_0 since the probability value of 0.852018 is more than α= 0.05. Hence, the error terms are normally distributed.

4.4 Unit root test

H_0 : lnKLCI/ lnExc/ lnCPI/ lnPalm/ Election are not stationary and have a unit root.

H_1 : lnKLCI/ lnExc/ lnCPI/ lnPalm/ Electionare stationary and do not have a unit root.

Decision rule: Reject H_0 if probability value less than significant level.α. Otherwise, do not reject H_0.

4.4.1 Augmented Dickey-Fuller (ADF) test

Table 4.4.1: Results of ADF test

Variables	Level		First difference	
	intercept	**trend and intercept**	**intercept**	**trend and intercept**
lnKLCI	-1.028334 (0)	-4.649145* (8)	-3.460358* (8)	-3.219103 (8)
lnExc	-1.689547 (0)	-1.322383 (0)	-4.708600* (0)	-4.724831* (0)
lnCPI	-2.295685 (0)	-3.039068 (0)	-5.253312* (0)	-4.989756* (0)
lnPalm	-1.265188 (3)	-2.147301 (3)	-7.284530* (1)	-7.519710* (1)
Election	-4.597232* (7)	-4.853300* (7)	-3.420908* (8)	-3.264280 (8)
Note: *denotes significant at 5% significant level. The figure in parenthesis (…) represents optimal lag length based on Akaike Info Criterion (AIC)				

Level phases:

Intercept: The H_0 for all variables except election is not rejected at 5% significant level. It is conclude that all variables except election are not stationary at level phases.

Trend and Intercept: The H_0 for all variables except lnKLCI and election are not rejected at 5% significant level. It is conclude that all variables except lnKLCI and election are not stationary at level phases.

First difference:

Intercept: The H_0 for all variables is rejected at 5% significant level. It is conclude that, all variables are stationary at first difference.

Trend and Intercept: The H_0 for all variables except LnKLCI and Election is rejected at 5% significant level. It is conclude that, all variables except LnKLCI and election are stationary at first difference.

4.4.2 Phillips Perron (PP) test

Table 4.4.2: Results of PP test

Variables	Level		First difference	
	intercept	**trend and intercept**	**intercept**	**trend and intercept**
LnKLCI	-0.825052 [3]	-2.937333 [3]	-7.152398* [2]	-7.078595* [2]
LnExc	-1.722315 [1]	-1.322383 [0]	-4.666536* [3]	-4.662969* [4]
LnCPI	-1.836641 [3]	-3.317410 [4]	-5.336300* [2]	-5.032865* [2]
LnPalm	-1.795801 [2]	-2.494620 [4]	-5.905866* [19]	-9.493654* [31]
Election	-12.12349* [10]	-11.88759* [10]	-16.51101* [10]	-16.21777* [10]
Note:*denotes significant at 5% significant level. The figure in parenthesis […] represents bandwidth based on Newey-west bandwidth criterion.				

Level phases:

Intercept: The H_0 for all variables except election is not rejected at 5% significant level. It is conclude that all variables except election are not stationary at level phases.

Trend and Intercept: The H_0 for all variables except election is not rejected at 5% significant level. It is conclude that all

variables except election are not stationary at level phases.

First difference:

Intercept: The H_0 for all variables is rejected at 5% significant level. It is conclude that, all variables are stationary at first difference.

Trend and Intercept: The H_0 for all variables is`rejected at 5% significant level. It is conclude that, all variables are stationary at first difference.

4.5 Johansen Co-integration Test

The long run effect between the variables is tested by using Johansen Co-integration test.

Table 4.5: Johansen Co-integration Test

Hypothesized No. of CE(s)	**Trace**			**Max-Eigen**		
	Statistic	Critical value (5%)	p-value	Statistic	Critical value (5%)	p-value
r = 0	99.95491	69.81889	0.0000*	43.59985	33.87687	0.0026*
r ≤ 1	56.35506	47.85613	0.0065*	33.52846	27.58434	0.0076*
r ≤ 2	22.82660	29.79707	0.2547	13.89967	21.13162	0.3733
r ≤ 3	8.926934	15.49471	0.3722	8.145280	14.26460	0.3641
r ≤ 4	0.781654	3.841466	0.3766	0.781654	3.841466	0.3766
Note:*denotes significant at 5% significant level.						

H_0 : There is no long run relationship between the variables.

H_1 : There is long run relationship between the variables.

Decision rule: Reject H_0 if probability value less than significant level,α. Otherwise do not reject H_0.

Conclusion: Reject H_0 since the probability value for Trace statistic (0.0000) and Max-Eigen (0.0026) is less than α =0.05. Hence, the variables are co-integrated implies that there is long run relationship between the variables.

This result is consistent with the previous studies which also had determined the long run relationship between the stock market performance and exchange rate, inflation, palm oil price and election. According to Ozean (2012), the exchange rate is found to have long run effect on the Istanbul Stock Exchange (ISE) industries index. The same result had also found in the Singapore stock market index (STI) by Maysami, Lee and Hamzah (2004). Kimani and Mutuku (2013), Omran and Pointon (2001) and Praptiningsih (2008) had discovered that the inflation (CPI) has long run effect on the stock market. These results consistent with the Mohd Hussin et al. (2012) where they examined there is long run relationship between stock price and exchange rate and inflation.

4.6 Granger Causality Test

Granger Causality Test is conducted in this research is used to examine the direction of causality and the lead lag relationships between the selected independent variables and Kuala Lumpur Composite Index (KLCI). The results are reported in the table and summarized in the figure below.

H_0 : X does not granger cause Y.

H_1 : X does granger cause Y.

