TO INVESTIGATE THE DETERMINANTS OF SHARE PRICE DURING THE PERIOD OF PRE CRISIS, CRISIS AND POST CRISIS IN MALAYSIA, SINGAPORE AND THAILAND PERSPECTIVE

BY

CHENG SHAN MAY
LEE SHU NING
TAN HOOI NGOR
YAP LIH SHING

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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 16929.

Name of Student:	Student ID:	Signature:
1. CHENG SHAN MAY	09ABB04687	_____
2. LEE SHU NING	09ABB04826	_____
3. TAN HOOI NGOR	09ABB04849	_____
4.YAP LIH SHING	09ABB04167	_____

Date: 18ST APRIL 2013

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LIST OF ABBREVIATIONS

CPI	Inflation
M1	Money Supply
USD	United Stated Dollar
IRF	Impulse Response Function
ADF	Augmented Dickey-Fuller Test
PP	Philips and Perron Test
ANOVA	Analysis of Variance
VAR	Variance Autoregression analysis
MYR	Malaysis Ringgit
VIF	Variance Inflation Factor
OLS	Ordinary Least Square
KLSE	Kuala Lumpur Stock Exchange
STI	Straits Times Index

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PREFACE

This research is submitted in partial fulfillment of the requirements as an undergraduate project for a UTAR Bachelor of Business Administration (Honours) Banking and Finance for the authors. It contains of the work done from June 2012 to April 2013.

There are many investors in the market who buy and sell the share in order to gain profit from their investment. However, there are many factors will affect the fluctuation of share price. For example, the crisis or business cycle such as economic booming or during recession will eventually influence the share prices. This will cause a newly investor who lack of the knowledge on this area make a wrong investment and then suffer the loss. Besides, some of people face financial problem and force to borrow money due to loss result from the investment they made. Therefore, we decide to investigate the factors that affect the share price. We come out with a research title for our final year project of "Determinants of Share Price during the period of Pre Crisis, Crisis and Post Crisis in Malaysia, Singapore and Thailand Perspective.

ABSTRACT

The objective of this study is to investigate the determinants of share price during period of pre crisis, crisis and post crisis in Malaysia, Singapore and Thailand perspective. This study examine the effect of macroeconomic variables on share price in Malaysia, Singapore and Thailand using monthly data, where the period are specifically divided into three, which include period of pre crisis (1995-1996), during crisis (1997-1998) and lastly post crisis (1999-2010). The stock indices such as KLSE (Malaysia), STI (Singapore) and STE (Thailand) are applied to undergo this research.

After run the test, the macroeconomic variables show significant relationship to the changes of share price. In other words, changes in these variables such as exchange rate, inflation, money supply and real interest rate will affect the share price in market.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

There are many investors in the market who buy and sell the share in order to gain profit from their investment. There are investors who are more focus on the ownership of the company while some of them just only focus on the profit. Regardless of their roles, hedgers, speculators or arbitragers are important as they play an integral part in keeping the market efficient and liquid by constantly trading shares and taking advantage of any discrepancies.

Share price will affect a particular company position and performance as the company focus on the shareholder wealth maximization. Furthermore, share price also will reflect one company's financial background. When the share price increases, it indicates that the company is growing and performing well. Hence, a higher dividend can be distributed to the company's shareholder. Thus, other potential investors are more likely to invest in the company. It is a rational behavior that investor interested to invest in company which can constantly generate profit except for the risk taker investors who willing to take higher risk in order to get higher return.

In this research, it is important to study the factors that will affect the share price. Therefore, the aim of the thesis is to study the behavior of the stock price between Malaysia, Singapore and Thailand. In this chapter, the background of the stock market, follow by investigating the problems that occur and lead to this research, the objective of this research, the research question, hypothesis and finally the contribution of this research will be discussed.

