

THE EFFECT OF GOVERNMENT POLICY ON STOCK
MARKET RETURN IN MALAYSIA

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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 17,434.

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DEDICATION

We would like to dedicate this final year project to:

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LIST OF ABBREVIATIONS

KLCI	Kuala Lumpur Composite Index
MS	Money Supply
CPI	Consumer Price Index
GB	Government Budget
INT	Interest Rate
EXCHG	Foreign Exchange Rate
DV	Dependent Variable
IV	Independent Variable
OLS	Ordinary Least Square
ADF	Augmented Dickey Fuller
VIF	Variance Inflation Factor
ARCH	Autoregressive Conditional Hetereskedasticity
LM	Breusch-Godfrey Serial Correlation Lagrange Multiplier
JB	Jarque-Bera

PREFACE

The Malaysian economy are growing substantially and leading the country from developing country to become developed country. The government encourages local entrepreneurs and foreign investor to run their business or organization in Malaysia in order to achieve the goals. Since then, many investors from local and foreign countries invest their money and asset in Malaysia. Stock price or return has become the main concern for all the investors that invested in Malaysia since the stock price determines their return or loss from their investments. There are many macroeconomic factors that influence the stock price fluctuations and one of them is the government policies.

In this research, we use five independent variables that influence the stock price which are money supply, interest rate, inflation rate, government budget and foreign exchange rate. These independent variables are useful in getting the results of the stock price fluctuations. Many of this research have been conducted in developed country and very less in the developing country.

At the end of this research, this research will deliver the results of government policies effect on the stock return. The user of this research will benefit from the research as it will provide them a better understanding on the stock performance regarding the government policies.

ABSTRACT

This paper examine the relationships between the government policy and the Kuala Lumpur Composite Index (KLCI) stock return from 2003 to 2012 which consist of quarterly data of 40 observations. This paper use Ordinary Least Square (OLS) to determine the statistical relationship. For diagnostic checking, there is no heteroscedasticity, no autocorrelation, and the error terms are in normal distribution. However, the model consists of multicollinearity problem. Overall, the independent variable money supply, inflation rate, interest rate and foreign exchange rate poses a significant relationship with the stock return in KLCI. However, the independent variable government budget did not have a significant relationship with the stock performance in KLCI.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

Government makes a huge impact on the stock market performance and return. The government could interfere stock market using diverse monetary, fiscal tools or other regulations (Wang, 2010). The great impact of government policy on stock market return has attracted many researchers like Arin et al (2009) and Veronesi (2011) in order to indicate the changes in stock prices. However, the relationship between government policy and stock return have recognize well in developed countries like US, but not well recognize in developing country like Malaysia. So, this study may add value to the existing literature. Therefore, this paper will analyze the dynamic relationship between KLCI stock index and government policy, which consist of money supply, government budget, inflation rate, interest rate and foreign exchange rate.

1.1 Research Background

Malaysia stock market, Bursa Malaysia had been one of the largest stock trading markets in the Asia. In 1960, the Malayan Stock Exchange was established and the public trading of shares commenced. Back then, Malaysia and Singapore trading rooms were linked by direct telephone lines. Stocks trading were soon become well-known and Bursa started expanding as many in Malaysia and across the contingents were emerging and going public. Bursa Malaysia was listed on the Main Board of Bursa Malaysia Securities Berhad in 18 March 2005 and became a profit-motive organization.

In the previous financial crisis, many countries were financially at risk due to the subprime crisis 2008. Major countries like the United States, the United Kingdom

and Japan were at big risk and government intervention was necessary at emergency stage. Besides the major countries, Malaysia was affected as well and so does the Malaysian government involve lowering down the burden of the crisis in the country. Most stocks price in Malaysia deteriorate drastically during the crisis and only the wise companies were able to withstand the effect. Besides, many commercial bank and Islamic bank in Malaysia used their reserves against the losses faced by the banks. Both Islamic financing and Islamic stock market are vulnerable to financial crisis to some degree too excluded the Islamic banking deposit. (Karim, B. A & Lee, W. S, 2012).

In the recent event of Malaysia 13th General Election, the stock prices in Malaysia were inconsistent. It is mainly due to the uncertainty of change in Malaysia government. The stock index was very volatile during the general election campaign causing stock prices appreciate and depreciate during that period. It will not be surprise to see the event of huge volatile on the country-specific component of index return variance during the week around the election (Bialkowski, J, Gottschalk, K & Wisniewski, T. P 2008).

After the 13th General Election, the stock prices seem to be constant at one point due to there were no changes of government after the General Election were announced. Due to the 2014 budget in Malaysia, the government tends to increase the tariff of electricity and other necessity goods in Malaysia. The society would find it hard to adapt to the new price level of necessity goods and many organizations were uncertain about their future stock performance as the government implemented new policies in the Malaysia budget 2014. New government policies might be set in the near future in order to stabilize the economy and to lower down the society burden on the tariff increment of the necessity goods in Malaysia. However, stock price will be affected by the new policies.

1.2 Problem Statement

This investigation carries out because there are only a few papers that discuss the empirical link between government policy and stock market return. In developed countries, there are a few studies on the linkage between government policy and stock return such as Laopodis (2007) and Arin et al (2009). However, there are no studies related to government policy and stock return in Malaysia. So, the results made by researchers in developed countries may be contracting compared to developing countries.

1.2.1 Money Supply

This study is to analyze on whether the government policies changes can influence on KLSE Composite index. There are many researchers carry out the test on the relationship between the variable money supply and the stock index. The results were different among the researchers; majority researchers have found that the money supply would positively influence the market stock index. However, Sellin and Peter (2001) have found that there is a negative relationship between both variable. Thus, the rational of this study is to examine the real relationship of money supply and KLCI.

Moreover, the level of money supply in Malaysia is getting increasing, money supply M3 in Malaysia was increased to 1352885.787 MYR million in December 2012; the figured is the highest compare with previous- reported by Central Bank Malaysia. With the current situation, consequently it will affect the value of MYR drop. Thus, this research will find out the linked between the levels of money supply with the market stock return and examine whether the level of money supply would cause a big impact to the KLSE composite index.

1.2.2 Government Budget

Government budget exert a huge impact on economic growth on a country. Geske, R and Roll, R (1983) had carry out research on the federal budget impact and found out that over the time, federal budget deficit will reduce the economic growth in the country. The result further support by Cebula (1995), similar result had been obtained. These researches were done in United State and there is not much information on developing country. This study focus on government budget in Malaysia and try to find out whether the government budget can really affect country economy by using stock market return as an indicator. There is no research on the effect government budget issue in Malaysia. Malaysia as a developing country does need a lot of government spending in transforming itself into a developed country. As the level of government budget might focus more on developing and improving the facilities and infrastructure of the domestic environment, the study intend of find out whether government budget of Malaysia really poses an significant impact on the stock market. The domestic investors attitude over the government budget in Malaysia also intend to be examine as there are different attitude and preference of investors among the world. There might be a gap between developed country investors' attitude and developing country's investors, the study will fill up the gap by comparing the result with the previous result done by other authors on developed countries.

1.2.3 Inflation

There are several reasons that this study want to examine the relationship between inflation rate and stock performance. First, there are many researches that have conducted the test on the effect of inflation rate and stock performance by testing on overseas country. For example, Ali and James (2001) have conduct a test to figure out the relationship between inflation rate and stock performance in a few developed countries, such as US,UK, Germany, Japan, France and Canada. But, there are only a few researchers that investigated based on Malaysia perspective.

So, this paper is going to find out how inflation rate can affect the stock return in Malaysia.

In addition, Robert and Richard (1983) had found a positive relationship between inflation rate and stock return. This result is in line with Kaul (1987). However, there are many researchers proven that there should be a negative relationship between inflation rate and stock return. (Ali & James, 2001; Crosby, 2001) So, due to the ambiguous result between inflation rate and stock return, this paper will examine the actual relationship between inflation rate and stock performance in Malaysia.

1.2.4 Interest Rate

Interest rate plays an important role when it comes to the country economic growth. In general, interest rate defined as cost of capital, indicate that the return you need to repay for use the borrowed money for a period. When there is an increase in interest rates, people will switch their capital from stock market to bank savings, causing the share price to fall and subsequently decline in stock returns (Zafar et. al, 2008). Besides this, Maysami, Lee and Hamzah (2004) proposed that when interest rate increase, cost of borrowing will be higher while value of cash flow after discounted tend to reduce, making investment less attractive. Thus, increasing interest rate may adversely impact the share market index because of reduced economic activities.

From the perspective of Malaysia's economy, the fluctuation in interest rate is expected to influence the equity demand in the financial market. Interest rates will be adjusted accordingly by central bank in order to suit the economy's condition. When inflation is viewed to be high, central bank will implement contractionary monetary policy by increasing interest rates to reduce the money supply in market. Thus, in order to further understand the interest rate mechanisms, the variable interest rate intend to be examine on its effect on stock market performance.

1.2.5 Foreign Exchange Rate

In the Malaysia economy, share price plays a role in determine the stability of the country's economy condition. Malaysia has investments ranging from Asia to Europe and the America. Since there are many foreign investments, therefore the foreign exchange rate plays a big role in determine the share price. Foreign exchange risk is one of the major problems as the exchange rate is highly volatile and fluctuates rapidly from time to time. The economy growth is partly relying on the exchange rate. But as according to Bae, Kwon and Li (2007) exchange rate changes are negatively related to share returns.

Foreign exchange rate theoretically are positively correlated with the economy condition. Recall back to the incident of 911, the collapse of the World Trade Centre had caused huge impact on the US economy and other developed countries. As the economy deteriorates, the dollar currency weakens as well. The reason this study include foreign exchange is because there is a relationship between foreign exchange rate and the share return. Besides, when one company engage in import and export activities, they will be aware of the currency risk because the risk will bring loss or profit due to the exchange rate when one company engage in international trade. This study will find out the relationship between foreign exchange rate and the share price movement relate to the government policy using the foreign exchange rate data.

1.3 Research Objective

1.3.1 General Objective

This paper main objective is to analyze the government intervention or changes of policy impact on the stock market (KLCI) performance in Malaysia.

1.3.2 Specific Objective

In this paper examine on,

1. To determine the impact of stock market performance when Malaysia's government change either in monetary policy or fiscal policy.
2. To identify the relationship between money supply and the stock return.
3. To identify the relationship between government budget and the stock return.
4. To identify the relationship between inflation rate and the stock return.
5. To identify the relationship between interest rate and the stock return.
6. To identify the relationship between foreign exchange rate and the stock return.

1.4 Research Questions

This session will propose the questions related to the stock market performance (KLCI) in Malaysia. There are 8 research questions in this paper:

- Do government interventions or policy changes bring significant impact on stock market performance (KLCI)?
- Does government's monetary and fiscal policy poses effect on stock market performance?
- Does money supply have significant relationship with stock return?
- Does government budget have significant relationship with stock return?

- Does inflation rate have significant relationship with stock return?
- Does interest rate have significant relationship with stock return?
- Does foreign exchange rate have significant relationship with stock return?

1.5 Hypothesis of the Study

Money Supply

H₀: There is no relationship between stock return and the money supply (MS).

H₁: There is a relationship between stock return and the money supply (MS).

Government Budget

H₀: There is no relationship between the stock return and government budget.

H₁: There is relationship between the stock return and government budget.

Inflation Rate

H₀: There is no relationship between stock return and inflation rate.

H₁: There is a relationship between stock return and inflation rate.

Interest Rate

H₀: There is no significant relationship between stock return and interest rate (IR).

H₁: There is a significant relationship between stock return and interest rate (IR).

Foreign Exchange Rate

H₀: There is no relationship between Stock Return and Foreign Exchange Rate .

H₁: There is a relationship between Stock Return and Foreign Exchange Rate.

1.6 Significance

In this paper, the study intends to examine the relationship between the government policy and the stock market performance. The independent variables money supply, government budget, inflation, interest rate and foreign exchange rate had included in the study. Hence, the main contribution is to test on the significance of these independent variables on the stock market performance. It is hope that it can be use by policy makers, investors, government and other parties to stabilize and improve the financial market.

There are many study research on either how monetary policy affect stock market performance or how fiscal policy affect the stock market performance. For example, Laopodis (2009) had carry out research on fiscal policy and stock market efficiency in 2009 and he carry out another study in 2013 about the monetary policy and stock market dynamics across monetary regimes (Laopodis, 2013). However, the study combining both monetary and fiscal policy effect on stock market return is very little. Hence, this study intends to fill up the gap by combine the two type governmental policies and find out the effect on stock market. This study had put in one fiscal policy which is federal budget to test on the effect on stock market.

In the study, it is discovered that although there are many study research on the government policy effect on stock market performance in various countries, there are no study in this issue in Malaysia. With this observation, this study intends to capture the previous study result from other countries and compare with the result we have in this study.

Policy makers

In the perspective of policy makers or government, they can use the information from this study to analyze the determinants that cause the volatility of the stock market performance. Various policies either in fiscal or monetary can be implement to improve and stabilize the stock market in Malaysia.