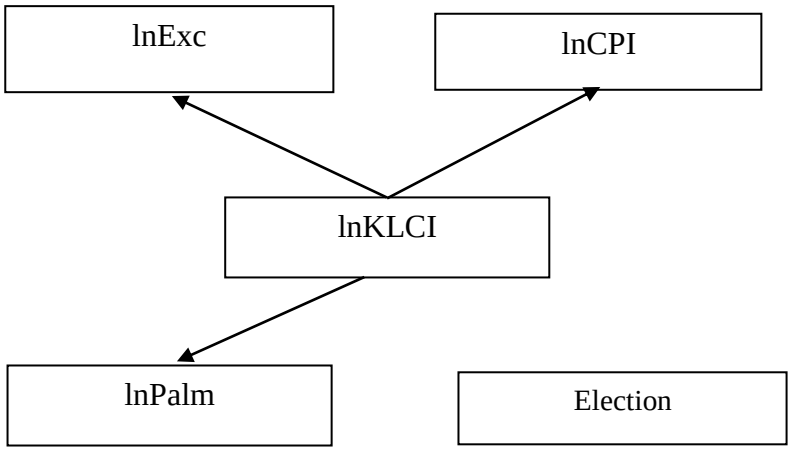
Decision rule: Reject H_0, if probability value less than significant level,α. Otherwise, do not reject H_0.

Table 4.6: Results of Granger Causality Test

Variable X	Variable Y	Significance level, α	P-value	Decision	Conclusion
lnExc	lnKLCI	0.05	0.3768	Do not reject H_0.	No granger cause.
lnKLCI	lnExc	0.05	0.0154	Reject H_0.	Granger cause.
lnCPI	lnKLCI	0.05	0.1107	Do not reject H_0.	No granger cause.
lnKLCI	lnCPI	0.05	0.0215	Reject H_0.	Granger cause.
lnPalm	lnKLCI	0.05	0.7004	Do not reject H_0.	No granger cause.
lnKLCI	lnPalm	0.05	0.0343	Reject H_0.	Granger cause.
Election	lnKLCI	0.05	0.7881	Do not reject H_0.	No granger cause.
lnKLCI	Election	0.05	0.9359	Do not reject H_0.	No granger cause.
lnCPI	lnExc	0.05	0.4443	Do not reject H_0.	No granger cause.
lnExc	lnCPI	0.05	0.7986	Do not reject H_0.	No granger cause.
lnPalm	lnExc	0.05	0.8878	Do not reject H_0.	No granger cause.
lnExc	lnPalm	0.05	0.2311	Do not reject H_0.	No granger cause.
Election	lnExc	0.05	0.8054	Do not reject H_0.	No granger cause.

lnExc	Election	0.05	0.1903	Do not reject H_0.	No granger cause.
lnPalm	lnCPI	0.05	0.4581	Do not reject H_0.	No granger cause.
lnCPI	lnPalm	0.05	0.1714	Do not reject H_0.	No granger cause.
Election	lnCPI	0.05	0.6729	Do not reject H_0.	No granger cause.
lnCPI	Election	0.05	0.8505	Do not reject H_0.	No granger cause.
Election	lnPalm	0.05	0.3692	Do not reject H_0.	No granger cause.
lnPalm	Election	0.05	0.4147	Do not reject H_0.	No granger cause.

Figure 4.6: The Relationship between Each Variable for Granger Causality Test



Indicator:

→ One way causal relationship

According to Table 4.6, the granger causality relation exists between lnKLCI, lnExc, lnCPI and lnPalm. lnKLCI does granger cause lnEXC, lnCPI and lnPalm

individually except for Election in this research as per Figure 4.6. In other words, none of the macroeconomic variables granger causes stock market performance in this research. Atmadja (2005) found that the macroeconomic variables do not granger cause the stock performance in Indonesia, Philippines, Singapore and Thailand yet it does exist from stock returns to few macroeconomic variables like exchange rate and inflation. This result is parallel to Atmadja (2005); Garza-Garcia and Yue (2010) and Tangjitprom (2012). In addition, there is also a link between stock market performance and palm oil prices in this research. Furthermore, Tudor and Popescu-Dutaa (2012) declared that there was a unilateral relationship from stock market to exchange rate in Brazil and United Kingdom which is consistent with the finding of this research where stock market performance does granger causes exchange rate in short run. This outcome is further supported by Al Mukit (2012) and Rahman et al. (2009) but contrasted with the studies of P. Singh (2014) and Zakaria and Shamsuddin (2012). Garza-Garcia and Yue (2010) reported the same causality relation from stock return to inflation found in this research. Finally, there is no any granger causality relation between general election and stock market performance is found in this research at 5% significant level.

4.7 Conclusion

The diagnostic checking, normality test, unit root test, Johansen co-integration test and Granger Causality Test have been carried out in this chapter. All the empirical results from the methodologies used in this research have been expressed in figure form and table form. The accurate and clear interpret of the results have been demonstrated in this chapter. The summary for whole research will be discusses in the next chapter.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

Previous chapter had carried out various methodologies to analyze the data for this research. The first section in this chapter will concentrate on the summary of statistical analyses that summarize the overall results from previous chapter. Second part will be the discussion of major findings in which the results are consistent with the previous studies together with detail explanations. Third section is about the implications of study that will bring some useful suggestions to the government, policy makers and so on. The next section consists of the limitations of this research followed by some of the recommendations which can assist the future researchers in their study. This chapter will be ended by a conclusion to summarize the contents in this chapter.

5.1 Summary of Statistical Analyses

Table 5.1a: Summary of Diagnostic Checking

Econometric Problems	Results
Multicollinearity	No multicollinearity problem.
Autocorrelation	No autocorrelation problem.
Heteroscedasticity	No heteroscedasticity problem.
Model Specification	Model is correctly specified.
Normality	Error terms are normally distributed.