1.1 Research background

With the growing of the world economic, the market tends to become globalization nowadays, whereby the international trade (export and import) with the foreign country is increased. Thus, it has created awareness of the players in the market on the stock market especially for those developed country like United Stated (US) and Japan have a big influences in the stock return. (Mala, 2008)

Previously, many researchers have studied on the area of stock market. According to the Mala (2008), the crisis or business cycle will eventually influence the share prices or return, the ways that share price fluctuation in relation to the crisis or business cycle such as economic booming or during recession. In this case, newly investor who lack of the knowledge on this area will make a wrong investment and thus make a loss eventually. A law firm based in US namely Sherri B. Simpson. P.A shows that some of people face financial problem and force to borrow money due to loss result from the investment they made, they basically lack of the knowledge on this area thus facing those problem. As reported by Sunday Times (March 2009), it stated the responsibility of the investors or depositors during the financial crisis. What are the issues they need to aware of for instance the background of the company, the investment practice of the company and so on. This is to ensure that the company they invest or place deposit do not misuse the money as well as understand the nature of business that company involved in order to secure own money deposit or invest. As contrast, investors should being well-prepared all the time by doing some online research about certain stock and investment they interested in before make any decision.

Besides that, companies with a policy of shareholder wealth maximization rely heavily on investors for capital. Thus, they should have substantial knowledge on how share prices react if they intend to sustain their company's inflow of capital. With this knowledge, they will be able to ascertain the factors which encourage investment and methods to attract potential future investors even in times of recession, where most individuals will prefer to save their money rather than risking it through investments.

The more significant is the event of financial crisis in 1997, which involve Asian country such as Malaysia, Indonesia, Singapore, Hong Kong and other Asian countries, whereby every country suffered a loss during crisis and the almost whole world face the economic disaster. (Zan & Wei, n.d). The following crisis continue on 2008 US subprime crisis and thus lead to recession on 2009. (Bard, 2008) Many researchers have done on the research between the relationship of the financial crisis with the stock market, how does it affect and before and after the crisis.

In Malaysia, the government initially tried to stabilize the situation by attracting resources towards the financial market through the banking sector and subsequently through the share market such as the Kuala Lumpur Stock Exchange (KLSE) (Ibrahim, 2006). Whereas for Singapore, a research show that Singapore market have insignificant or do not move in the direction with interest rate and money supply after financial crisis in 1997 although before crisis it does. (Wong, Khan & Du, 2006) Moreover, Thailand economic keep increasing and attracts many foreign direct investment (FDI) inflow to that particular country, Thailand was also being affected by the financial crisis in 1997 and 1998 where by the economic slowdown on that time.

In addition, different industries have different policy and influences. In this research, stock price indices such as KLSE in Malaysia, STI in Singapore and FTSE index in Thailand are apply to undergo the research.

In relation with that, the research is focus on the determinants of the share price during pre crisis period, crisis period and post crisis period in Malaysia, Thailand and Singapore. Therefore, the period will be divided into three specifically before the crisis which is started from 1995-1996, during crisis which is in 1997 and 1998 and lastly after crisis from 1999 until 2010.

1.2 Problem statement

Many researchers have done the research on the stock market area, such as during crisis, the linkage, the stock return and others. However, many researchers having the same interest by knowing the stock market especially after the Asian Financial Crisis especially when the strong market performance like Singapore, Hong Kong, Taiwan and South Korea market have been affected by those crisis where their share decline during that period. (Royfaizal, Lee & Azali, 2009); (Zan & Wei, n.d) Thus, it is essential to know why crisis will affect the economic and share price.

According to Royfaizal, Lee and Azali (2009), the crisis have been turns out become worse when the crisis have affected the country globally like Indonesia, Malaysia, Korea, Philippines, Russia, and Brazil after few month of mid 1997 financial crisis attack in Thailand. The whole economy being affected especially cost like exchange rate. As a result many countries become default and the country fall into the economic disaster. Therefore, it is important to determine how crisis will affect the exchange rate.

According to Fang and Miller (2002), the international portfolio investors face more highly integrated financial markets as domestic and foreign stocks are close substitutes. Therefore, co-movement of currency depreciation and stock market returns during financial crisis has stimulated an interest in studying the stock markets of different countries.

In addition, international trade and finance has increased the interaction between financial markets and national economies. This is very useful when understanding these cross-market interactions for purpose of pricing the securities, developing trading strategies, hedging strategies and regulatory strategies within the markets.