Investors

For investors or investment institutions, they can use the information to get a better understanding on the effect on government policy to stock market. They will have more awareness toward the government action on policies. They can adjust their investment according with the government new policy.

Fund managers

For the fund managers, they can use this result to analyze the relationship of government policy on the stock return in either a positive effect or negative way. With this, they can handle the customers fund with more effective and efficient way.

1.7 Chapter Layout

In chapter 1, the basic information and contribution of the study are introduced. Following by chapter 2 which the previous literature and theoretical model will be reviewed and proposed. The data collection and analysis of finding will be covered in chapter 3 and 4. Lastly in chapter 5, the conclusion and implication will be covered.

1.8 Conclusion

In summary, chapter 1 introduced the study and the background of the stock market in Malaysia to provide a better understanding on the study in this paper. The objective of the study is discussed and the hypothesis of the independent variables also shown in this chapter. Lastly, the contribution intend to bring to public is briefly discussed.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

In the second chapter, Chapter 2, the previous researchers' past researches will be review in detail and further elaborate. It is found that although there are many study done on the government policy effect on stock return, there are no research carry on Malaysia before. Besides, the studies combine both monetary and fiscal policies are very little in the past. Hence, this research aim to study and review both the monetary and fiscal policies effect on stock return done by previous researchers.

2.1 Review of the Literature

It was known that the stock market return is highly sensitive to the external factors. Due to this, there are many researchers intend to determine what factors had influence on the stock market returns. One of the factors past researchers focused on from past until now is the government intervention on the policy.

The study of government policy effect on stock market return early done by Darrat (1988). Darrat (1998) used the stock market efficiency (SME) theory to investigate the relationship between government policies with stock returns in Canada. The result found out that both fiscal and monetary policies have different influence on the stock market return. The past monetary policies have insignificant effect on the stock return which consistent to the SME while the fiscal policy action poses a significant influence to the stock market return. Darrat (1990) revised his study in 1990 using a different data set, an alternative empirical methodology and alternative model in the research. The result was consistent with the previous observations which the monetary policies have insignificant effect while the fiscal policies have significant effect on stock market return in Canada.

The result from Darrat (1990) further supported by Arin, Mamun and Purushotman (2009) which proving the fiscal policy posed a significant effect on the stock market return. Arin et al. (2009) using the one of the fiscal policy, tax policy to test on the effect on market return. The result was found that the tax policy had a significant effect on stock market return. However, the corporate tax indicated an insignificant effect due to the corporate can switch between equity financing and bond financing.

The research done by Laopodis (2009) also support the empirical result from previous study. By using SME theory for stock market in United State from 1968-2005, it was found that the past budget deficit affect the current stock return negatively. This indicated that the market is inefficient as it is towards the fiscal policy actions. Laopodis (2009) further interpret the result as the market participants reluctant to put much faith on the news on government budget and what the market really considers is the news regarding monetary policies.

Laopodis (2013) continue the research by investigate the government policy on stock market in different era and market. The result indicated that there is no consistent relationship between the government policies and the stock market return across different monetary regimes. This is because the nature of each regime is different from the perspective of financial conditions, government strategies and public concerned.

From the literature review from the past until current, it was observed that most of the researches are done based on the stock market return (SME) theory. It only tests on the significant of the relationship between the government policies and stock return but not the direction of the relationship. Besides, the research done mainly in Western countries, there are very little research done on Asia countries. Hence in this study, by combine both monetary and fiscal policy in Malaysia, it is hope that the future researchers can use to compare the result with other Asian developing countries.

2.1.1 Money Supply

There are various types of money supply measurement, generally can be classified as M1, M2 and M3. The Central Bank of Malaysia may use each of the measurement to define country's money supply for monetary policy purpose. Meanwhile, central bank through adjustment of interest rate to increasing or decreasing the amount of money flow in the economy. In Sara, A. & Shokoofeh, F. (2008) study stated that the liquidity effect, and there are negative causal relation between money supply and interest rate. The interest rate decrease caused by the increase of money supply to keep the money market in equilibrium. Simultaneously, interest rate refers to opportunity of holding cash.

According to Muzafar, S.H. (1998), by using the Granger causality approach and the error correction model to test the relationship between broad money and stock price in Malaysia, as a result, error correction model determine that the money supply (M3) Granger cause stock prices. These results, suggest that investors can predict the stock price in Kuala Lumpur Securities Exchange (KLSE) through the information of money supply M3 to earn excess return.

Based on the Keynesian economists, they argue that there is a negative relationship between money supply and stock prices. It was believed that when money supply increase now this will lead people anticipate tight money supply in future, consequently will drive up the interest rate now. When the current interest rate increasing, the discount rate also increases and consequences will lead the future earnings drop, further decline of stock price Sellin & Peter (2001).

However, real activity economists believe that the relationship between money supply and stock prices is positive. It was argued that when country's money supply increase the money demand also tend to increase as well, in the case of increase in economic activity, as higher economic activities will implied higher expected profitability, thus the stock price will rise, Sellin (2001). According to Maskay, B. (2007) indicated the real activity hypothesis dominates Keynesian theory, in the study found a similar result that supporting view of real activity

hypothesis which is money supply shock will increase the stock price. Moreover, Sara, A.& Shokoofeh, F. (2008) also found that a change in money supply is positively affect stock price and vice versa.

In additional, Babak, M., Navid, B, Shahriar, E & Roza, K. (2012) indicated that in money supply, M1 and M2 have long term influence on the KLCI. The increasing of money supply will positively impact the market index KLCI increase. In this study explained that, increase of money supply will help firm to have better access to financial option and contribute to economic growth in the country.

2.1.2 Government Budget

Government budget is the different between actual cash collection and the budget spending of the government during the given fiscal year. It is believe that as one of the action in fiscal policy, government budget had significant influence towards the stock market performance.

The early study had showed that government budget had significant effect on the stock market performance (Darrat & Brocato, 1994). It was found that the deficit in government budget exert a significant lagged impact on the stock market performance in the United State. The study show the result was significant even after taking into account the industrial production information, inflation information, base money information, term structure information and default risk information.

The research done by Lee (2004) further support with the findings and prove that not only stock market, bond market also captured the information of federal budget in United State. Lee (2004) study the relationship from 1969 to 1998 which the federal budget was persistent deficit, the study did not continue the years after 1998. This is because during the year 1998 to 2001, the United State federal budget was on surplus. However, the study of Lee (2004) had show federal

budget exerts a significant effect on the financial market. Laopodis (2009) further the previous research and found out that the result is consistent and the past federal budget deficit negatively affect the stock return in United State. However, Laopodis (2009) study suggested that the market was not efficient with the information regarding the future fiscal policy actions and elaborate this disturbing result was due to the investors or the public only concern about the news on monetary policy but not fiscal policy.

These evidences supported by Ewing (1998) by testing the same research in Australia and France. The result was consistent with the findings of Darrat and Brocato (1994). The study showed that the market in both Australia and France align with the market efficiency theory and fully reflect the past government budget on the current stock price. This indicates that the evidence is not confined to Unite State only, the government budget have a significant effect on other countries too.

The current research done by Taha (2013) in Malaysia focused on tax revenue collection activities. The empirical result showed that the tax revenue collection exert a significant impact on stock market return. Since tax revenue is the main component of the government budget, the author advised that to promote stock market activities, fiscal policy authorities in Malaysia should be enhanced.

From the previous literature review, it was found that there are many researches done on the western country about the effect of federal budget on stock market return. However, there is lack of study on the developing countries in Asia.

2.1.3 Inflation rate

There are numerous empirical studies establish that inflation rate has an effect on stock return. Fisher hypothesis have states that the expected rate of return is composed an expected rate of inflation plus a real return. (Ali and James, 2001; Kim, 2003) So, stock returns should be positively related to the expected inflation

according to the Fisherman theory of interest. (Robert and Richard, 1983) Many researchers have conducted this proposition to common stocks.

Mishkin and Simon (1995) found that the Fisher effect don't holds for interest rates in the short run but holds in the long run in Australia. Ali and James (2001) have found a negative response six countries which are US, Canada, UK, France, Germany and Japan in the short run of stock prices to an inflation shock. However, the long-run relation turn to be positive and permanent by employed the augmented Dickey-Fuller (ADF) unit root test. The result is in line with Alagidade and Panagiotidis (2010) who's found out that there is an initial negative relationship between inflation and stock return in Egypt and South Africa, which turns positive in long run. Another researcher, Crosby (2001) have also found a result which is similar result, suggest that the negative relationship between stock return and inflation is in a short run by using simple statistical technique and the result will depend on the time period considered.

In conjunction with the fisher hypothesis, empirical studies have shown a significant negative correlation between inflation and stock returns. (Kim, 2003) For example, Fama and Schwert (1977) have found that stock return has negative relationship with the expected inflation rate. According to Balduzzi (1994), Fama have outlines "proxy hypothesis" to determine the negative relationship between stocks return and inflation rate. "Proxy hypothesis" stated that high inflation rates anticipate low growth rate of aggregate economic activity and high stock return anticipate high growth rates of aggregate economy activity. So, inflation and stocks return are driven in opposite directions. Besides, Gultekin (1983) also found results that did not support the Fisher hypothesis as he did not found a much reliable positive relationship between nominal stock returns and inflation rate, the regression coefficients are predominantly negative. Kim (2003) had found a correlation between inflation and stock return is negative and highly significant by using modified concept of Granger-(non)causality test.

On the other hand, Du (2006) found that the relationship between inflation and stock returns depends on both the demand and supply shocks and monetary policy regime. Du (2006) found that there is a positive relationship between inflation and

stock return is due to strongly pro-cyclical monetary policy. Kaul (1987) have support this explanation. Kaul (1987) have provided evidence that there is a positive relationship between inflation and stock return when monetary policy was pro-cyclical, and negative relationship when the monetary policy was counter-cyclical. Du (2006) also indicates that supply shocks showed a negative relationship between inflation and stock return, while demand shocks result as positive. In addition, Kaul and Seyhun (1990) have found that the negative relationship between expected and unexpected inflation and stock returns is due the negative effect of relative price variability on the stock market. The relative price variability on stock market is largely reflected by the supply shocks.

As conclusion, according to past researchers, inflation rate have both positive and negative effect on stocks return.

2.1.4 Interest Rate

Interest rate serves as one of the common tools in monetary policy used by government of a country to control the money supply in its market. Interest rate is determined by central bank of each country to suit its current economic condition. Based on a set of early researches done by Fama & Schwert (1977), Geske and Roll (1983), Glosten, and Jagannathan (1989), it is suggested that interest rate is one of the significant variables in affecting stock returns.

Vector Autoregressive Regression (VAR) model and Johansen co-integration test used by the study of Mashayekh et al. (2011) in Iran showed that bank deposit rate is negatively related to stock return as stock market and money market are competitors. Higher interest rate induces investors to keep their money in fixed deposit rather than investing in risky stock market. Thus, profitability of firms will decline and so does stock price. (Zafar, Urooj & Durrani, 2008). These results are consistent with the study of Campbell (1987), Shanken (1990), N.dri. Konan Leon (2008).

Maysami, Lee & Hamzah (2004) found a negative relationship between stock price and interest rate. They explained that many investors borrow money from financial institutions to invest, thus when interest rate increase, cost of borrowing will increase as well. Investors will therefore ask for higher required return. This would affect the demand of stock negatively and thus cause for a fall in stock price. Maysami et al. (2004) also found that both long-term and short-term interest rate have significant mixed result respectively in Singapore stock market. This finding is similar with Maysami & Koh (2000) who obtained a positive relationship between short-term interest rate and Singapore stock market but a negative one for long-term rate.

In the study of Eita (2011), data from 1998 to 2009 was used to examine the determinants of stock market price in Namibia. By conducting Johansen's (VAR) multivariate cointegration, it is found that interest rate which is proxied as Treasury bill rate affect the stock prices negatively. Eita (2011) further explained that if contractionary monetary policy is implemented through increasing interest rate, value of cash flow after discounted will reduce. Thus, it will make stock investment less attractive and stock prices fall.

From another point of view, Mashayekh et al (2011) also found that bond interest rate and stock return are positively related although both markets are competitors as well. According to Mashayekh et al. (2011), many listed companies in Iran invest in the bonds market, thus an increase in bond return will lead to an increase in companies' return. And when companies' return increase, stock price and stock return will be maximized too.

Furthermore, Alam & Uddin (2009) have studied the market efficiency of 15 developed and developing countries. Tools of stationarity of stock price are used to test the randomness of market. Also monthly data of bank deposit rate and stock market index were collected from year 1998 to 2003 in their study. According to Alam & Uddin (2009), the argument of negative relationship between prevailing stock price and interest rate is not rejected as an overview. Attractively, the result obtained for Malaysia showed that interest rate has no relationship with stock price, but interest rate changes have significant negative

impact on changes in stock price. In most of the countries sampled, interest rate is found to have negative relationship with stock price, except in Japan where interest rate found to be positively impact on stock price. This result is aligning with the earlier study of Elton & Gruber (1988) who found a positive relationship between short-term interest rate and Japanese stock prices. However, the results are contradicted with the study of Murkhejee & Naka (1995) who found a negative relationship between stock price and interest rate in Japan.