Table 5.1a shows the summary of diagnostic checking in this research. There is no multicollinearity, autocorrelation, heteroscedasticity problems in the model at 5% significant level. Besides that, the model in this research is accurately specified

and the error terms are normally distributed. In other words, the model in this research is Best Linear Unbiased Estimator and all the results hypothesis testing carried are valid.

Table 5.1b: Summary of OLS Regression and Consistency Journals

T- Test		
Variables	Result	Consistency
lnExc	Negatively significant at 5% significant level.	• P. Singh (2014) • Singh, Mehta and Varsha (2011) • Pilinkus and Boguslauskas (2009) • Chiou (2007)
lnCPI	Positively significant at 5% significant level.	• Khan (2014) • Issahaka, Ustarz and Domanban (2013) • Kuwornu, Ghana and Victor (2011) • Du (2006)
lnPalm	Negative but insignificant at 5% significant level.	• Saiti, Ali, Abdullah and Sajilan (2014)
Election	Negative but insignificant at 5% significant level.	• Abidin, Old and Martin (2010) • Chretien and Coggins (2009) • Jones and Banning (2009)
F-Test		
Overall significance of model	Significant at 5% significant level.	-

Table 5.1b indicates the relationship between Malaysian stock market performance and the selected macroeconomic variables, palm oil prices and election. Based on the results, only exchange rate and inflation are individually significant in explaining the stock market performance. Exchange rate is found to have negative relationship between stock market performances. This result is consistent with P. Singh (2014), Singh, Mehta and Varsha (2011), Pilinkus and Boguslauskas (2009) and Chiou (2007). Furthermore, Khan (2014), Isshaka, Ustarz and Domanban (2013), Kuwornu, Ghana and Victor (2011) and Du (2006) found that inflation is positively affect the stock performance. This relation is in the line with this research result. Next, the t-test result of palm oil price as per table above is supported by Saiti, Ali, Abdullah and Sajilan (2014). Finally, election also found to be insignificant in capturing the stock market performance in this research. The outcomes is identical with Abidin, Old and Martin (2010), Chretien and Coggins (2009) and Jones and Banning (2009). Lastly, the F-test result shows that the entire model is significant in this research.

Table 5.1c: Summary of Unit Root Test, Johansen Co-integration Test, Granger Causality Test and Consistency Journals

Unit Root Test		
Variables	Results	Consistency
lnKLCI	Stationary at first difference.	• P. Singh (2014) • Quadir (2012) • Tangjitprom (2012) • Ibrahim and Wan Yusoff (2001)
lnExc	Stationary at first difference.	• Mutuku and Ng'eny (2015) • Basci and Karaca (2013) • Al-Mukit (2012)
lnCPI	Stationary at first difference.	• Vejzagic and Zarafat (2013) • Hosseini et al. (2011)

		• Chen, Kim and Kim (2005)
lnPalm	Stationary at first difference.	• Nordin et al. (2014)
Election	Stationary at level and first difference.	-

Johansen Co-integration Test			
Dependent Variables	Independent Variables	Results	Consistency
lnKLCI	lnEXC	Long run relationship	• Abdelbaki (2013) • Ozean (2012) • Maysami et al. (2004)
lnKLCI	lnCPI	Long run relationship	• Al-Majali and Al-Assaf (2014) • Praptiningsih (2008) • Omran and Pointon (2001)
lnKLCI	lnPalm	Long run relationship	• Nordin et al. (2014)
lnKLCI	Election	Long run relationship	-

Granger Causality Test			
Variables		Results	Consistency
lnKLCI	lnEXC	lnKLCI does granger cause lnEXC	• Al-Mukit (2012) • Tudor and Popescu-Dutaa (2012) • Rahman et al. (2009)
lnKLCI	lnCPI	lnKLCI does granger cause lnCPI	• Tangjitprom (2012) • Garza-Garcia and Yue (2010)
lnKLCI	lnPalm	lnKLCI does granger cause lnPalm	-
lnKLCI	Election	No causality exist	-

Table 5.1c shows the summary about the results of unit root test, Johansen co-integration test and Granger causality test that have carried out in this research. Based on unit root test, all the variables are stationary at first difference except election is station at first difference. Malaysian stock market performance is station at first difference which is consistent with the studies of P. Singh (2014); Quadir (2012); Tangjitprom (2012) and Ibrahim and Wan Yusoff (2001). Exchange rate also does not have unit root which is proved by the research of Mutuku and Ng'eny (2015); Basci and Karaca (2013) and Al-Mukit (2012). In addition, Vejzagic and Zarafat (2013); Hosseini et al. (2011) and Chen et al. (2005) also discovered that inflation is stationary at first difference. Besides that, palm oil prices do not have unit root which same with the research of Nordin et al. (2014).

On the basis of Johansen co-integration test, there is long run relationship between Malaysian stock market performance and exchange rate, inflation, palm oil prices and election year respectively. The exchange rate and stock market is co-integrated which is consistent with the studies of Abdelbaki (2013); Ozean (2012) and Maysami et al. (2004). Moreover, Al-Majali and Al-Assaf (2014); Praptiningsih (2008) and Omran and Pointon (2001) also found that the inflation was co-integrated with stock return which is same with the result of this research. Furthermore, there is a long run relationship between Malaysian stock market performance and palm oil prices in the line with the study of Nordin et al. (2014).

According to Granger causality test, the results show that there is a unidirectional causal relationship from Malaysian stock market performance to exchange rate, inflation and palm oil prices respectively while there is no causality between Malaysian stock market performance and election year. The result of stock market performance does granger causes exchange rate is consistent with the researches of Al-Mukit (2012); Tudor and Popescu-Dutaa (2012) and Rahman et al. (2009). Tangjitprom (2012) and Garza-Garcia and Yue (2010) also declared that Malaysian stock market performance does granger cause inflation which is same with the result in this research.