Based on Bank for International Settlements (BIS, n.d), the 1997-1998 crisis overwhelmed the global market by the collapse of Thai-bath. The crisis is continued at 2008 from the collapse of US subprime mortgage market which is called Euro debt crisis. These two crisis will happened is possible due to insufficiently supervised banking systems, solvency of major global banking

system, asset price bubbles, over-expansion of capital stock, increase of credit growth because of loose credit regulation and unusually low real interest rates, and inflexible exchange rate regulation. (Karunanayake, Valadkhani & O'brien, 2010) Thus, the problem arises as how crisis affect the interest rate, exchange rate and thus it related with the share price.

Besides that, the money market stability has been break when the macroeconomic variables like interest rate and money supply (M1), this show the interest for the researcher to investigate the market share with those factors (Wong, Khan & Du, 2006). Therefore, the research is carried out in order to study the factors that will affect the share price based on those problems that previous researches discovered.

1.3 Research Objective

1.3.1 General Objective

To determine the factors that affects the share price in Malaysia, Singapore and Thailand during pre crisis, crisis and post crisis period

1.3.2 Specific Objective

- To study the relationship between exchange rate and share price in Malaysia, Singapore and Thailand during pre crisis, crisis and post crisis period.
- To study the relationship between inflation (Consumer Price Index) and share price in Malaysia, Singapore and Thailand during pre crisis, crisis and post crisis period.
- To study the relationship between money supply (M1) and share price in Malaysia, Singapore and Thailand during pre crisis, crisis and post crisis period.

- To study the relationship between real interest rate and share price in Malaysia, Singapore and Thailand during pre crisis, crisis and post crisis period.

1.4 Research question

- Does exchange rate significantly affect the stock price in Malaysia, Singapore and Thailand during pre crisis, crisis and post crisis period?
- Does inflation (CPI) significantly affect the stock price in Malaysia, Singapore and Thailand during pre crisis, crisis and post crisis period?
- Does money supply (M1) significantly affect the stock price in Malaysia, Singapore and Thailand during pre crisis, crisis and post crisis period?
- Does real interest rate significantly affect the stock price in Malaysia, Singapore and Thailand during pre crisis, crisis and post crisis period?

1.5 Hypothesis of the study

1.5.1 Exchange rate

H_0 : Exchange rate insignificantly affect the stock price.

H_1 : Exchange rate significantly affect the stock price.

1.5.2 Inflation (CPI)

H_0 : Inflation (CPI) insignificantly affect the stock price.

H_1 : Inflation (CPI) significantly affect the stock price.

1.5.3 Money Supply (M1)

H_0 : Money supply (M1) insignificantly affect the stock price.

H_1 : Money supply (M1) significantly affect the stock price.

1.5.4 Real Interest Rate

H_0 : Real interest rate insignificantly affect the stock price.

H_1 : Real interest rate significantly affect the stock price.

1.6 Significant of the study

It is essential to know that what are the factors that will influences the share price in the market. Investors can refer to the factors that will affect the share price before making any decision towards the investment. Moreover, the company can based on the factors and generated the ways or solution to overcome or boost up the share price of the company in order to maintain their competitiveness and maintain their business stability in the market. .

Apart from that, many factors have motivate to study the behavior of stock markets such as the national stock markets have been eventually expanded recently, interdependence among each market is also increasing, and last but not least the internationally diversified investment portfolio has arises the general awareness of profits.

Every country has different policy and economic condition. Hence, the share price for each of every country is influences by different factors and policy. However, it is important to study the determinants of share price in own and also foreign countries like Singapore and Thailand as Malaysia is the neighbourhood of Singapore and Thailand, many local businessmen or trader has business contact dealing with Singapore and Thailand. They can earn more profit if the investors invest smartly and wisely by knowing the pattern of the share price and trend of the economy. Hence, the thesis is about to study the factors that will influence the stock price during the stage of pre crisis, crisis and post crisis.

1.7 Chapter layout

This thesis consists of five chapters.

1.7.1 Chapter 1 Research Overview

In chapter one, introduction and research background of the topic of the thesis will be stated. The problem statement of conducting the research will also formed. Then, followed by research objectives, hypothesis and significant of this study.