Furthermore, surprisingly the study of Kurihara & Nezu (2006) showed a differ result with the rest of the researches. In their study, it is found that there was no significant relationship between stock price and interest rate in Japan. It is explained that Japan has implemented unprecedented monetary easing by setting the interest rate almost to zero, thus in this case interest rate can hardly affect the stock market. Moreover, quantitative easing scheme was adopted by Central bank of Japan in 2001 to cease the deflation. This policy brings positive impact on stock market as money supply in the market has increased. Besides this, Sohail & Hussain (2009) who studied the relationship between stock price and interest rate in Pakistan with Johansen co-integration and Vector Error Correction Model (VECM) has found positive but insignificant relationship between 3-month Treasury bill rate and stock prices in the long run.

2.1.5 Foreign Exchange Rate

Foreign exchange rate is important in determining the stock return. In world of finance, stock returns are said to be uncertain at all times and volatility determines the stock return fluctuation. This shows that stock are very sensitive to foreign exchange risk (Kolari, Moorman & Sorescu, 2008). The stock prices able to adjust dramatically and stock market volatility is likely to increase (Bialkowski, Gottschalk & Wisniewski, 2008). In the case of stock market volatility, it causes much uncertainty in the stock market and posting much risk as the market volatility is high.

Many large companies tend practice stock hedging as they fear their stocks exposure to the market risk. Firms will be exposing to the foreign exchange rates and significant exposures are more frequent at longer terms (Sohnke M. Bartram, 2007). The result shows that exposures based on aggregate cash flows were similar to exposures based on stock prices. However, on the author latest research (Sohnke M. Bartram & Gordon M. Bodnar, 2012) argue that the exposure on stock return by exchange rate is conditional and result as there is a significant return impact to a firm-level currency exposure when conditioning on the exchange rate changes.

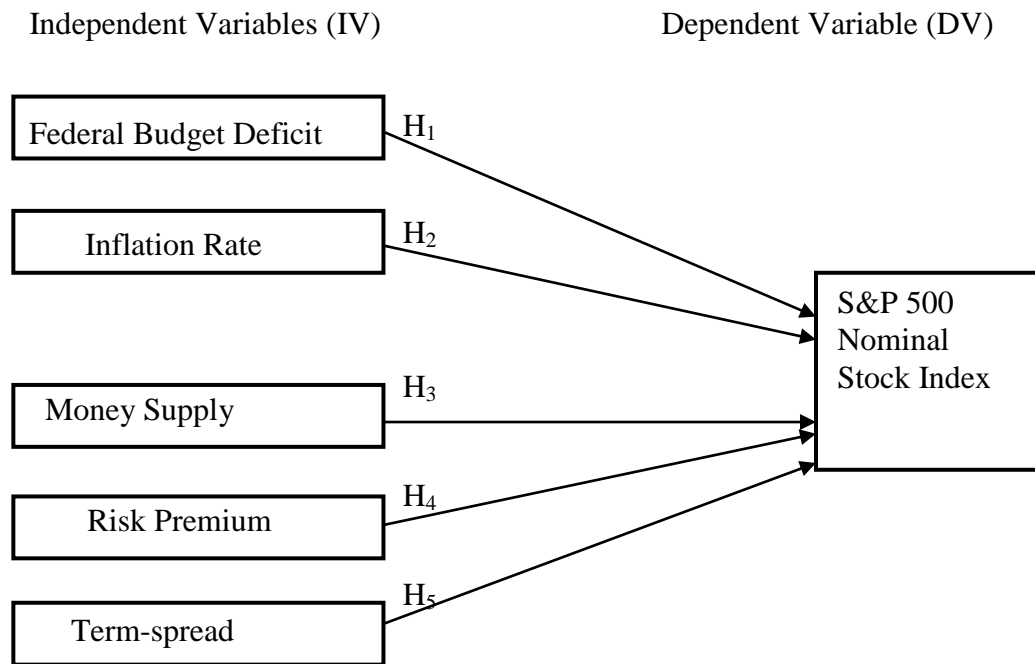
In theory, foreign exchange rate causes stock market return to fluctuate. According to (Pan, Fok & Liu, 2007), their research generate a significant causal relation from exchange rates to stock prices from Malaysia, Hong Kong, Thailand, and Japan before the 1997 Asian financial crisis. The impact of foreign exchange rate tends to change the stock market return as the exchange rate changes. In other words, exchange rates and stock market returns are related (Georgios Katechos, 2011).

The foreign exchange risk is one of the factors that determine the share price for foreign investments today. According to basic theory, the higher the risk of foreign exchange risk, the higher the return or none. Malaysia has made many investments ranging from Asia to Europe and America. Once the investment is made, foreign exchange risk automatically exists. The government plays a role in managing the foreign exchange risk in order to protect the country's growth and financial stability. There are types of exchange regime that the government adopts in order to achieve goals, example using the flexible regime. A stable environment with high degree of accountability is conducive to choose a flexible regime Kimakova (2008).

2.2 Review of Relevant Theoretical Models

Figure 2.2 stated the relationship between the five variables which are federal budget deficit, inflation rate, money supply, risk premium and term-spread of 3-month Treasury bill and the S&P nominal stock index.

Figure 2.2: Conceptual Framework of Fiscal policy and Stock Market Efficiency



2.2.1 Capital Asset Pricing Model (CAPM)

Capital Asset Pricing Model (CAPM) is a commonly used pricing model in determining the required return of a security given certain level of risk. CAPM was developed by Jack Treynor (1962), William Sharpe (1964), John Lintner (1965) and Jan Mossin (1966) in the 1960s. CAPM introduces the assets pricing theory of William Sharpe and John Lintner (Fama & French, 2004). It is an extension of the earlier modern portfolio theory proposed by Harry Markowitz.

The model takes into account the non-diversified risk also known as systematic risk, expected market return and expected return of a risk-free asset.

There are several assumptions highlighted in using CAPM. First, all investors are having one identical holding period. Second, all investors are price-takers and can borrow any amount of money at risk-free rate. Third, there are no transaction costs or distortionary taxes on trades of securities. Fourth, all investors are mean-variance optimizer; they use the Markowitz portfolio model to generate efficient frontier. Last, all investors have homogeneous expectations on expected returns, variances and covariance among the assets.

CAPM stipulates that the expected return on stock is a function of the two components of required return, which are risk free rate and risk premium. The formula of CAPM is illustrated as follow:

$$E(R_i) = R_f + \beta_i [E(R_m) - R_f]$$

Where,

$E(R_i)$ = required return on asset i

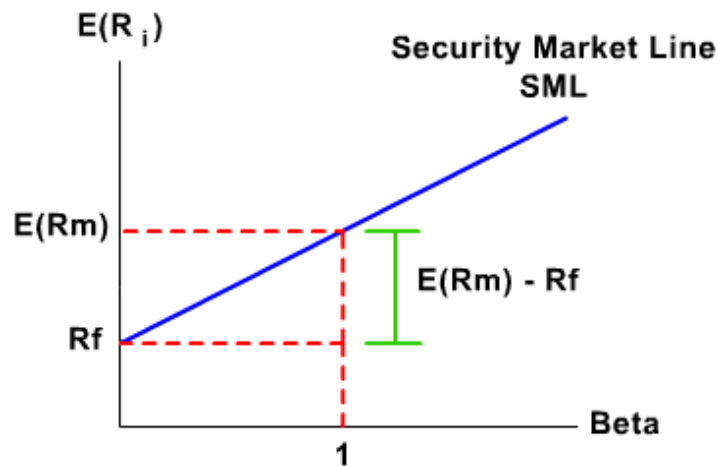
R_f = risk-free rate of return

β_i = sensitivity of expected return of asset i to the expected market return

$E(R_m)$ = expected market return

$E(R_m - R_f)$ is also known as risk premium

The Security Market Line (SML) graphs the result from CAPM formula as follow:

Figure 2.2.1 CAPM model

From Figure 2.2.1, the x-axis represents beta while the y-axis represents the expected return. The market risk premium is determined from the SML slope.

CAPM remains its popularity due to its simplicity. However, the CAPM might not be empirically testable. According to Roll (1977), market portfolio in practical should take into account all types of assets held by any investor including real estate, foreign assets and human capital. In real world, market portfolio is hard to be accurately observed and the substitution of stock index as proxy for true market portfolio is not significant, thus usefulness of CAPM may be doubted due to false inferences. Besides this, Fama & French (2004) claimed that the relation between average return and beta is flatter than estimation in Sharpe-Lintner version of the CAPM although there is positive relationship between risk and return as shown in CAPM. This evidence is supported by Friend & Blume (1970), Black et al. (1972) and Stambaugh (1982).

Furthermore, there are few implications associated with CAPM. According to Perold (2004), one of them is the expected return of a stock does not depend on its stand-alone risk, but also depend on its sensitivity towards expected market return. Besides that, beta offers a technique of measuring the non-diversifiable risk of a security. Lastly, in CAPM, a stock's expected return does not depend on the firm's growth rate and its expected future cash flow as CAPM only take into account beta of the firm's stock in computing expected return.

2.2.2 Arbitrage Pricing Theory

The Arbitrage Pricing Theory (APT) was developed by Steven Ross in 1976. APT is a linear equation that consists of a series of input variables are then assigned to the betas to determine the expected return of target assets.

The Arbitrage Pricing Theory (APT) is advanced as a superior alternative to Capital Asset Pricing Model (CAPM). (Bower, Bower and Logue, 1984; Groenewold and Fraser, 1997; Gur, 2005) Groenewold and Fraser (1997) stated that the CAPM show a low explanatory power, overestimates the risk-free rate and underestimates the market risk premium. So, APT can overcome the weaknesses of CAPM. According to Bower, Bower and Logue (1984), APT is the better choice compare to CAPM because APT able to explain a larger share of return variation among the securities used in the process of estimation than CAPM. In addition, APT is efficient at forecasting return on securities excluded from the estimation process than in CAPM.

The APT formula is:

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

Where:

$E(r_j)$ = the asset's expected rate of return

r_f = the risk-free rate

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

RP = the risk premium associated with the particular factor

However, Groenewold and Fraser (1997) stated that APT still has weaknesses over CAPM which it unable to explain variation in assets returns in terms of a limited number of identifiable factors. Factors are artificially generated using principal components analysis or factor analysis and therefore have no 'real-world' interpretation at all.

2.2.3 Effective-Market Hypothesis (EMH)

In effective market hypothesis (EMH) is a back-breaker for investor to making forecasting. This theory asserts that the market is efficient and the stock price is respect to the information available, Adrew, W.L (2007). EMH can be a useful method for investor to analyzing or predict the future security prices Mockus,J& Raudy.A(2010).

Based on Jensen (1978) & Malkiel (1992) both are closely define on market efficiency theory is an efficient capital market and it accurately reflects all relevant information in determining the security prices.

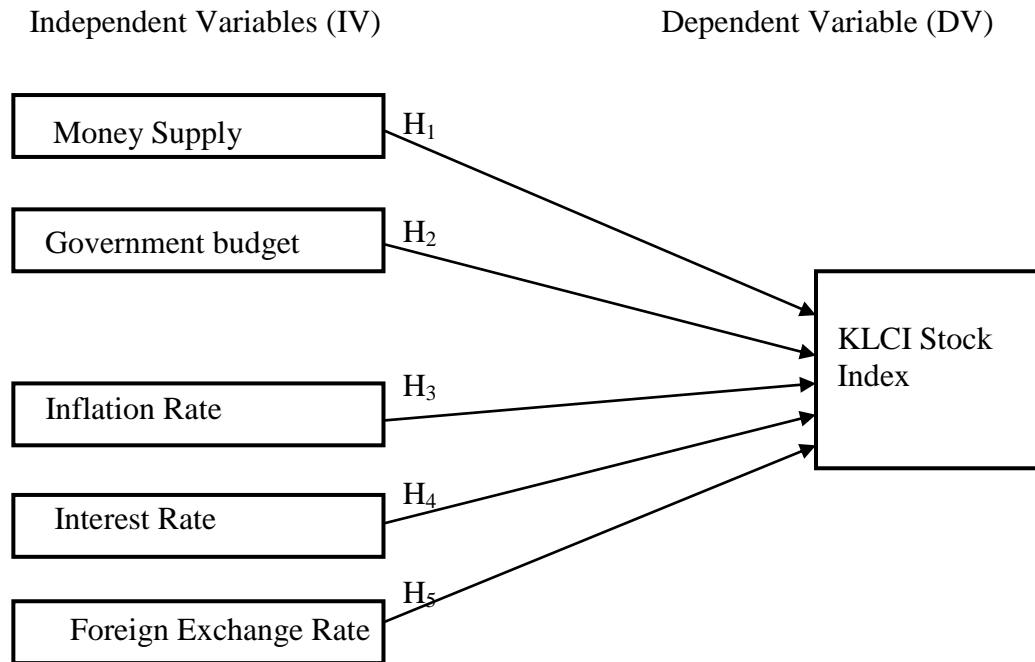
Financial economists generally identify three form of market efficiency, based on the different set of information which might be change the future stock prices. Firstly, is the weak form efficient market hypothesis, this hypothesis assumes that the prediction is according to the past data or historical information. Weak form EMH implied that technique analysis, this is difficult for investor to forecast future price. Moreover, investors are not allowed to earn abnormal profit.