5.2 Discussions of Major Findings

The OLS results show that the exchange rate and inflation are significant in explaining stock market performance while the other two determinants which are palm oil price and general election show the opposite results. The result of inflation exhibits positive sign with the dependent variable. However, the result of exchange rate, palm oil and general election show negative sign with the stock market performance.

The result of exchange rate that significant and negatively related with stock market performance is link with the research of Kibria et al. (2014). The lower exchange rate will force the foreign investors to withdraw their investment and search for a better alternative. It will cause the aggregate demand in domestic stock market to reduce and pull down stock prices. Moreover, stock market was positively affected by inflation. This is further supported by Geske and Roll (1983) and Mukherjee and Naka (1995) in their study. The raise of consumer price index will restrict the economy policy with the increase the discount rate and lead to the increment in the stock price. Palm oil price was negatively but insignificant in capturing the stock market performance. This is because of the low weighted of the plantation stock listed in KLCI. For the dummy variable, general election shows insignificant and negative relationship with the stock market performance. This result is accordance with the research carried by Worthington (2006). The insignificant relationship represent that the election will not affect the performance of company. This is because multinational organization had the ability to diversify the political risk through the investment in several regions. Besides that, Malaysia government has provides tax incentives that may offset the negative effect that could cause by general election.

In order to test the stationarity of data, unit root test was carried out in this research and the results revealed that exchange rate, inflation (CPI) and palm oil prices were stationary at first difference in both ADF Test and PP Test while election was stationary at both level and first difference. The results of this research are consistent with Mohammad et al. (2014); Wan Yusoff (2012); Sohail

and Hussain (2009) and Maghayereh (2003) which found that the exchange rate and inflation (CPI) are stationary at first difference. However, unit root doesn't exist in palm oil price which is consistent with the research of Nordin et al. (2014).

All the variables must be stationary before proceed to the Johansen co-integration test to determine whether there is a long run relationship between dependent variable and the selected independent variables. After ran out the test, it was discovered that there was a long run relationship between the variables. These results are same with Abdelbaki (2013); Ozean (2012) and Praptiningsih (2008) in which the inflation (CPI) and exchange rate have the long run relationship with stock market performance.

On the other hand, this research had determine the short run relationship by using Granger causality test and the results showed that there is no granger causality relation between election and Malaysian stock market performance. However, the unilateral relationship does exist from Malaysian stock market performance to exchange rate, inflation and palm oil price respectively. The results are parallel with Sarbapriya (2012);Tangjitprom (2012) and Garza-Garcia and Yue (2010).

5.3 Implications of the Study

5.3.1 Managerial Implications

The macroeconomics variables (exchange rate and consumer price index) have shown significant effect on the Malaysian stock market while palm oil price and political event (general election) do not have significant effect in this research based on the annual data from 1980 to 2013. This result may use as reference and guideline to the policymakers, governments, investors, researchers and academicians to perform their task.

The policymakers may include exchange rate and consumer price index as one of the factors upon determine the economic policy that influence the stock market performance. However, the movement of palm oil price and general election may ignore when making economic policy on stock market in order to narrow down the scope and avoid wasting resources on irrelevant factors. Besides that, Malaysian government is able to stabilize the stock market performance and nation economic growth by maintaining a favourable inflation rate. The government can also enhance Malaysian stock market performance by implement fiscal policy. Malaysian stock market is discovered to perform better when the exchange rate is weaker which can be used as important information to the government for monitoring the business environment.

This research provides valuable information to both local and foreign investors who like to make investment in Malaysia. The investors can make their investment decision more precise and effective at their own desire outcome. With more information on the relevant factors that affect the stock market performance, the investors are able to weight the risk perceived and return expected more accurate. The researchers and academicians may get more ideas between the political event and stock market performance in Malaysia and it may help them in their future research.

The information gained from this research may help these of groups of people to be more familiar with the investment culture and environment in Malaysian stock market. This information also can be used in making investment strategic and stimulate the investing environment of Malaysian stock market.

5.4 Limitations of the Study

The result obtained from this research may not be fully sufficient and competency to reflect and explain the effect of the independents variables on dependent variables due to several limitations that may distort the accuracy of the findings in this research. The users of the information in this research have to be aware of its limitation to avoid or minimize the losses in both financial and economic. Few limitations encountered during the research will discuss in the following paragraph.

This research is fully focuses on Malaysia stock market performance and all the data used to carry out hypothesis testing are based on Malaysia economic and politic historical data. Since this research is fully on Malaysia based, the result from this research is only applicable in Malaysia stock market. The users who wish to apply the result in this research in other countries than Malaysia have to think twice although the countries they wish to apply are similar or falling under the same category in term of geographical, economic and political standing since different countries have their own unique investment environment and economic policy. The implication on the macroeconomics, palm oil price and political event may or may not affect the stock market performance in different degree and stage from Malaysia. By the way, annual data used in this research may not efficiently capture the stock volatility since the stock market is traded daily.

Furthermore, the lack of information arises from insufficient researches and studies related to the selected topic in developing countries like Malaysia especially in palm oil and political event had leaves ambiguous and incompetent evidence to the concern parties when undergoing their task in such area. Moreover, lack of data caused this research failed to include the important variables like money supply and interest rate which had been studied and proved by other researches.

The difficulties in tracing the effect of the general election on Malaysia stock market performance in this research due to the lack of method to collect and trace

the reaction of the investors on the general election towards stock market performance. By the way, the lasting effects of general election on stock market performance need to be identify in order to justify the time period that the stock market performance is affect by general election.