1.7.2 Chapter 2 Article Review

In this chapter of research, article review will be conducted. This part will look on how the past researchers done on this topic and also what are the issues, findings and framework that they used in past history.

1.7.3 Chapter 3 Methodology

In this chapter, data collection method, the sources of data, sample size, and the methods that will be using to conduct this research.

1.7.4 Chapter 4 Result analysis

In this chapter, the results will be analyzed. Then, the results generated will be compare with the results that obtained by past researchers.

1.7.5 Chapter 5 Conclusion

In this chapter, conclusion will be formed. Besides that, the policy implications that government and other party can be implementing to improve this research. Moreover, recommendation also will be suggested in this section.

1.8 Conclusion

In a nutshell, this thesis is important especially to the investors who are interested on the volatility of share price. There is no harm to study on this because this benefits the investors as they will get to know well the pattern or trend of the share price and share market once they know the direct or indirect effects of the macroeconomic factors towards the share price. The factors such as CPI, exchange rate (per USD), interest rate, and money supply (M1) during the period of pre crisis, crisis and post crisis will be study deeply to further the research.

Since they know forecasting, instead of following blindly on the insider information, investors are still able to make their own decision since they have the knowledge in this area.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

In this chapter will going to look in depth how other researchers done their research on share market are especially on determinant of share prices.

The chapter layout will be follow step by step accordingly: review of the literature, whereby study the past study done by previous researcher; review of relevant theoretical models, which is to study the method to investigate the research by referring to the past researches; proposed theoretical or conceptual framework which is to study the relationship between the dependent and independent variables which is either positively, negatively or both impact; hypotheses development which is to stated the null hypothesis and alternative hypothesis in order to undergo the research and make the decision on whether accepting or rejecting the null hypothesis; and lastly a brief summary regarding on this chapter.

2.1 Review of the Literature

2.1.1 Share Price

The study of stock market has been started on many years ago, the researchers are interested to know the behavior of the stock market in relation to many factors. One of the popular researches is on the stock market in relation to the crisis; on how the stock price and stock return reaction during the crisis. The research have been done by Mala (2008); Royfaizal, Lee and Azali (2009); Zan and Wei (n.d); Calomiris, Love and Peria (2012); Nagayasu (2001); and many others.

Besides this, the studies of the stock price with the macroeconomic variable have been done as well. The research are namely Zan and Wei (n.d); Wong, Khan and Du (2006); John and Arthur (1977); Majid and Tabrani (2011); Ghazali, Samsu, Ooi and Nelson (2008); Ismail and Isa (2009); Wu (2000); Yoshiro and Kenjiro (2003) and many others.

Based on the Balke and Wohart, 2006 research, they found out that the future value of stock prices are insignificant in explaining the M1 as well as the interest rate, whereby they using the causality test to test the relationship between the share price, money supply (M1) and interest rate. They found out that the share price follow the market efficient hypothesis theories where the share price react with the information.

According to Rashid (2007), the research found out the relationship between the stock return and the share price, where the stock are more volatile when the stock price is positive rather than in negative.

According to Royfaizal, Lee and Azali (2009), there is cointegrated during the pre crisis period between the Asian Market. However, for the crisis period, it shows that there is long run relationship between the Asian Market in the same research, the number of vector cointegrated is increase from pre crisis to during crisis period. In addition for the post crisis period, there is long run association as well; but the number of cointegrated number has been reduced as compared to during crisis period.

Furthermore, from the same journal by Royfaizal, Lee and Azali (2009), the unit root test analysis shows that the stock index integrated at the first differentiation.

2.1.2 Share Price and Exchange Rate

There are numbers of researchers have studied the relationship between share prices with the exchange rate; either share price affects exchange or vice versa. The result show that in certain country, the share price affect the exchange (Philippines), while in other countries (Korea, India and Pakistan) exchange rate granger cause share price. (Abdalla & Murinde, 1997)

Many researcher focus on the studied on causal effect on share price with exchange rate, according to Bahmani Oskooee and Sohrabian (1992), they found out short run causal effect significant than long run causal effect with this two variables. {As cite in Majid & Tabrani 2011}

According to Ghazali, Samsu, Ooi and Nelson (2008), there is no confirming relationship or no relationship between the share price and exchange rate during pre crisis and crisis period, thus further studied need to highlight this issue in further research.