Secondly, semi strong form efficient market hypothesis, this hypothesis assumes that the security current prices is reflect to the past data and public available information. Example of public information is the company dividend or stock splits announcements, P/E ratio, political news or economy news. Based on this hypothesis do not mean that investor can earn extraordinary return.

Lastly, is strong form efficient market hypothesis, the security current prices reflect of the historical data, public information and private information. In this strong form EMH investor are possible to earn abnormal return, this is because investor can according their insider information of the firm to make their prediction. Market efficiency theory can determine the 'real time' and establishing the opportunities to make profit (Timmermann, A. & Granger, C.W.J, 2004)

2.3 Proposed Theoretical Framework

Figure 2.3: Framework of factors affecting KLCI stock index from 2003 to 2012



2.3.1 Money Supply

According to the source from Central Bank of Malaysia (2013), in Malaysia the latest amount of money supply M3 in June 2013 is RM1, 420, 610.0 million which has a slightly increase from May 2013, RM 1,420,387.3 million. Besides, the amount of money supply in June of 2013 also the highest record compare to previous data, however the lowest record of RM 8313.40 million in December of 1973. From 1973 until 2013, Malaysia averaged money supply M3 are RM 462, 247.67 million (Trading Economic, 2013).

Based on Friedman’s (1961), found that an increased of money supply will lead a negative effect to the interest rate. This can be determining that rationale investors will prefer invest rather than saving. Therefore this will bring a positive impact to the stock price (Sara, A. & Shokoofeh, F, 2008). Besides, increases of money supply significant effect on liquidity. This indicate that when the money supply increase this will lead to high liquidity, when there are excessive of money in the

economy share price also will be increase. Ariff, M., Chung, T & Shamsher, M (2012) finding support that liquidity effect on share price.

In short, due to there are a number of studies found that money supply is positively effect of the stock return, therefore we expect that the relationship between money supply and stock return is positive.

2.3.2 Government Budget

Government budget refer to the amount by minus the payment collect by government with the spending of the government. When the spending is higher than the revenue received, it is called federal budget deficit. Malaysia recorded a federal budget deficit 4.5 percent of gross domestic product (GDP) in 2012. Federal budget deficit of Malaysia have an average of -2.89 percent of GDP and reach its highest at -2.4 percent of GDP in 1997 and lowest at -6.70 percent of GDP in 2009 (Trading Economics, 2013).

In general, when the government announced a large budget deficit, the interest rate will rise (Laopdis, 2009). This is because when the government at a budget deficit, it need to attract more private sector to invest in Treasury bond. To attract the investment from private sector, the government will have to increase the interest rate. However, if the private sector purchase of government bond did not increase one for one with the higher deficit, the government will need to borrow more money and this lead to lower money to finance the private sector's project. This situation is refers as "crowding-out" effect. (Jamal, 2007) When the interest rate rises, the stock price will be lowered. With the stock price lowered, the stock market index consist of the individual stock will also drop and the stock market return reduced.

Hence, it is proposed that the government budget have significant result on stock market return and the deficit of the budget have negative relationship with the stock market return.

2.3.3 Inflation rate

According to Trading Economics (2013), the inflation rate in Malaysia was recorded at 1.80% in June of 2013 and remains unchanged. The Malaysia inflation rate is reported by Department of Statistics Malaysia. The inflation rate remains unchanged as government subsidies prevented higher food price increases ahead of Muslim month of Ramadan.

Inflation is the rise in the services and cost of goods which results in a fall in the purchasing power of a monetary unit, like Ringgit Malaysia. Inflation will cause instability in Malaysia Ringgit and slow down economy as people will reduce their spending. As a result, stock price will be affected as a result of economy instability. To tame inflation, the government usually will increase interest rate. When interest rate is high, people will find it expensive to borrow and the money supply will reduce. So, the high interest rate will cause people to acquire a high return from stock market. If people unable to get a high return in stock market, they will reduce their investment in stock market and shift to invest in bond market and treasury bill or bond which have a lower risk.

Hence, this paper expected negative relationship result between stock price and inflation rate. (Fama and Schwert, 1977; Gultekin, 1983; Kim, 2003)

2.3.4 Interest Rate

According to Trading Economics (2013), the Malaysia interest rate benchmark was last recorded at 3% as reported by Bank Negara Malaysia (BNM). Specifically, Malaysia interest rate average 2.92% from 2004 until now, where highest of 3.5% reached in November of 2008 and lowest of 2% in February of 2009. In Malaysia, interest rate is decided by the Central bank, which is Bank Negara Malaysia (BNM).

If interest rate increases, people will tend to save money into bank or invest in other government risk-free securities such as bonds rather than investing in risky stock market. Besides that, as interest rate increase, cost of borrowing will tend to increase while value of cash flow after discounted tend to reduce, making investment less attractive to investors. Thus, stock price will fall in consequences. These explanations are supported by Zafar, Urooj & Durrani (2008), Maysami, Lee & Hamzah (2004) and Eita (2011).

From most of the studies done by previous researchers, the hypothesis of interest rate negatively related to stock market is not rejected unless a country implements zero interest rate policy. If the interest rate is almost zero, it hardly impacts the stock market at all, thus an insignificant relationship is found in this case (Kurihara & Nezu, 2006).

Hence, we expect that the relationship between stock price and interest rate is negative. Decrease in the interest rate is favorable to stock market and vice.

2.3.5 Foreign Exchange Rate

The relationship between foreign exchange rate and stock return is positive. Based on the theory by previous researcher, most of them generate the result of positive relationship between stock return and foreign exchange rate.

The reason why we propose this theory is because foreign exchange rate indicates the value of one country currency which either it increases or decreases in the value compare to before. Which means that foreign exchange rate can determine the value of the country currency which is related to the stock return in the country. As the exchange rate increases, the stock return will increase as well. Therefore, there is a positive relationship between stock return and foreign exchange rate.

According to Pan, Fok & Liu (2007) stated that when the local currency appreciates the foreign demand of an exporting firm's products decreases, the firm's profit will decline and also its stock price will decrease. Besides, stocks are most sensitive to foreign exchange risk (Kolari, Moorman & Sorescu, 2008). Georgios Katechos (2011) also suggest that exchange rates and global stock market returns are related.

2.4 Hypotheses Development

2.4.1 Money Supply

H_0 : There is no relationship between stock return and the money supply (MS).

H_1 : There is relationship between stock return and the money supply (MS).

There are many studies has been examined the relationship between the money supply and stock return variable. According to Sellin (2001) examine that there are a positive relationship between the money supply and stock return. This can be explain when the money supply increase the economic activity of country will be more increase, therefore the stock return will be rise. While Effa, Ariff & Khalid (2011), had obtained a same result to indicate that when the money supply increased it will make the investor have excess of liquidity, thus investor will tend to invest more, and the stock price increases as well. However, there have a conflict of result on the research outcome, Pearce and Roley (1985) has found that there are a negative result between the money supply and the stock return. Therefore in this study, purpose to further carry out a empirical test on it. In short, we reject H_0 mean that there are no relationship between the stock return and money supply.

2.4.2 Government Budget

H_0 : There is no relationship between the stock return and government budget.

H_1 : There is relationship between the stock return and government budget.

Darrat and Brocato (1994) had research on the impact of government budget on stock market efficiency and the findings showed that the government budget poses a significance lagged impact on U.S stock market. Ewing (1998) then extend the study by examine the relationship between federal budget deficit and stock price movement. The finding shows the size of past budget deficit exert a significance effect on stock price movement. It was proposed that budget deficit place an upward pressure on the interest rate. With interest rate rising, the stock price will be lowered. In conclusion, this paper rejects H_0 to show that the federal budget deficit have relationship with stock market performance.

2.4.3 Inflation Rate

H_0 : There is no relationship between stock return and inflation rate

H_1 : There is a relationship between stock return and inflation rate

The relationship between stock return and inflation rate has been investigated by many researches and they have found contrast result. According to Fisher hypothesis that formalized in 1930 have found out that stock return should be related to inflation positively. (Robert and Richard, 1983) The Fisher hypothesis result is in line with Anari and Korali (2001) studies whereby there is a positive and one-to-one relationship between stock price and inflation. On the other hand, there are a large number of evidence indicates that the stock price tend to perform poorly during inflation period. (Fama and Schwert, 1977 & Kim, 2003 & Cosby, 2011) In conclusion, this paper rejects H_0 and saying that there is a relationship between stock return and inflation rate.

2.4.4 Interest Rate

H₀: There is no significant relationship between stock return and interest rate (IR).

H₁: There is a significant relationship between stock return and interest rate (IR).

On theoretical point of view, interest rate is expected to have negative relationship with stock return. A rise in interest rates will cause stock prices to fall (El-Nader & Alraimony, 2012). The reason behind is, an increase in interest rate will lead to an increased return on government assets, investors will switch their asset allocations from equity market to government securities, thus causing a decline in stock price. Zafar, Urooj and Durrani (2008) proposed that when there is an increase in interest rates, people will deposit their savings in bank rather than invest in stocks, thus causing share price to fall and subsequently decline in stock returns. Thus, these papers reject H₀ meaning that there is a relationship between the stock return and interest rate.

2.4.5 Foreign Exchange Rate

H₀: There is no relationship between Stock Return and Foreign Exchange Rate.

H₁: There is a relationship between Stock Return and Foreign Exchange Rate.

Generally, stock return and foreign exchange rate is strongly linked (Georgios Katechos, 2011). Stock return can be affected by foreign exchange rate. This can be explain by simple economics principle where a country exchange rate increases will cause the stock return increases despite taking into account the company's performance of a particular stocks. Stock return increases as a result of good economy. The effect of exchange rate exposure towards stock return is conditional (Sohnke M. Bartram & Gordon M. Bodnar, 2012). In this research, we reject H₀ as there is a relationship between stock return and foreign exchange rate..

2.5 Conclusion

In summary, chapters 2 had review and contrast the previous research done by the researchers on government policy effect on stock market return. Besides, the theoretical framework had been derived and proposed. Lastly, a logical reasoning on the hypothesis had been develop and discussed in chapter 2. Table 2.5 show the summary of the literature review in chapter 2.

Table 2.5 Summary of Literature Review

Independent variable	Result
Money supply	Significant : Sellin & Peter (2001) negative relationship -Sellin (2001) positive relationship - Maskay,B.(2007) positive relationship - Sara, A.& Shokoofeh, F (2008) positive relationship - Babak, M.(2012) positive relationship Insignificant:NIL
Government budget	Significant: Darrat & Brocato (1994) -Lee (2004) -Laopodis (2009) negative relationship in term of deficit -Ewing (1998) -Taha (2013) Insignificant:NIL
Inflation Rate	Significant : -Robert and Richard (1983) positive relationship -Du (2006) negative relationship -Ali & James (2001), Crosby (2001) and Alagidade & Panagiotidis (2010) Negative relationship in short-run. However, the long-run relationship turns to be positive. -Fama and Schwert (1977) negative relationship

	<ul style="list-style-type: none"> -Gultekin (1983) negative relationship -Balduzzi (1994) negative relationship <p>Insignificant: NIL</p>
Interest Rate	<p>Significant:</p> <ul style="list-style-type: none"> - Mashayekh et al. (2011) Negative relationship - Zafar, Urooj et al. (2008) Negative relationship - Campbell (1987) Negative relationship - Shanken (1990) Negative relationship - N.dri. Konan Leon (2008) Negative relationship - Murkhejee & Naka (1995) Negative relationship - Alam & Uddin (2009) - Elton & Gruber (1988) Positive relationship - Maysami, Lee & Hamzah (2004) Mixed relationship - Maysami & Koh (2000) Mixed relationship - Eita (2011) Negative relationship - Mashayekh et al (2011) Positive relationship
Foreign Exchange Rate	<p>Significant:</p> <ul style="list-style-type: none"> -Kolari , Moorman & Sorescu (2008) Negative Relationship -Bialkowski, Gottschalk & Wisniewski (2008) -Sohnke M. Bartram (2007) -Sohnke M. Bartram & Gordon M. Bodnar (2012) -Pan, Fok & Liu (2007) Negative Relationship -Georgios Katechos (2011) Positive relationship -Kimakova (2008) - A. Bakay & M. Moqbel (2012) Positive Relationship - Chun Tsai (2012) Negative Relationship

CHAPTER 3: METHODOLOGY

3.0 Introduction

Total of five variables are use to examine their effect on the stock return (measured by KLCI) in this paper. The frequency used in obtaining the variables is quarterly based from year 2003 to year 2012. There are total of 40 observations for each variable. The purpose of using quarterly data is to avoid high volatility if we use monthly or weekly data instead. On the other hand, high frequency data might lead to an inaccurate estimation for long-term period. All the five variables are obtained from Datastream.