Last but not least, this research captured the stock market performance by using Kuala Lumpur Composite Index (KLCI) which ignored the nature and type of the stocks. In Malaysia, there are many different stocks that may have different factors and different degree of impact by the macroeconomics and political factors due to its own nature and companies' financial standing. The result in this research may not be suitable for the other companies especially for small and medium enterprise since KLCI only represent top 30 companies in Malaysia. The potential users of the information from this research need to be aware of such limitation when applying it in their task. However, these limitations were raise for future research purpose and it does not distort the finding of this research.

5.5 Recommendations for Future Research

In future research, the researchers may study this topic by using panel data in order to compare with other countries and time period. The Asian countries such as Singapore, Brunei, Indonesia and Thailand which have similar weather and geographical area are more recommended when make comparison with Malaysia. By comparison the effect of macroeconomic factors, palm oil and political event on stock market performance in different countries, the investors will discover to more information that may be useful to them for making their investment decision and strategies. Besides, researchers are recommended to use the daily data to trace the stock market movement and increase the accuracy of the result.

The government may provide sufficient facilities such as database, research software and tools for the researchers to encourage them to carry out research especially on palm oil and political event. Government may also establish a fund to provide financial aid to the researchers to carry out their research. An award

may establish to the researchers who have contribute well in research to stimulate research environment in Malaysia. Government should assist data collection and keep it in different physical location. The practice on regular maintenance and system upgrade on database should be consistent to avoid unnecessary losses.

New research tools and hypothesis testing need to be develop in order to capture more relevant and accurate result. More research on the relationship between stock market performance and general election in order to provide more evidence and information. The future research may use election cycle rather than general election year to study and investigate the effect of election on stock market performance. By using election cycle, the researchers may also find out when the effect of election start and end (before election, on the election year or after election) and how long the effect of election last on stock market performance.

The future researchers may use industry performance or individual company performance rather than KLCI to investigate the effect of the macroeconomic variables, palm oil price and political event. For example, the weightage of each the industry in the KLCI can be included in the research or substitute the KLCI with Palm Oil Plantation Index if researchers wish to focus on palm oil industry. This helps the government and investors can implement their decision which directly affect to those specific industry or company more efficient and effective. All the data used for the research need to be update and revise timely to ensure result of the research reflect and include current issue for better estimation.

5.6 Conclusion

Overall, this research has studied the effect of the selected independent variables towards Malaysian stock market performance. The results declared that among four independent variables selected, only exchange rate and inflation are found to be significant in the model. Exchange rate revealed a negative relationship to Kuala Lumpur Composite Index (KLCI) while the consumer price index demonstrated a direct relationship to the stock market. However, the movement of

palm oil prices and the general election illustrated a negative but insignificant in capturing Malaysian stock market performance. In the nutshell, this research has achieved the general objective of exploring the effect of macroeconomic factors, palm oil prices and political event on Malaysian stock market performance from 1980 to 2013 in annual basis. All the results could provide useful information to policymakers, governments, investors, researchers and academicians in performing their responsibilities. In addition, the limitations of this research is presented throughout this chapter and at the same time provided some recommendations to potential researchers for their future improvement.

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APPENDICES

APPENDIX 1: ORDINARY LEAST SQUARES (OLS) METHOD

Dependent Variable: LNKLCI

Method: Least Squares

Date: 04/29/15 Time: 15:22

Sample: 1980 2013

Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNEXC	-1.708989	0.526325	-3.247023	0.0029
LNCPI	2.897855	0.414005	6.999569	0.0000
LNPALM	-0.156994	0.180908	-0.867813	0.3926
ELECTION	-0.084503	0.111383	-0.758673	0.4542
C	-2.941158	0.927473	-3.171153	0.0036

R-squared	0.813923	Mean dependent var	6.534257
Adjusted R-squared	0.788257	S.D. dependent var	0.594886
S.E. of regression	0.273740	Akaike info criterion	0.381775
Sum squared resid	2.173070	Schwarz criterion	0.606240
Log likelihood	-1.490176	Hannan-Quinn criter.	0.458324
F-statistic	31.71238	Durbin-Watson stat	1.145435
Prob(F-statistic)	0.000000		

APPENDIX 2: MULTICOLLINEARITY

- **Pair-wise Correlation Coefficients**

	LNEXC	LNCPI	LNPALM	ELECTION
LNEXC	1.000000	0.795876	0.050488	0.018894
LNCPI	0.795876	1.000000	0.475081	0.038628
LNPALM	0.050488	0.475081	1.000000	-0.043226
ELECTION	0.018894	0.038628	-0.043226	1.000000

- **Variance Inflation Factor (VIF) / Tolerance (TOL)**

	R^2	VIF = $1/(1 - R^2)$	TOL = $1 - R^2$
lnExclnCPI	0.633418	2.72792625	0.366582
lnExclnPalm	0.002549	1.002555514	0.997451
lnExc Election	0.000357	1.000357127	0.999643
lnCPIlnPalm	0.225702	1.291492423	0.774298
lnCPI Election	0.001492	1.001494229	0.998508
lnPalm Election	0.001868	1.001871496	0.998132

APPENDIX 3: HETEROSCEDASTICITY

- **Autoregressive Conditional Heteroskedasticity (ARCH) Test**

Heteroskedasticity Test: ARCH

F-statistic	1.848562	Prob. F(1,31)	0.1838
Obs*R-squared	1.857085	Prob. Chi-Square(1)	0.1730

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 04/29/15 Time: 16:44

Sample (adjusted): 1981 2013

Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.045848	0.018424	2.488486	0.0184
RESID^2(-1)	0.235493	0.173205	1.359618	0.1838