There is not significant in between the share price and exchange rate, this statement has been stated by Franck and Young (1972) -{As cited in Ismail & Isa 2009} where it was the first studied that examined the relationship between share prices with exchange. This result is consistent with the later research which is done by Ang and Ghallab (1976) – {As cited in Ismail & Isa 2009} and Zan and Wei (n.d).

Several researchers stated that exchange rate have negative relationship with share price, for instances Soenen and Hennigar (1998);- {cite as England and Wales 2013} Wu (2000); Ma and Kao (1990)- {As cited in Ismail & Isa 2009} whereas, some researchers found that there is a positive relationship between share price and exchange rate but is insignificant, for example Solnik (1987)- {As cited in Ismail & Isa 2009} and Mofleh (2011).

However, according to Zan and Wei (n.d), in that studied it show that share price with exchange rate have both effect either positively or negatively influences the share price in different country. This result also supported by Abu-Libdeh and Harasheh (2011) which stated that the relationship between exchange rate and stock prices is sometimes positive and sometimes negative. In the same research done by Zan and Wei (n.d) it stated that during pre crisis period there is no cointegration or there is no long run relationship for exchange rate however there is long run relationship during the post crisis.

Wu (2000) indicates that real interest rate indirectly influences the exchange rate with share price; when interest rate increase, foreign investor will invest into the country due to higher return compared to their home country, whereby with this the exchange rate will be appreciated in that country as the currency demand for the country in higher than currency supply, thus this show the positive relationship between the exchange rate with share price. Ratanapakorn and Sharma (2007) also show a positive relationship between stock prices and exchange rate.

Pan, Fok and Liu (2007) investigate dynamic linkages between stock prices and exchange rates for seven East Asian countries. The result shows that Hong Kong, Japan, Malaysia and Thailand have a significant causal relation from exchange rates to stock prices before the 1997 Asian financial crisis. In addition, Hong Kong, Japan, Korea, Singapore, Taiwan and Thailand show a causal relation from exchange rates to stock prices during the Asian crisis.

2.1.3 Share Price and Inflation (CPI)

According to DeStefano (2000), the study shows that the relationship between inflation and stock prices vary at different levels of economic activity and business cycle stages. When the economic activity is low, the relationship is significantly positive whereas when the economic activity is high, the relationship becomes negative.

According to Zan and Wei (n.d), the research shows that either positively or negatively for inflation to affect the share price. In addition, in the same research paper, it found out that inflation is insignificantly in affect the share price and during pre crisis period there is no cointegration for there is no long run relationship however there is long run relationship during the post crisis.

Besides that, according to Fama (1981) and Mofleh (2011), the researchs show that inflation has negative relationship with share price. Abu-Libdeh and Harasheh (2011) also found that stock prices and inflation has negative relationship and there is causation running from inflation to stock prices.

However, some researchers such as Raja and Kalyanasundaram (2010) and Ratanapakorn and Sharma (2007) found that there is positive correlation between inflation rate and stock market prices.

2.1.4 Share Price and Money Supply (M1)

Some research show a positive relationship between share price with M1, whereby when M1 increase the money inflow to the public increase thus increase the opportunity for the public to invest in financial asset, when demand is more than supply the share price will eventually goes up. (Wong, Khan & Du, 2006) This result is consistent with Ratanapakorn and Sharma (2007) who states that stock prices are positively related to money

supply. Moreover, the research done by Shiblee (2009) stated that money supply is the strongest variable to affect the stock price as it has a strong positive influence based on the results generated by the research.

However, in the studied of Wu (2001) the research show that there is insignificant in explaining the share price with M1 even though at first M1 has a positive effect with share price as the result being offset by negative during their research period. {As cited in Wong, Khan & Du, 2006} The research result is consistent with Zan and Wei (n.d) who found out money supply insignificantly influence the share price, furthermore in the research on Zan and Wei (n.d) stated that during pre crisis period there is no cointegration for there is no long run relationship, however there is long run relationship during the post crisis. Besides that, Mofleh (2011) had study the Saudi market and the result shows that there is negative relationship between M1 and stock prices.