3.1 Research Design

This paper involves series of empirical techniques for quantitative research. For each set of dependent and independent variables, 40 observations are obtained from the same source. E-views 6 software is used to run series of empirical method in order to study the relationship between the variables.

3.2 Data Collection Method

This paper is primarily focus on the secondary data which are obtained from the data stream database. Time-series data are applied in this study. There will be 40 observations for each variable in the paper. The rationale of applying quarterly data is mainly to avoid high volatility result that could affect the estimation result. Besides, quarterly data is more reliable due to lower volatility.

3.2.1 Secondary Data

The time series data period cover from January 2003 to December 2012 for the independent variables of money supply, government budget, inflation rate, interest rate, and foreign exchange rate and dependent variable of stock return. All of these data are obtained from the data stream database.

Table 3.2.1: Source of Data

Variables	Proxy	Explanation	Units	Source of Data
Stock Return	KLCI	Composite market index in Malaysia	Index	DataStream
Money Supply	MS	Money circulation in Malaysia market	RM million	DataStream
Government Budget	GB	Funding level by Malaysia Government	RM million	DataStream
Inflation Rate	CPI	The rate of inflation in Malaysia	Index	DataStream
Interest Rate	INT	Fixed deposit rate of one-month in Malaysia	Percentage (%)	DataStream
Foreign Exchange Rate	EXCHG	Exchange rate of Malaysia currency for foreign currency	RM/ \$	DataStream

3.3 Sampling Design

3.3.1 Target Population – Malaysia

This study mainly target on the Malaysia Financial Stock Market (FTSE). This research intends to estimate the relationship of the independent variables and the stock performance in Malaysia. The Kuala Lumpur Composite Index (KLCI) consists of the top 30 companies that comply with the requirements. Since 1964, Bursa Malaysia was recognized as the company which managing the exchanges transaction in Malaysia. Currently Bursa Malaysia is known as FTSE Bursa Malaysia KLCI which plays a role as a precise indicator of the Malaysia stock market alongside with the international economy. Besides, FTSE Bursa Malaysia poses a huge impact in enhancing and expanding the Malaysia capital market. By actively adapt to international update, Bursa Malaysia provide a competitive services and had expand the market rapidly.

3.3.2 Sampling Frame and Sampling Location

Table 3.3.2: Sampling Frame – List of companies

1. Malayan Banking Berhad	16. PPB Group Bhd
2. Sime Darby Berhad	17. AMMB Holdings Bhd
3. CIMB Group Holdings Berhad	18. Telekom Malaysia Bhd
4. Petronas Chemical Berhad	19. Petronas Dagangan Bhd
5. Public Bank Berhad	20. YTL Corporation Bhd
6. Maxis Berhad	21. RHB Capital Bhd
7. Axiata Group Berhad	22. British America Tobacco Malaysia
8. Genting Berhad	23. YTL Power International Bhd
9. IOI Corporation Bhd	24. Hong Leong Financial Group Bhd
10. Tenaga National Bhd	25. Bumi Armada Berhad

11. Petronas Gas Bhd	26. AirAsia Berhad
12. DIGI.COM Bhd	27. UEM Land Berhad
13. Kuala Lumpur Kepong Bhd	28. MMC Corporation Berhad
14. Hong Leong Bank Berhad	29. Malaysian Marine Heavy Engineering Berhad
15. Genting Malaysia Berhad	30. UMW Holdings Berhad

Companies listed in table 3.3.2 are the companies that fulfill the 2 requirement of FTSE Bursa Malaysia Index as mentioned before which are the free float and liquidity requirements. The 30 companies listed in FTSE Bursa Malaysia Index are the sample frame for this research. The sampling location is FTSE Bursa Malaysia which is located in Kuala Lumpur Malaysia. The 30 companies are all located in Malaysia.

3.3.3 Sampling Elements

In the study, Kuala Lumpur Composite Index (KLCI) is used as a sampling to measure the stock return. KLCI consist on the top 30 stock listed in main board by full capitalization that meets the ground rules of FTSE Bursa Malaysia. According to FTSE Bursa Malaysia KLCI (2013), FTSE uses the real time and closing price from Bursa Malaysia to calculate the FTSE Bursa Malaysia KLCI which based on real time basic every 15 seconds. The calculation is based on the value weighted formula and adjusted by the free float factor. All indices will be display in two decimal places in the calculation. The FTSE Malaysia KLCI is calculated using the following formula:

$$\sum_{i=1}^n \frac{(p \times e \times s \times f \times c)}{d}$$

Where,

- $i = 1, 2, \dots, N$

- N is the number of securities in the Index
- p is the latest trade price of the component securities (or the price of the close of the index on the previous day)
- e is the exchange rate required to convert the securities currency into index's base currency.
- s is the number of share issue used by FTSE for the security, as defined in this ground rule.
- f is the Investability Weighting Factor to be applied to a security to allow amendments to its weighting, expressed as a number between 0 and 1, where 1 represents a 100% freefloat. This factor is published by FTSE for each security in the underlying index.
- c is the Capping factor to be applied to a security to correctly weight that security in the index. This factor maps the investable market capitalization of each stock to a notional market capitalization for inclusion in the index.
- d is the divisor, a figure that represent the total issued share capital of the index at the base date. The divisor can be adjusted to allow changed in the issued share capital of individual securities to be made without distorting the index.

Source: (FTSE Bursa Malaysia Index Series, 2013)

3.3.4 Sampling Technique

In the study, E-views had been chosen as the tool to analyze the data. E-views had establish a well known reputation in analyze the data in finance and econometric field (E-views, 2013). E-views also widely used by the previous researchers in analyze the information in the study. In this study, several test from e-views will be apply to ensure the validity and robustness of the research. In the aspect of statistical test, Ordinary Least Square (OLS), unit root test and Granger causality test will be applied. On the other hand, Breush- Godfrey Serial Correlation LM test, Arch test, Variance Inflation factor (VIF) and Jarque- Bera test will be apply in the diagnostic area. The detail of these test will then be further explain. These tests had been widely used by previous research on the study and it is necessarily to carry out in study to ensure the information does not contain any error.

3.3.5 Sampling Size

Due to the limited time and resources, this study uses the statistical data from year 2003 to year 2012 as the study period. The study uses the quarterly data as the sampling method and provides a sampling size of 40.

For the stock return sampling size, the FTSE KLCI contain 30 largest stock listed in the Bursa Malaysia. The index will be calculated using formula based on these 30 stock returns and used in the study.

3.4 Multiple Regression Model

Basically, multiple regression models is the extensive of simple linear regression model, it is a statistical process for testing the relationship among the variables. A multiple regression model consists of one dependent variable(y) and more than two independent variables (x_i), and normally the dependent variable (y) will be

‘driven by’ the other of independent variables (x_i). Example of formalizes of multiple regression model as below, Gujarati,D.N,(2009,pg189) :-

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_i X_i + \varepsilon_i$$

Where,

Y	=	Dependent variable
$X_{1,2,3..i}$	=	Independent variables or explanatory variables
β_0	=	Intercept term
$\beta_{1,2,3}$	=	Partial regression coefficients
ε_i	=	Error term

There are 5 independent variables in government policies have been selected by researchers to include in this study, which is money supply (MS), consumer price index (CPI), interest rate (INT), foreign exchange rate (EXCHG) and government budget (GB). However, the dependent variable is the Kuala Lumpur composite index (KLCI), as a stock market return measurement.

By the way, the study had obtained the variables based on quarterly frequency from year 2003 to year 2012 and there are total of 40 observations for each variable. Besides, a log-log regression model has been form in this study, the reason using logarithms of the variables Y and X, is because log-log model can support represent a percentage change in Y for a given (small) percentage change in X, meanwhile when data insert in the scatter plot graphs the $\ln Y$ against $\ln X$, can easily to show a straight line. In another words, log-log model can reduce the gap of data between the variable. Gujarati,D.N,(2009, pg160).

Following is the economic model formed in this research:

Economic Model

$$\ln KLCI_t = \beta_0 + \beta_1 \ln MS_t + \beta_2 \ln GB_t + \beta_3 \ln CPI_t + \beta_4 \ln INT_t + \beta_5 \ln EXCHG_t + \varepsilon_t$$

Where,

In KLCI = Natural logarithm of stock market returns in at t period.

In MS = Natural logarithm of money supply M3 of Malaysia at t period

GB = Government budget of Malaysia at t period

In CPI = Natural logarithm of consumer price index of Malaysia at t period.

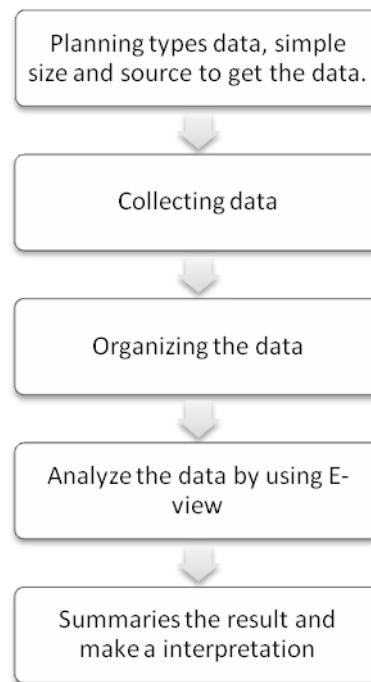
In INT = Natural logarithm of interest rate of Malaysia at t period.

In EXCHG = Natural logarithm of foreign exchange rate of Malaysia at t period.

3.5 Data Processing

Initially, in data processing, researchers plan on which type of data decide to analyze in this study, the number of sample size to be included, and where to get the data. After making a decision, researchers had collected and obtained the useful data from data stream and World Bank. Later on, researchers organized the data, or to make a better sequence arrangement. At the same time, in order to make sure this study consist of accurate and valid data, researchers have taken a several times to check up, edit and do a correction in the data. Next, analyze the data by using Eviews, to carry out empirical test and make diagnostic checking. Lastly, summarize the result and make interpretations.

Figure 3.5: Diagram of Data Processing



3.6 Data Analysis

3.6.1 Statistical Test

This paper test on how money supply, interest rate, inflation rate, foreign exchange rate and government affect the stock return in Malaysia by using time-series method. The three time-series approaches that this paper employs are Ordinary least square, Augmented Dickey-Fuller (ADF) and Granger causality test.

3.6.1.1 Ordinary Least Square (OLS)

Ordinary least square is attributed by Carl Friedrich Gauss. (Gujarati and Porter, 2009) OLS is a statistical technique that uses sample data to estimate the true population relationship between two variables. (Hoyt, 2003) According to

Hutcheson (2011), OLS is applicable to single or multiple explanatory variables and also categorical variables that have been properly coded. So, this study will design a multiple factor model to examine the effect of five government policies on stock market returns by using OLS.

The model is as following:

$$\ln KLCI_t = \beta_0 + \beta_1 \ln MS_t + \beta_2 GB_t + \beta_3 \ln CPI_t + \beta_4 \ln INT_t + \beta_5 \ln EXCHG_t + \varepsilon_t$$

When the model is created, OLS technique was used to found out whether money supply, government budget, consumer price index, interest rate and foreign exchange rate individually had a significant effect on the stock returns or not.

3.6.1.2 Augmented Dickey-Fuller (ADF) Test

Augmented Dickey-Fuller (ADF) Test was developed by Dickey and Fuller in 1979 to examine the existence of unit root. (Gillas, Pagalou & Tsafaraki, 2006) This test is broadly used in the academia to examine the stationary of the time series and determine the integration order of non-stationary time series. (Masood, Aktan & Chaudhary, 2009)

H_0 : Y_t is non-stationary (Y_t has unit root), $\delta = 0$

H_1 : Y_t is stationary (Y_t has no unit root), $\delta \neq 0$

If test-statistics is more than critical value, H_0 will be rejected, means that unit root does not exist, the value series is stationary. However, if test-statistics is less than critical value, H_0 will not be rejected, means that unit root exists, value series is non-stationary.

3.6.1.3 Granger Causality Test

Granger causality test was developed by Granger in 1969. Granger stated that if the variables consist of causal relationship, these variables can be used to

anticipate each other's. (Ali et al, 2010) According to Masood, Aktan and Chaudhary (2009), Granger causality test is used to determine whether the past value of series of X_t will help to predict the value of another series of Y_t taking into account the past value of the previous value of Y_t .

H_0 : X does not Granger cause Y.

H_1 : X does Granger cause X.

Reject H_0 when test statistics is greater than critical value. This shows that there is a causal relationship between the two variables. Otherwise, do not reject H_0 .

3.6.2 Diagnostic Checking

In order to make sure the estimated result in this study is precise and reliable, diagnostic checking is vital to be carried out. Diagnostic checking is an essential tool for time-series modeling to prove the adequacy of the regression model. There are several econometric problems that might be encountered in this study model namely multicollinearity, heteroscedasticity, autocorrelation and normality distribution. Thus, specific diagnostic tests will be run to detect each of the problems respectively.