R-squared	0.056275	Mean dependent var	0.061346
Adjusted R-squared	0.025833	S.D. dependent var	0.084244
S.E. of regression	0.083149	Akaike info criterion	-2.077680
Sum squared resid	0.214325	Schwarz criterion	-1.986983
Log likelihood	36.28172	Hannan-Quinn criter.	-2.047163
F-statistic	1.848562	Durbin-Watson stat	1.995410
Prob(F-statistic)	0.183759		

APPENDIX 4: AUTOCORRELATION

- **Breush-Godfrey Serial Correlation LM Test**

F-statistic	2.658681	Prob. F(2,27)	0.0883
Obs*R-squared	5.594216	Prob. Chi-Square(2)	0.0610

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 04/29/15 Time: 16:45

Sample: 1980 2013

Included observations: 34

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNEXC	0.207920	0.507296	0.409859	0.6851
LNCPI	-0.132510	0.397003	-0.333775	0.7411
LNPALM	0.015599	0.171554	0.090930	0.9282
ELECTION	-0.033501	0.106951	-0.313238	0.7565
C	0.249280	0.889850	0.280137	0.7815
RESID(-1)	0.426115	0.196843	2.164746	0.0394
RESID(-2)	-0.020647	0.193955	-0.106450	0.9160

R-squared	0.164536	Mean dependent var	3.25E-15
Adjusted R-squared	-0.021123	S.D. dependent var	0.256614
S.E. of regression	0.259310	Akaike info criterion	0.319654
Sum squared resid	1.815522	Schwarz criterion	0.633905
Log likelihood	1.565876	Hannan-Quinn criter.	0.426823
F-statistic	0.886227	Durbin-Watson stat	1.914946
Prob(F-statistic)	0.518479		

APPENDIX 5: MODEL SPECIFICATION

- **Ramsey Regression Equation Specification Error Test (RESET) Test.**

Ramsey RESET Test

Equation: UNTITLED

Specification: LNKLCI LNEXC LNCPI LNPALM ELECTION C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.484851	28	0.6316
F-statistic	0.235080	(1, 28)	0.6316
Likelihood ratio	0.284263	1	0.5939

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.018093	1	0.018093
Restricted SSR	2.173070	29	0.074933
Unrestricted SSR	2.154977	28	0.076963
Unrestricted SSR	2.154977	28	0.076963

LR test summary:

	Value	df
Restricted LogL	-1.490176	29
Unrestricted LogL	-1.348045	28

Unrestricted Test Equation:

Dependent Variable: LNKLCI

Method: Least Squares

Date: 04/29/15 Time: 16:46

Sample: 1980 2013

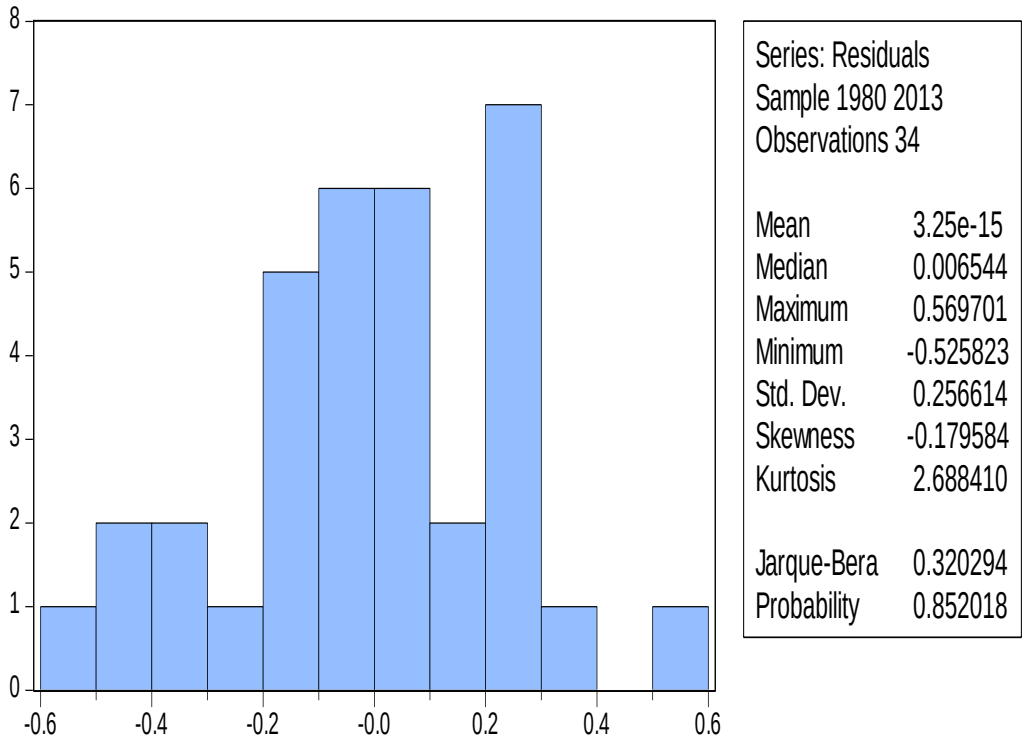
Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNEXC	-4.017225	4.790506	-0.838581	0.4088
LNCPI	6.727193	7.909113	0.850562	0.4022
LNPALM	-0.311414	0.367492	-0.847405	0.4040
ELECTION	-0.191286	0.247481	-0.772930	0.4460
C	-11.38489	17.44047	-0.652786	0.5192
FITTED^2	-0.101332	0.208996	-0.484851	0.6316

R-squared	0.815472	Mean dependent var	6.534257
Adjusted R-squared	0.782521	S.D. dependent var	0.594886
S.E. of regression	0.277423	Akaike info criterion	0.432238
Sum squared resid	2.154977	Schwarz criterion	0.701596
Log likelihood	-1.348045	Hannan-Quinn criter.	0.524097
F-statistic	24.74775	Durbin-Watson stat	1.180569
Prob(F-statistic)	0.000000		

APPENDIX 6: NORMALITY TEST

- **Jarque-Bera Test**



APPENDIX 7: UNIT ROOT TEST

- **Augmented Dickey-Fuller test**

Variable: lnKLCI

Level without trend

Null Hypothesis: LNKLCI has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.028334	0.7314
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Level with trend

Null Hypothesis: LNKLCI has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 8 (Automatic based on AIC, MAXLAG=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.649145	0.0055
Test critical values:	1% level	-4.374307	
	5% level	-3.603202	
	10% level	-3.238054	

*MacKinnon (1996) one-sided p-values.