2.1.5 Share Price and Real Interest Rate

According to Wong, Khan and Du (2006) and Alam and Uddin (2009), there is a negative relationship between real interest rate and share price. When the interest rate increases, it will negatively affect the profit of the company and thus lead to the stock return to decrease. As a result, the stock will become less attractive for other investors to buy and sell. Thus, the share price will eventually decrease. This result is consistent with Raja and Kalyanasundaram (2010), Abu-Libdeh and Harasheh (2011) and Mofleh (2011).

Besides that, Alam and Uddin (2009) investigated that there is a negative relationship between interest rate and share price. When bank offer higher interest rate, people tend to switch their funds from share market to bank in order to get high interest. Thus, demand for the share will decrease and lastly lead to share price to decrease.

Furthermore, the same result from Nousheen, Syeda and Tahir (2008) found that share price will decrease as interest rate increase. Higher interest rate indicates high risk as well as high return. However, higher risk leads to the return for a firm to decrease and hence resulted in the share price to decrease at the same time. Thus, these researchers proved that there is an inversely relationship between interest rate and share price.

In addition, from the study of Bento (2002), this researcher shows that interest rate has significant impact on future cash flows and capitalization rate. Therefore, these effects move in the same direction in the sense that increases in interest rate lead to decreases in share price and vice versa.

There are some research shows that stock prices is positively relate to the short term interest rate, but negatively relate to long term interest rate. (Ratanapakorn & Sharma, 2007)

2.1.6 Share Price and Crisis

Based on the research done by Zan and Wei, (n.d), Mala, (2008) and Royfaizal, Lee and Azali (2009), financial crisis hit Asian countries in 1997-1998 and those countries suffer economic downturn in this period. In this studied, crisis being divided into three parts which are pre crisis, during crisis and post crisis.

Based on the study done by previous researcher, the research indicated that crisis do have significant impact in affecting the share price (Mala, 2008). In addition, a research done by Swary (1986) stated that there is significant effect towards stock market response to the crisis especially on banking sector.

However, according to Jang and Su (2002), the research has done on the three crisis period as well. In that studied, pre crisis show that there is no

relationship in the stock market, during and post crisis, there are a relationship with the stock market. {As cited in Royfaizal, Lee & Azali, 2009}

2.2 Review of Relevant Theoretical Models

Granger causality test have been employ by many researcher to study the relationship of share price with exchange rate (Pan, Fok, & Liu, 2007) and (Abdalla & Murinde, 1997), crisis period (Jang & Su, 2002-{As cited in Royfaizal, Lee & Azali, 2009} and Azman-Saini et al, 2002).

Moreover, this test used by Ratanapakorn and Sharma (2007) to examine the long-term and short-term relationship between the US stock price and six macroeconomic variable including interest rate, money supply, inflation and exchange rate. Mofleh (2011) also implements Granger causality test to study the relationship between Saudi stock market prices and eight macroeconomic variables. The methodology of Granger's causality is used to examine the relationships among the money supply and stock prices in the UK. (Thornton, 1993) Besides, Abu-Libdeh and Harasheh (2011) also use this test to investigate the correlation and causality relationship between stock prices in Palestine and five macroeconomic variables.

Toda-Yamamoto causality test use to find relationship with exchange rate with share price during pre-crisis and during crisis period. (Ghazali, Samsu, Ooi & Nelson, 2008)

The cointegration test which firstly introduce by Granger (1981) then further improve the model in 1987 to capture the causal effect of the variables being use to study the relationship between share price with money supply and interest (Wong, Khan & Du, 2006), as well as during crisis period (Jang & Su, 2002); (Azman-Saini et al., 2002); (Sheng & Tu, 2000); (Choudhry et al., 2007)

Ordinary least square (OLS) based two-step cointegration approach, multivariate approach and boarder notion of cointegration which is also call as "fractional cointegration" (Engle and Granger 1987; Johansen 1995; and Granger and Joyuex 1980) have been implement by Wong, Khan and Du, (2006) on the research to study the relationship on money supply and interest rate.