3.6.2.1 Variance Inflation Factor (VIF)

Multicollinearity is a problem that normally exists in cross sectional data or time series data or even both. This problem occurs due to existence of linear relationship among some or all independent variable. Multicollinearity exists in almost all Multiple Linear Regression model with more than one independent variable. However, only serious multicollinearity will lead to invalid estimation result. Thus, VIF is introduced to check on the degree of multicollinearity. The formula of VIF is illustrated as follows:

$$VIF = \frac{1}{1 - R^2_{x1,x2}}$$

Correlation between variables (x_1, x_2) is computed with Eviews and converted to be R-square then was plugged into VIF formula above to find out the degree of seriousness. The indication of seriousness in multicollinearity is as follows:

$1 \leq VIF \leq 5$ – no serious multicollinearity

$6 \leq VIF \leq 9$ – mild serious multicollinearity

$VIF \geq 10$ – high serious multicollinearity

Target (2007) suggested that when serious multicollinearity happens, it might cause the insignificant of the important variable and standard error can be larger than its optimal level, subsequently hypothesis testing becomes invalid. However, we only treat the problem as serious if the VIF obtained is more than 10.

3.6.2.2 Autoregressive Conditional Heteroscedasticity (ARCH) Test

Heteroscedasticity refers to error terms in the model do not have constant variance. (Gujarati & Porter, 2009). If heteroscedasticity problem occurs, the variance of error term is not achieved at optimal level; it can be overestimated or underestimated. This will lead t-statistic and F-statistic values to be biased and also the confidence interval and p-value to be not precise. As consequences, estimators will become inefficient. Heteroscedasticity can be detected with several ways. If the sample size is small, informal way (graphical method) will be employed to detect the problem. For big sample size, hypothesis testing will be carried out. Specifically, ARCH test is developed by Engle (1982) and is applied to detect heteroscedasticity problem in time series data. The hypothesis for ARCH test is as follows:

H_0 : There is no heteroscedasticity problem in the model.

H_1 : There is a heteroscedasticity problem in the model.

By looking at Eviews output, we do not reject H_0 if the p-value of F-statistics higher than critical value. For this case, we conclude that there is no heteroscedasticity problem.

3.6.2.3 Breusch-Godfrey Serial Correlation Lagrange Multiplier (LM) Test

Autocorrelation is defined as existence of relationship or correlation between the error terms. (Gujarati & Porter, 2009). Autocorrelation is viewed to be more likely to occur in time series data where error term at period t is correlated with error term at past period $t-1$. The observations follow a natural order over time in time series data; therefore, the successive observations may be influenced by previous observations and form an inter-correlation. This problem appears especially when the data is collected on high frequency, that is daily or weekly data. Same with heteroscedasticity, if autocorrelation problem occurs, variance of errors will not be achieved at optimal level, thus hypothesis testing will be invalid and estimators will be inefficient.

To test serial correlation problem in linear regression model, there are three types of test used to detect which are Durbin-Watson Test (Durbin & Watson, 1950), Durbin's h Test (Durbin, 1970) and Breusch-Godfrey LM Test (Breusch & Godfrey, 1978). For time series data which have higher chance to incur higher orders of serial correlation, Breusch and Godfrey (1978) have developed LM test to suit the case. In addition, the LM test help to regress the residuals on the original regressors and lagged residuals until a specific lag length. The hypothesis for LM test is as follows:

H_0 : There is no serial correlation in the model.

H_1 : There is a serial correlation in the model.

By looking at Eviews output, we do not reject H_0 if the p-value of LM test higher than critical value. For this case, we conclude that there is no serial correlation problem.

3.6.2.4 Jarque-Bera (JB) Test

The assumption of normality of error terms plays an important role in the estimated model, especially in small or finite sample size. If the error terms are

not normally distributed, it will lead to biased result in the estimated model and hypothesis testing is no longer valid. The normality assumption will not only help the researchers in deriving the exact probability distributions of Ordinary Least Square (OLS) estimators but also provide us with valid T-test, F-test and other statistical tests in regression model. (Gujarati & Porter, 2009).

Jarque-Bera test is used to examine whether the error terms in the model are normally distributed or not. Jarque-Bera test is named after Carlos Jarque and Anil K. Bera. This test is carried out by means of computing the skewness and kurtosis measures of the OLS residual with the following test statistic:

$$JB = \frac{n}{6} \left(S^2 + \frac{1}{4}(K - 3)^2 \right)$$

Where n = sample size, S = skewness coefficient, and K = Kurtosis coefficient. The hypothesis of JB test is as follow:

H_0 : Error term is normally distributed.

H_1 : Error term is not normally distributed.

By looking at Eviews output, assume alpha equals to 0.01, we do not reject H_0 if the p-value of JB statistic > 0.01 . For this case, we conclude that the error term is normally distributed.

3.7 Conclusion

In chapter 3, this study have formed a multiple regression model, the macroeconomic independent variables which include money supply, government budget, consumer price index, interest rate and foreign exchange rate while KLCI will be the dependent variable. Besides, in this study researcher have the data from year 2003 to 2012 and each variables of will obtain 40 quarterly data as observations. After that, there are three time-series approaches that this paper employs are Ordinary least square, Augmented Dickey-Fuller (ADF) and Granger causality test. Furthermore, diagnostic checking will be conduct, in order to check

the multicollinearity, heteroscedasticity, autocorrelation and normality distribution. The tests will be carry out in chapter 4 and results will be further elaborate in detail.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

In this chapter, few tests will be carried out to examine the model in the study. The tests carried out are Ordinary Least Square, Unit Root Test, Jarque-Bera Normality test, Variance Inflation Factor, Autoregressive Conditional Heteroskedasticity (ARCH) test, Breusch-Godfrey Serial Correlation LM test and Granger Causality Test. The empirical results will then further explain in detail.

4.1 Ordinary Least Square (OLS)

In this study, Ordinary Least Square method was used after the errors term fulfill the normality test. The result is shown on the table 4.1 below.

Table 4.1 OLS result

Variable	P-value	Expected result	Actual result
LOG(MS)	0.0000	Positive	1.646587
GB	0.7444	Negative	1.01E-06
LOG(CPI)	0.0005	Negative	-4.393672
LOG(INT)	0.0341	Mixed relationship	0.195224
LOG(EXCHG)	0.0021	Negative	-1.354217

According to the Ordinary Least Square (OLS), the variables money supply, inflation rate, interest rate and foreign exchange rate are significant at 5% since the p-values are lower than 0.05. The actual relationship tested from the OLS also aligns with the result from the previous researchers. However, the variable government budget was found out that insignificant at 0.7444. According to Kim and Lombra (1989), the contemporaneous effect of federal budget only occurs

when there are unexpected changes in current or future government debt. Due to this reason, a general or normal announcement of the government budget will not have a huge impact on the market. Malaysia which announced the government budget under a normal condition may not have a huge impact on the market. This may be the reason why the government budget was not significant in the test. This further support by Belo, Gala & Li (2013) which stated that the market will under react to a predictable variation in the term of government spending. This indicates that the market will not react to the news of government budget unless it was unpredictable or undergo a sudden change. On the other hand, the insignificant of the government budget variable might occur because of the functional form of the data. Since government budget consist of government budget deficit and government budget surplus, it contain negative value in the data. While the data was run in E-views, it was unable to change to logarithm form when the data contain negative value. Hence the variable government budget had left without the logarithm functional form, this may led to the insignificant effect on the data. However, the government budget variable did not omitted in this study. This is because there were lots of previous researches focused on the effect of federal budget on stock market performance and found out to be significant. This variable tends to be a very important variable in estimating the effect of government policy on stock market performance. It was very danger if the research omitted an important variable that ought to be included in the model (Jargowsky, P.A 2005). Hence, the variable government budget will be remained in the model.

4.2 Unit Root Test

Augmented Dickey Fuller (ADF) and Phillips Perron (PP)

In order to ensure there is an existence of stationary relationship between the variables and also the model is significant, it is critical to carry out the appropriate tests to check on the degree of stationary of all of the variables. In order to test the stationary properties of evert variables, Augmented Dickey Fuller (ADF) test and Phillips Perron (PP) test at level and first differenced form were carried out as

shown in Table 4.2 and 4.2.1 respectively. The result of the tests takes into account the effect of the case of intercept and trend.

Table 4.2: Unit Root Test for Augmented Dickey Fuller (ADF)

Order of difference	Level	First Difference
	With trend and intercept	
KLCI	-3.088775	-4.464779*
Money Supply	-1.103456	-6.368498*
Government Budget	-7.715930*	-6.479806*
Inflation (CPI)	-3.127036	-6.582455*
Interest Rate	-2.234553	-4.609122*
Foreign Exchange Rate	-2.771259	-6.358570*

*Note: * indicates the rejection of the null hypotheses at 10% significant levels. Values stated represent t-statistics of ADF test. Schwarz information criterion with a lag length of 9 was used in this test.*

Table 4.2.1: Unit Root Test for Phillips Perron (PP)

Order of difference	Level	First Difference
	With trend and intercept	
KLCI	-2.404298	-4.444554*
Money Supply	-0.771059	-12.19969*
Government Budget	-13.33269*	-16.56680*
Inflation (CPI)	-3.191619	-7.098656*
Interest Rate	-1.991246	-4.624600*
Foreign Exchange Rate	-2.771259	-6.366102*

*Note: * indicates the rejection of the null hypotheses at 10% significant levels. The bandwidth for the PP test is based on the Newey-West estimator using the Bartlett kernel spectral estimation method.*

Hypothesis:

H₀: KLCI / MS / GB / CPI / INT / EXCHG is not stationary and has a unit root.

H₁: KLCI / MS / GB / CPI / INT / EXCHG is stationary and do not contain unit root.

According to Table 4.2 and 4.2.1, all variables except government budget are not significant at 10% significance level. Thus, all variables except government budget appeared to be non-stationary and contain unit root in ADF and PP test in the level form. In contrary, in the first differences form, all variables appeared to be significant at 10% significant level as the p-value of all variable are less than 0.10 (Brooks, 2008). As a result, this paper concludes that all the variables turned out to be stationary and have no unit root in the first differences level.

4.3 Granger Causality test

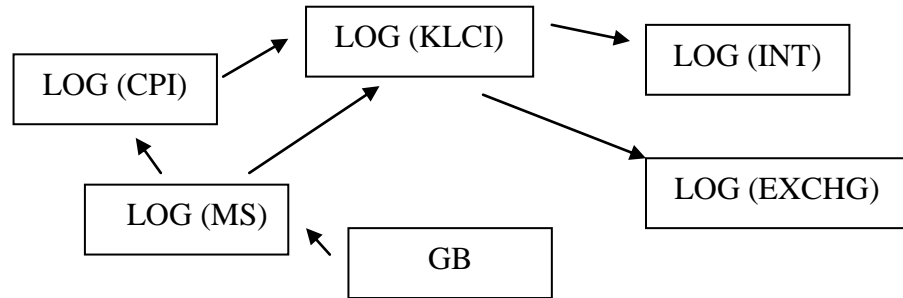
In this research has using the VAR Granger causality test which is proposed by Sir Clive William John Granger, to examine the study’s time series data whether there are causality effects between each variables. Below are the result reported in table 4.3 and figure 4.3.1.

Table 4.3: Summary of P-value of VAR Granger Causality test between all variables

Variables	Log(klci)	Log(ms)	gb	Log(cpi)	Log(int)	Log(exchg)
Log(klci)		0.1869	0.7963	0.8551	0.0418**	0.0373**
Log(ms)	0.0238**		0.6135	0.0964*	0.6685	0.6584
gb	0.3696	0.0292**		0.4401	0.7438	0.3188
Log(cpi)	0.0364**	0.2691	0.3480		0.5478	0.2969
Log(int)	0.8675	0.8320	0.8479	0.8713		0.6673
Log(exchg)	0.6750	0.9243	0.5135	0.3565	0.3991	

Note: *** Significant at 1% significant level
 ** Significant at 5% significant level
 * Significant at 10% significant level

Figure 4.3.1: The relationship between each variable for Granger Causality Tests



Money Supply (MS)

Hypothesis:

H₀: MS does not Granger Cause KLCI.

H₁: MS does Granger Cause KLCI.

According to table 4.3.1, P-value of MS is 0.0238 and significant at 5% significant level. So, this study determines that reject the H₀, evidence as money supply is granger cause to the Kuala Lumpur Composite Index. Moreover, this result is consistent with previous study Muzafar (1998), Ariff and Chung (2012).

Government Budget (GB)

Hypothesis:

H₀: GB does not Granger Cause KLCI.

H₁: GB does Granger Cause KLCI.

The table 4.3.1 shows that P-value of GB is 0.3696 which is insignificant at 10% significant level. As a result, this study do not reject H₀ and GB does not granger cause to KLCI. Moreover, this result is support by Faiza and Muhammad (2012).

Inflation, Consumer Price Index (CPI)

Hypothesis:

H₀: CPI does not Granger Cause KLCI.