First difference without trend

Null Hypothesis: D(LNKLCI) has a unit root

Exogenous: Constant

Lag Length: 8 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.460358	0.0186
Test critical values:	1% level	-3.737853	
	5% level	-2.991878	
	10% level	-2.635542	

*MacKinnon (1996) one-sided p-values.

First difference with trend

Null Hypothesis: D(LNKLCI) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 8 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.219103	0.1044
Test critical values:	1% level	-4.394309	
	5% level	-3.612199	
	10% level	-3.243079	

*MacKinnon (1996) one-sided p-values.

Variable: lnExc

Level without trend

Null Hypothesis: LNEXC has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.689547	0.4271
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Level with trend

Null Hypothesis: LNEXC has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.322383	0.8645
Test critical values:	1% level	-4.262735	
	5% level	-3.552973	
	10% level	-3.209642	

*MacKinnon (1996) one-sided p-values.

First difference without trend

Null Hypothesis: D(LNEXC) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.708600	0.0006
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

First difference with trend

Null Hypothesis: D(LNEXC) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.724831	0.0033
Test critical values:	1% level	-4.273277	
	5% level	-3.557759	
	10% level	-3.212361	

*MacKinnon (1996) one-sided p-values.

Variable: lnCPI

Level without trend

Null Hypothesis: LNCPI has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.295685	0.1792
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Level with trend

Null Hypothesis: LNCPI has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.039068	0.1374
Test critical values:	1% level	-4.262735	
	5% level	-3.552973	
	10% level	-3.209642	

*MacKinnon (1996) one-sided p-values.

First difference without trend

Null Hypothesis: D(LNCPI) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.253312	0.0001
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

First difference with trend

Null Hypothesis: D(LNCPI) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.989756	0.0017
Test critical values:	1% level	-4.273277	
	5% level	-3.557759	
	10% level	-3.212361	

*MacKinnon (1996) one-sided p-values.

Variable: lnPalm

Level without trend

Null Hypothesis: LNPALM has a unit root

Exogenous: Constant

Lag Length: 3 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.265188	0.6323
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Level with trend

Null Hypothesis: LNPALM has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 3 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.147301	0.5001
Test critical values:	1% level	-4.296729	
	5% level	-3.568379	
	10% level	-3.218382	

*MacKinnon (1996) one-sided p-values.

First difference without trend

Null Hypothesis: D(LNPALM) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.284530	0.0000
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

*MacKinnon (1996) one-sided p-values.

First difference with trend

Null Hypothesis: D(LNPALM) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 1 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.519710	0.0000
Test critical values:	1% level	-4.284580	
	5% level	-3.562882	
	10% level	-3.215267	

*MacKinnon (1996) one-sided p-values.

Variable: Election

Level without trend

Null Hypothesis: ELECTION has a unit root

Exogenous: Constant

Lag Length: 7 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.597232	0.0012
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

*MacKinnon (1996) one-sided p-values.

Level with trend

Null Hypothesis: ELECTION has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 7 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.853300	0.0033
Test critical values:	1% level	-4.356068	
	5% level	-3.595026	
	10% level	-3.233456	

*MacKinnon (1996) one-sided p-values.

First difference without trend

Null Hypothesis: D(ELECTION) has a unit root

Exogenous: Constant

Lag Length: 8 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.420908	0.0202
Test critical values:	1% level	-3.737853	
	5% level	-2.991878	
	10% level	-2.635542	

*MacKinnon (1996) one-sided p-values.

First difference with trend

Null Hypothesis: D(ELECTION) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 8 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.264280	0.0963
Test critical values:	1% level	-4.394309	
	5% level	-3.612199	
	10% level	-3.243079	

*MacKinnon (1996) one-sided p-values.

- **PHILLIPS PERRON (PP) TEST**

Variable: lnKLCI

Level without trend

Null Hypothesis: LNKLCI has a unit root

Exogenous: Constant

Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-0.825052	0.7987
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Level with trend

Null Hypothesis: LNKLCI has a unit root

Exogenous: Constant, Linear Trend

Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-2.937333	0.1645
Test critical values:	1% level	-4.262735	
	5% level	-3.552973	
	10% level	-3.209642	

*MacKinnon (1996) one-sided p-values.

First difference without trend

Null Hypothesis: D(LNKLCI) has a unit root

Exogenous: Constant

Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-7.152398	0.0000
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

First difference with trend

Null Hypothesis: D(LNKLCI) has a unit root

Exogenous: Constant, Linear Trend

Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-7.078595	0.0000
Test critical values:	1% level	-4.273277	
	5% level	-3.557759	
	10% level	-3.212361	

*MacKinnon (1996) one-sided p-values.

Variable: lnExc

Level without trend

Null Hypothesis: LNEXC has a unit root

Exogenous: Constant

Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.722315	0.4111
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Level with trend

Null Hypothesis: LNEXC has a unit root

Exogenous: Constant, Linear Trend

Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.322383	0.8645
Test critical values:	1% level	-4.262735	
	5% level	-3.552973	
	10% level	-3.209642	

*MacKinnon (1996) one-sided p-values.