H₁: CPI does Granger Cause KLCI.

The P-value of CPI from the test is 0.0364 which is significant at 5% significant level. Thus, this paper tends to reject H_0 , and the result show that CPI can cause to the KLCI. This result is in line with previous researcher of Zakaria and Shumsuddin (2012) and Cohn and Lessard (1980).

Interest rate (INT)

Hypothesis:

H_0 : INT does not Granger Cause KLCI.

H_1 : INT does Granger Cause KLCI.

The test shows that P-value of INT is 0.8675 which is insignificant at 5% significant level. So, this paper does not reject H_0 , and there are insignificant to conclude that CPI can cause to the KLCI. These result similar with Ahmed and Gulasekaran (2010), Attaullah and Jamil (2012).

Exchange rate (EXCHG)

Hypothesis:

H_0 : EXCHG does not Granger Cause KLCI.

H_1 : EXCHG does Granger Cause KLCI.

From the table 4.3.1 shows that P-value of EXCHG is 0.6750 and insignificant at 10% significant level. Thus, this study do not reject H_0 and FB does not Granger cause to KLCI. This result is similar with Aisyah, Zahirah & Fauziah (2009), Cristiana (2012) and Ramasamy and Yeung (2011).

In addition, this study has found that the money supply is Granger cause to the inflation and the result is consistent with Berger & Osterholm (2008), Bello & Saulawa(2013) and Mukhtar & Zakaria (2010). On another hand, the result also shows the government budget has Granger cause to money supply which support by the previous researchers Mohammad, Wasti & Hussain. (2009) and Lozano (2008). In short, this paper evidence to found there are uni-directional link between the variables in the Granger Causality tests.

4.4 Diagnostic Checking

4.4.1 Normality Test

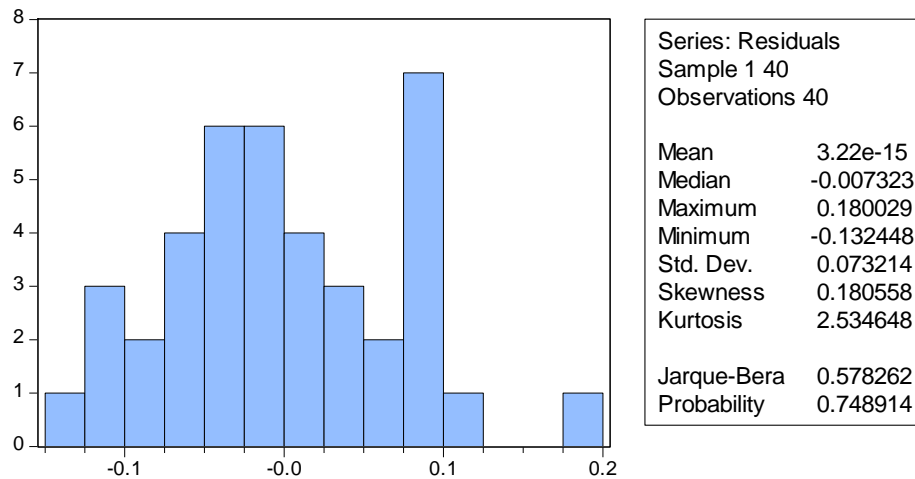
H₀: Error term is normally distributed.

H₁: Error term is not normally distributed.

Decision rules:

- 1.) If the P-value for JB-stats is > 0.01 , we do not reject H₀ and conclude that the error terms is normally distributed.
- 2.) If the P-value for JB-stats is < 0.01 , we do not reject H₀ and conclude that the error terms is not normally distributed (Brooks, 2008).

Table 4.4.1: Jarque-Bera Normality Test



Conclusion:

As show in table 4.4.1, the p-value of JB stat is $0.748914 > 0.01$, leading this paper not to reject H₀. Thus, this paper has sufficient evidence to conclude that the error term in this model is normally distributed.

4.4.2 Multicollinearity

H_0 : the model has no multicollinearity problem.

H_1 : the model has multicollinearity problem.

Decision rule:

1. Do not reject H_0 if the Variance Inflation Factor (VIF) < 10, hence no multicollinearity problem.
2. Reject H_0 if the Variance Inflation Factor (VIF) >10, hence got multicollinearity problem.

Table 4.4.2 Correlation Analysis

	LOG(KLCI)	LOG(MS)	GB	LOG(CPI)	LOG(INT)	LOG (EXCHG)
LOG(KLCI)	1.000000	0.901064	-0.135737	0.862640	0.090503	-0.928222
LOG(MS)	0.901064	1.000000	-0.248586	0.989290	-0.126287	-0.901236
GB	-0.135737	-0.248586	1.000000	-0.251547	0.215356	0.123253
LOG(CPI)	0.862640	0.989290	-0.251547	1.000000	-0.116965	-0.885172
LOG(INT)	0.090503	-0.126287	0.215356	-0.116965	1.000000	-0.098918
LOG (EXCHG)	-0.928222	-0.901236	0.123253	-0.885172	-0.098918	1.000000

From the correlation Table 4.4.2 above, the correlation between inflation and money supply are highest. The regression analysis is further carry out to determine the VIF between these two variables using the R-squared.

$$\begin{aligned} \text{VIF} &= (1/ 1- R_{x1, x2}) \\ &= (1/1-0.978695) \\ &= 46.9373 \end{aligned}$$

The VIF is 46.9373. This indicates that the variables inflation and money supply having a multicollinearity problem in the model.

Conclusion: There are multicollinearity problem between the variable inflation and money supply. There is multicollinearity problem in the model. However, according to Robinson, P.M (1986), the usual assumption that apply on econometric model cannot necessarily maintain in time-series data. Time-series data tend to have some correlation problem, seasonal effect or trends effect. In this study, the other high correlation between variables such as foreign exchange rate with money supply, inflation rate and interest rate are not further tested using VIF because it is normal to have multicollinearity problem in time-series data. It makes sense that these variables contain multicollinearity problem since all of the variable involve the money flow in the country. Besides, Spanos and Mcguirk (2002) stated that the precision of the model does not necessarily drop down if the correlation between the variables increases. Hence, this study continues the research with the multicollinearity problem between inflation and money supply.

4.4.3 Autocorrelation

H₀: There is no serial correlation in the model

H₁: There is serial correlation in the model

Decision Rules:

1. Do not reject H₀ if p-value of Chi-square more than 0.01, meaning there is no serial correlation in the model.
2. Reject H₀ if p-value of Chi-square less than 0.01, meaning there is serial correlation in the model.

Table 4.4.3 Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.817383	Prob. F(5,29)	0.1406
Obs*R-squared	9.543347	Prob. Chi-Square(5)	0.0893

Conclusion:

We do not reject H_0 as P-value Chi-square 0.0893 is more than 0.01, meaning that there will be no serial correlation in this model.

4.4.4 Heteroscedasticity

Hypothesis

H_0 : There is no heteroscedasticity problem.

H_1 : There is heteroscedasticity problem.

Decision Rules:

1. We do not reject H_0 if P-value of F-stat > 0.01 , meaning that there is no heteroscedasticity problem.
2. We reject H_0 if P-value of F-stat < 0.01 , meaning that there is a heteroscedasticity problem.

Table 4.4.4 ARCH Test

Heteroskedasticity Test: ARCH			
F-statistic	2.270223	Prob. F(1,37)	0.1404
Obs*R-squared	2.254601	Prob. Chi-Square(1)	0.1332

Conclusion:

Do not reject H_0 since P-value of F-stat is $0.1404 > 0.01$. Thus, we have enough evidence to conclude that there is no heteroscedasticity problem.

4.5 Conclusion

In this chapter, the diagnostic checking and other tests are carry out. The results had elaborated and explained in detail. All the results will be summarized and present in the next chapter.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

In this chapter, this study will summary all the finding from the previous chapters. This study investigates the time series quarterly data from 2003-2012 and the total sample size is 40. The main research objective of this study is to determine the Malaysia government policies changes impact on stock market (KLCI) performance. Moreover, this study also tends to help investors to minimize their risk and improve their portfolio management. Furthermore, in this chapter also will present summaries of statistical analyses, discussion on the major finding, managerial implication, limitations and recommendations.

5.1 Summary of Statistical Analyses

Table 5.1.1 Summary of Statistical Test

Dependent Variable	Independent Variables	Ordinary Least Square	Unit Root Test (ADF & PP Test)	Granger causality test
<i>Log(KLCI)</i>	<i>Log(MS)</i>	Significant at 1% (positive)	Stationary	Significant at 5%
<i>Log(KLCI)</i>	<i>GB</i>	Insignificant (positive)	Stationary	Insignificant
<i>Log(KLCI)</i>	<i>Log(CPI)</i>	Significant at 1% (negative)	Stationary	Significant at 5%
<i>Log(KLCI)</i>	<i>Log(INT)</i>	Significant at	Stationary	Insignificant

		5% (positive)		
<i>Log(KLCI)</i>	<i>Log(EXCHG)</i>	Significant at 1% (negative)	Stationary	insignificant

The table 5.1.1 above shows the summaries of the statistical test carried out by this study. In the OLS test *Log (MS)*, *Log (CPI)* and *Log (EXCHG)* are significant at 1% significant level and *Log (INT)* is significant at 5% of significant level, whereby *GB* is not significant P-value 0.7444 is greater than 0.1 significant levels. This might because of the government budget consist of deficit and surplus value in the data. Besides, the E-view is unable to transform the government budget to logarithm form. However, in this research decide to not omit of this variable, due to it is supported by previous researchers Belo, Gala& Li (2013). On another hand, in the unit root test overall variables are stationary and not contains of unit root. Besides, this paper has found that unidirectional causality between the variables. And the money supply and inflation both are significant at 5%.

Table 5.1.2: Summary of Diagnostic Checking Result

Econometric problems	Methods	Result
Normality test	Jarque-Bera (JB) Test	Model is normally distributed
Multicollinearity	Correlation by E-view and VIF result	Serious multicollinearity problem between MS and CPI.
Autocorrelation	Breusch-Godfrey Serial Correlation Lagrange Multiplier (LM) Test	No autocorrelation problem
Heteroscedasticity	ARCH Test	No heteroscedasticity problem

In this research the econometric model shows that there is no autocorrelation problem and no heteroscedasticity problem. Besides that, the model is considered normally distributed. However, this paper had found a multicollinearity problem

between the money supply and the inflation (CPI) which the $VIF = 46.9373$ consider a serious multicollinearity problem occurs ($VIF > 10$ serious multicollinearity). According to Robinson (1986) stated that in time-series data always have some correlation problem, seasonal effect or trends effect. Furthermore, Sponas (2002) also stated that precision of a model is not necessary to drop down the variables. Hence, this study is continued to use the variables even found the multicollinearity problem between money supply and inflation.

5.2 Discussions of Major Findings

After examine the result from the tests carry out in chapter 4, it is conclude that out of the five independent variables, four are tested as significant variables. The four significant variables are money supply, inflation rate, interest rate and foreign exchange rate. Money supply is found out to be significant and have a positive relationship with the stock market performance. According to Sellin (2001), the increase of money supply will cause the demand of money increase and this cause the economic activities to rise in the country. Since the higher economic activities will indicate a higher expected profit, the stock price will tend to rise too. Based on Maskay, B. (2007) and Sara, A. & Shokoofeh, F. (2008) studies had found that there are a significant positively related between money supply and stock price index. There are also another explanation stated that the rise of money supply benefits the firms by giving them more opportunity to access to financial market and hence contribute to growth of market (Babak, M. et al, 2012)

Inflation rate found out to be significant and have a negative relationship with the stock market performance. This is supported by previous research which stated that while a high inflation rate indicate a low economic activities and a high stock market return indicate a high economic activities, the two are moving in an opposite direction and hence there are negative relationship between the two variables (Balduzzi, 1994). Similarly, Kim (2003) and Kaul and Seyhun (1990) also found that the inflation and stock market performance has a significant negative relationship.

As interest rate is one of the most popular tools for government to regulate the economy of the country, interest rate is tested to have a significant effect on stock market. The outcome showed that interest rate has positive related with stock market performance. Maysami et al. (2004) had carry out the study and found out that the both the short-term and long-term have a mix result between interest rate and stock market performance. However, Maysami & Koh (2000) study show that in short term the interest rate will given a positive impact on stock market performance while in contrast in long term will given a negative impact. Although there also quite number of researchers' study found that the interest rate and stock market return has an inverse relationship such as Campbell (1987) and Shanken (1990). The different between previous result and the actual result might cause by the different length of time. Due to the short-term quarterly data use in the study, the result might only capture for the short term effect but not the long term effect. Hence, the actual result is still consistent with the previous result showing that there is positive relationship in short term and negative relationship in long term.

Foreign exchange rate is a very fluctuating rate and it is significant in determine the stock market return. According to the result, foreign exchange rate is negatively affected the stock market performance. The significant of foreign exchange rate in determining the stock market return had shown is many previous studies. Sohnke M. Bartram (2007) stated that many company tend to engage in stock hedging when the foreign exchange rate is not in a favorable condition. Pan et al (2007) also supported the result which stating the foreign exchange rate is significantly affects the stock index performance in Hong Kong, Japan, Malaysia and Thailand.