First difference without trend

Null Hypothesis: D(LNEXC) has a unit root

Exogenous: Constant

Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.666536	0.0007
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

First difference with trend

Null Hypothesis: D(LNEXC) has a unit root

Exogenous: Constant, Linear Trend

Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.662969	0.0039
Test critical values:	1% level	-4.273277	
	5% level	-3.557759	
	10% level	-3.212361	

*MacKinnon (1996) one-sided p-values.

Variable: lnCPI

Level without trend

Null Hypothesis: LNCPI has a unit root

Exogenous: Constant

Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.836641	0.3569
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Level with trend

Null Hypothesis: LNCPI has a unit root

Exogenous: Constant, Linear Trend

Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.317410	0.0810
Test critical values:	1% level	-4.262735	
	5% level	-3.552973	
	10% level	-3.209642	

*MacKinnon (1996) one-sided p-values.

First difference without trend

Null Hypothesis: D(LNCPI) has a unit root

Exogenous: Constant

Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.336300	0.0001
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

First difference with trend

Null Hypothesis: D(LNCPI) has a unit root

Exogenous: Constant, Linear Trend

Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.032865	0.0015
Test critical values:	1% level	-4.273277	
	5% level	-3.557759	
	10% level	-3.212361	

*MacKinnon (1996) one-sided p-values.

Variable: lnPalm

Level without trend

Null Hypothesis: LNPALM has a unit root

Exogenous: Constant

Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.795801	0.3760
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Level with trend

Null Hypothesis: LNPALM has a unit root

Exogenous: Constant, Linear Trend

Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-2.494620	0.3285
Test critical values:	1% level	-4.262735	
	5% level	-3.552973	
	10% level	-3.209642	

*MacKinnon (1996) one-sided p-values.

First difference without trend

Null Hypothesis: D(LNPALM) has a unit root

Exogenous: Constant

Bandwidth: 19 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.905866	0.0000
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

First difference with trend

Null Hypothesis: D(LNPALM) has a unit root

Exogenous: Constant, Linear Trend

Bandwidth: 31 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-9.493654	0.0000
Test critical values:	1% level	-4.273277	
	5% level	-3.557759	
	10% level	-3.212361	

*MacKinnon (1996) one-sided p-values.

Variable: Election

Level without trend

Null Hypothesis: ELECTION has a unit root

Exogenous: Constant

Bandwidth: 10 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-12.12349	0.0000
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Level with trend

Null Hypothesis: ELECTION has a unit root

Exogenous: Constant, Linear Trend

Bandwidth: 10 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-11.88759	0.0000
Test critical values:	1% level	-4.262735	
	5% level	-3.552973	
	10% level	-3.209642	

*MacKinnon (1996) one-sided p-values.

First difference without trend

Null Hypothesis: D(ELECTION) has a unit root

Exogenous: Constant

Bandwidth: 10 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-16.51101	0.0000
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

First difference with trend

Null Hypothesis: D(ELECTION) has a unit root

Exogenous: Constant, Linear Trend

Bandwidth: 10 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-16.21777	0.0000
Test critical values:	1% level	-4.273277	
	5% level	-3.557759	
	10% level	-3.212361	

*MacKinnon (1996) one-sided p-values.

APPENDIX 8: JOHANSEN CO-INTEGRATION TEST

Date: 06/15/15 Time: 07:14

Sample (adjusted): 1983 2013

Included observations: 31 after adjustments

Trend assumption: Linear deterministic trend

Series: LNKLCI LNEXC LNCPI LNPALM ELECTION

Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.754988	99.95491	69.81889	0.0000
At most 1 *	0.660935	56.35506	47.85613	0.0065
At most 2	0.361336	22.82660	29.79707	0.2547
At most 3	0.231067	8.926934	15.49471	0.3722
At most 4	0.024899	0.781654	3.841466	0.3766

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.754988	43.59985	33.87687	0.0026
At most 1 *	0.660935	33.52846	27.58434	0.0076
At most 2	0.361336	13.89967	21.13162	0.3733
At most 3	0.231067	8.145280	14.26460	0.3641
At most 4	0.024899	0.781654	3.841466	0.3766

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

APPENDIX 9: GRANGER CAUSALITY TEST

Pairwise Granger Causality Tests
Date: 06/13/15 Time: 14:58
Sample: 1980 2013
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LNEXC does not Granger Cause LNKLCI	32	1.01228	0.3768
LNKLCI does not Granger Cause LNEXC		4.89128	0.0154
LNCPI does not Granger Cause LNKLCI	32	2.39072	0.1107
LNKLCI does not Granger Cause LNCPI		4.44326	0.0215
LNPALM does not Granger Cause LNKLCI	32	0.36078	0.7004
LNKLCI does not Granger Cause LNPALM		3.82997	0.0343
ELECTION does not Granger Cause LNKLCI	32	0.24030	0.7881
LNKLCI does not Granger Cause ELECTION		0.06640	0.9359
LNCPI does not Granger Cause LNEXC	32	0.83621	0.4443
LNEXC does not Granger Cause LNCPI		0.22676	0.7986
LNPALM does not Granger Cause LNEXC	32	0.11957	0.8878
LNEXC does not Granger Cause LNPALM		1.54736	0.2311
ELECTION does not Granger Cause LNEXC	32	0.21821	0.8054
LNEXC does not Granger Cause ELECTION		1.76556	0.1903
LNPALM does not Granger Cause LNCPI	32	0.80371	0.4581
LNCPI does not Granger Cause LNPALM		1.88400	0.1714
ELECTION does not Granger Cause LNCPI	32	0.40203	0.6729
LNCPI does not Granger Cause ELECTION		0.16285	0.8505
ELECTION does not Granger Cause LNPALM	32	1.03419	0.3692
LNPALM does not Granger Cause ELECTION		0.90948	0.4147