There are one variable found out to be insignificant on the relationship to stock market return which is government budget. Although there are many previous study had shown that government budget contribute significantly to stock market performance, Kim & Lombra (1989) stated that the significant result only exist when the government budget announcement is in an irregular form or there is an unexpected change in the government budget. This statement is supported by Belo, Gala & Li (2013) stating that the market will under react to a predictable

announcement in government budget. Since Malaysia did not undergo any unexpected change in the matter of government budget, it might be the reason why government budget did not exert a significant impact on the stock market performance.

This paper has using Ordinary Least Square to examine the relationship of Kuala Lumpur Composite index (KLCI) with the fundamental factors (money supply, government budget, inflation rate, interest rate and exchange rate). This study has using the 40 quarterly data sample size as the observations and inclusion of logarithms in all the variables except government budget that consists of federal deficit and surplus.

This paper has found a high correlation between inflation and money supply, which is 0.98920. So, VIF is carrying out between these two variables in order to check the multicollinearity problem. Unfortunately, the VIF 46.9373 shown that there are multicollinearity between these inflation and money supply. This may be due to time-series data that this paper tests on. (Robinson, 1986)

Besides, this paper also further carries out different statistical and diagnostic checking in order to have a clearer picture on the real relationship between the variables. The tests that have been conducted are Jarque-Bera Normality test, Variance Inflation Factor, Autoregressive Conditional, Heteroskedasticity test, LM- test and Granger Causality Test.

This paper found that there are stationary among all the variables are and no unit root in the first differences level. Besides, there are also neither heteroscedaticity nor autocorrelation problem in this model. In addition, the error term of the model is normally distributed.

By using Ganger causality test, this paper has found unidirectional causality between the variables. The money supply does ganger cause KLCI stock index at 5% significant level. The result is in line with the finding of Muzafar (1998) that determine that money supply ganger causes stock prices and can predict the stock prices through money supply. Besides, inflation rate have ganger causes KLCI

stock index at 5% significant level. The result can be supported by Loannides, Katrakilidis and Lake (nd). The study had found ganger causality between inflation and stock return and the direction is from inflation towards returns.

In addition, this paper found that KLCI index has ganger cause on the interest rate and exchange rate at 5% significant level. This result is similar to the finding of Emrah (2009) whereby Emrah have found that the stock prices do ganger cause interest rate. So, the study of stock returns can be an indicator for interest rate. Mukit (2012) have also carried out ganger causality test between log exchange rate and log stock index. Mukit have also found unidirectional ganger causality between exchange rate and stock return whereby the direction is same with this paper result.

In addition, this paper also tests on the ganger causality between variables. This paper have found that money supply have ganger cause on inflation rate at 10% significant level. Lastly, the government budget does ganger causes the money supply at 5% significant level. As a conclusion, all those findings are powerful tools for discussing the implications of study and recommendations, and next section will discuss further on it.

5.3 Implications of Study

This research paper contributes to government and policy makers in implementing policy tools on the included five macroeconomic variables which are money supply, federal budget, inflation, interest rate and exchange rate. Policy makers have to be cautious and think wisely when make some adjustment on any macroeconomic variables as the simulating economic purpose, the outcome might be adversely impacted when certain policies are introduced. Each of the variables used play an important role in affecting Malaysian stock market (KLCI), thus this paper gives government and policy makers an insight on how the Malaysian stock market could be affected by government policy.

Based on the study, money supply is found to be positively related to stock market. This is because when money supply in the market increases, investors will tend to have more funds to invest in stock market, causing the stock market to be more active and performing well. Hence, government can increase the money supply in order to boost up stock market performance. When the KLCI index is spotted to fall below desired level, government can implement certain policy tools to keep the stock market stable. To increase money supply, government is proposed to reduce the required reserve so that banks are allowed to lend out more funds to public. Besides this, government can also buy treasury securities in the open market. To attract more investors, government can lower the interest rate to induce borrowing. Increasing money supply is one of the ways to protect the stock market from being inactive and weak.

In the meanwhile, government needs to take into account inflation as well. In this paper found that inflation and KLCI has an inverse relationships. When inflation is high, economic activities will be less active. As result shown, money supply and inflation are highly correlated. If government keep on increasing money supply, making too much of cash flowing in the market and subsequently inflation arise. Thus, to avoid inflation, government should balance the money supply in the market by monitoring the inflation rate and economic condition. When inflation is forecasted to occur, government needs to take action on restricting money supply in the market.

Other than that, federal budget is found to be insignificant in this study. It is supported by previous researchers that federal budget will not have huge impact on stock market if federal budget is announced in normal condition. The market will only react to the news of government budget if it undergoes a sudden change. Therefore, policy makers should keep the public update on government budget regularly so that the financial institutions and individual investors are aware and able to plan their investment ahead accordingly. Under such circumstances, public can react quickly and effectively in stock market with the information on government budget. In this case, stock market will be less volatile and safe from political risk.

Furthermore, the research also shows that interest rate has positive relationship with stock market performance. Based on the literature review, most of the previous studies have found that interest rate has negatively impact on stock market. However, the coefficient of interest rate in this paper is near to zero, indicating that the level of interest rate does not have strong impact on the stock market. That is, stock market performance has a low dependency on interest rate. Thus, the policy maker adjust on interest rate wouldn't give a large impact on stock market performance.

In addition, foreign exchange rate is found to be negatively related to stock market. Based on previous researches, many companies tend to engage in stock hedging when the foreign exchange rate is not in a favorable movement. In order to control and minimize the huge hedging and speculating activities which will cause investment 'bubble' and probably result in financial crisis, government should determine stock market policy with well understanding on the relationship between two economic variables.

5.4 Limitations of the Study

Similar with other research paper, this study faces limitations as well. One of the limitations is that this study is unable to capture long-term results. This is due to the sample period adopted in this study. This study adopted 10 years of quarterly data ranging from 2003 quarter 1 to 2012 quarter 4. As a result, these study able to capture short-term result instead of long-term result.

Besides, the sample size adopted by this study is 40. This might consider a small sample size for a research. This is due to insufficient data available for long-term period and also monthly data. For the independent variable of federal budget, only quarterly and yearly data is available. Therefore, this study did not adopt monthly data and instead this study uses quarterly data. The need for larger sample size would be better as it will provide much more accurate results.

In addition, other macroeconomic variables did not take into account in this research. This study adopted only five independent variables which are money supply, interest rate, inflation rate, government budget and foreign exchange rate. Other variables like financial crisis and crude oil price did not include in the independent variables might cause the results not as highly accurate as it has to be. This is because there are so many industries in the macroeconomic that could bring substantial effect on the share return.

Lastly, this study is mainly focus on Malaysia. Therefore, this research might be only useful to for Malaysian investor and decision making on Malaysia industries. Other countries like Japan, Hong Kong, China, Europe and the America could not adopt this research due to different characteristics and pattern movement of the data. Different countries have different movement pattern due to some countries are developed country and some are developing country. Besides, different country has different strength in the industry field.

5.5 Recommendations for Future Research

Through this research, the future researcher is encourage to use a larger sample size and also a longer period sample size to capture the long run effect and results of the research. This is to make the research result more reliable.

On the other hand, future researcher is recommended to use the independent variables of Gross Domestic Product (GDP) and Gross National Product (GNP) to capture the domestic and international earning by the country. Although GDP and GNP are not government policies, these country earning might lead to a result that show country's earning affecting the share price. It is also suggested that the research not to be done only in Malaysia. Besides, this study also recommend future researcher taking account of financial crisis as a variables as well in order to solve the accuracy of result.

Perhaps, countries like the ASEAN countries, Thailand, Cambodia, Philippines and Indonesia could include in the research as well. This would actually generate the results within the ASEAN countries. As a result, the research can be apply not only applicable in Malaysia but among the ASEAN countries. Hence, the research will be useful for decision makers and investor in the ASEAN countries.

5.6 Conclusion

As a conclusion, this research result found that money supply and interest rate both have a significant positive relationship with the stock return. However, government budget has an insignificant positive relationship in stock market return. Besides, there are significant negative relationship for consumer price index and the exchange rate with the stock market return. In short, this research was provided some limitations and suggestions for future researcher in order to give an enhancement to the future research. On the other hand, this finding could be useful to investors, government and policies maker to have a better understanding on the impact of government policies charges toward the stock market return.

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APPENDICES

Appendix 4.1: OLS result

Dependent Variable: LOG(KLCI)				
Method: Least Squares				
Date: 03/31/14 Time: 11:50				
Sample: 1 40				
Included observations: 40				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.007255	2.294100	2.618567	0.0131
LOG(MS)	1.646587	0.336328	4.895780	0.0000
GB	1.01E-06	3.07E-06	0.328676	0.7444
LOG(CPI)	-4.393672	1.138395	-3.859533	0.0005
LOG(INT)	0.195224	0.088397	2.208490	0.0341
LOG(EXCHG)	-1.354217	0.406072	-3.334917	0.0021
R-squared	0.924410	Mean dependent var		7.008762
Adjusted R-squared	0.913294	S.D. dependent var		0.266296
S.E. of regression	0.078413	Akaike info criterion		-2.116167
Sum squared resid	0.209054	Schwarz criterion		-1.862835
Log likelihood	48.32333	Hannan-Quinn criter.		-2.024570
F-statistic	83.15893	Durbin-Watson stat		1.085763
Prob(F-statistic)	0.000000			

Appendix 4.4.2: VIF of interest rate and money supply

Dependent Variable: LOG(CPI)				
Method: Least Squares				
Date: 03/31/14 Time: 11:57				
Sample: 1 40				
Included observations: 40				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.968737	0.085636	11.31222	0.0000
LOG(MS)	0.262444	0.006281	41.78051	0.0000
R-squared	0.978695	Mean dependent var		4.545886
Adjusted R-squared	0.978134	S.D. dependent var		0.076553
S.E. of regression	0.011320	Akaike info criterion		-6.075799
Sum squared resid	0.004869	Schwarz criterion		-5.991355
Log likelihood	123.5160	Hannan-Quinn criter.		-6.045267
F-statistic	1745.611	Durbin-Watson stat		0.888866
Prob(F-statistic)	0.000000			

Appendix 4.4.3: Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:				
F-statistic	1.817383	Prob. F(5,29)	0.1406	
Obs*R-squared	9.543347	Prob. Chi-Square(5)	0.0893	
Test Equation:				
Dependent Variable: RESID				
Method: Least Squares				
Date: 03/31/14 Time: 12:01				
Sample: 1 40				
Included observations: 40				
Presample missing value lagged residuals set to zero.				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.731514	2.446209	-0.707836	0.4847
LOG(MS)	0.011832	0.398950	0.029658	0.9765
GB	1.32E-06	2.97E-06	0.444117	0.6603
LOG(CPI)	0.265914	1.423041	0.186863	0.8531
LOG(INT)	-0.013509	0.088762	-0.152197	0.8801
LOG(EXCHG)	0.300223	0.405040	0.741217	0.4645
RESID(-1)	0.474224	0.188972	2.509495	0.0179
RESID(-2)	-0.071684	0.207887	-0.344822	0.7327
RESID(-3)	0.245542	0.226092	1.086028	0.2864
RESID(-4)	-0.137844	0.223151	-0.617715	0.5416
RESID(-5)	-0.114289	0.208120	-0.549150	0.5871
R-squared	0.238584	Mean dependent var	5.01E-15	
Adjusted R-squared	-0.023974	S.D. dependent var	0.073214	
S.E. of regression	0.074087	Akaike info criterion	-2.138742	
Sum squared resid	0.159177	Schwarz criterion	-1.674300	
Log likelihood	53.77483	Hannan-Quinn criter.	-1.970814	
F-statistic	0.908692	Durbin-Watson stat	1.928345	
Prob(F-statistic)	0.538088			

Appendix 4.4.4: Autoregressive Conditional Hetereskedasticity (ARCH) Test

Heteroskedasticity Test: ARCH				
F-statistic	2.270223	Prob. F(1,37)	0.1404	
Obs*R-squared	2.254601	Prob. Chi-Square(1)	0.1332	
Test Equation:				
Dependent Variable: RESID^2				
Method: Least Squares				
Date: 02/26/14 Time: 16:26				
Sample (adjusted): 2003Q2 2012Q4				
Included observations: 39 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003778	0.001291	2.926838	0.0058
RESID^2(-1)	0.235024	0.155984	1.506726	0.1404
R-squared	0.057810	Mean dependent var	0.004978	
Adjusted R-squared	0.032346	S.D. dependent var	0.006449	
S.E. of regression	0.006344	Akaike info criterion	-7.232818	
Sum squared resid	0.001489	Schwarz criterion	-7.147507	
Log likelihood	143.0400	Hannan-Quinn criter.	-7.202209	
F-statistic	2.270223	Durbin-Watson stat	2.004592	
Prob(F-statistic)	0.140372			