Johansen cointegration test uses to study the share price with variables like crisis. (Choudhry et al., 2007) In addition, Ratanapakorn and Sharma (2007), and Mofleh (2011), also apply Johansen cointegration test in their research. Johansen Maximum likelihood approach and Haldane and Hall Kalman Filter technique being used by Maning (2002) in the research on share market in Southeast Asia.

Vector autoregression (VAR) model purposed by Blanchard and Watson (1986) have been use by Zan and Wei (n.d) to study the relationship between exchange rate and money supply; inflation (CPI) (Zan & Wei, n.d); (Balke and Wohart 2006). The same model (VAR) also being use by Pan, Fok, and Liu (2007) to further determine dynamic linkages between exchange rates and stock prices. Further expansion of VAR model which is two regimes multivariate Markow switching vector autoregression (MA-VAR) model was uses to study the exchange rate with share price as well. (Ismail & Isa, 2009)

Besides that, Variance decomposition analysis has been use to study the share market in pre crisis and post crisis period. (Sheng & Tu, 2000) Besides that, Forecast Error Variance Decomposition (FEVD) analysis have been used by Ratanapakorn and Sharma (2007) and Mofleh (2011) to study the relationship between stock prices and macroeconomic variable such as interest rate, money supply, inflation and exchange rate.

Furthermore, time series technique has been used by Click and Plummer (2005), in order to test the share market with crisis and test between interest rate and share price by Alam and Uddin (2009).

Mundell-Fleming which is purpose by Gavin (1989) and vector-error-correction model use to study the relationship of exchange rate with stock price. (Wu, 2000)

Unit root test which involve Augmented Dickey-Fuller (ADF) and Philips and Perron (PP) test, Johansen and Juselius maximum likelihood have been use by Azman-Saini et al (2002) to study the crisis as well as the causality. Besides, unit root test is conducted by Abu-Libdeh and Harasheh (2011) to assess the causality relationship among studied variables.

In addition, the impulse response function (IRF) is a useful tool for interpreting VAR model results. The IRF allows researchers to investigate the current and future behavior of a variable that following a shock to another variable. This method is used by Mofleh (2011) and Pan, Fok and Liu (2007) in their research.

Pearson Correlation Analysis is used by Shiblee, (2009) and Raja and Kalyanasundaram (2010) to study the relationship between stock price and four variables including inflation rate, interest rate.

Moreover, Alam and Uddin (2009) used panel data to analyse the relationship between interest rate and share price.

Furthermore, Nousheen, Syeda and Tahir (2008) investigate the relationship between interest rate and share price using ARCH and GARCH model.

Relationship between interest rate and share price also examine by Bento (2002) using EGARCH model, MA (1), AR (1) and ARMA (1, 1).

Lastly, ANOVA test was been run in the form of ordinary least square (OLS) method in order to know how strong the relationship between the stock price of the studied companies selected with the independent variables like money supply and inflation. (Shiblee, 2009)

Table 2.2.1 summarized common variables and method used of the researches that were conducted on some countries. Exchange rate, interest rate, inflation, money supply, and crisis are the common variables used in literatures.

Table 2.2.1 Summarized of the methodology

Summarized of the methodology on previous research			
Study	**Variables**	**Method**	**Country**
Abdalla and Murinde (1997)	Exchange rate	Granger Causality	Korea, India, Pakistan and Philippines
Abu-Libdeh and Harasheh (2011)	Inflation rates, Exchange rates	Granger Causality Test and Unit Root Test	Palestine
Azman-Siani et al (2002)	Crisis, Money Supply, Interest Rate,	Granger Causality, Cointegration test, Unit root test, Augmented Dickey-Fuller (ADF) and Philips and Perron(PP) test, Johansen and Juselius maximum likelihood	Malaysia, Singapore, Philippines, Indonesia, Thailand.
Bento (2002)	Interest rate	EGARCH model, MA(1), AR(1), ARMA(1,1)	-
Choudhry et al (2007)	Money Supply, Interest Rate, Crisis	Cointegration test, Johansen cointegration test	Thailand, Malaysia, Indonesia,

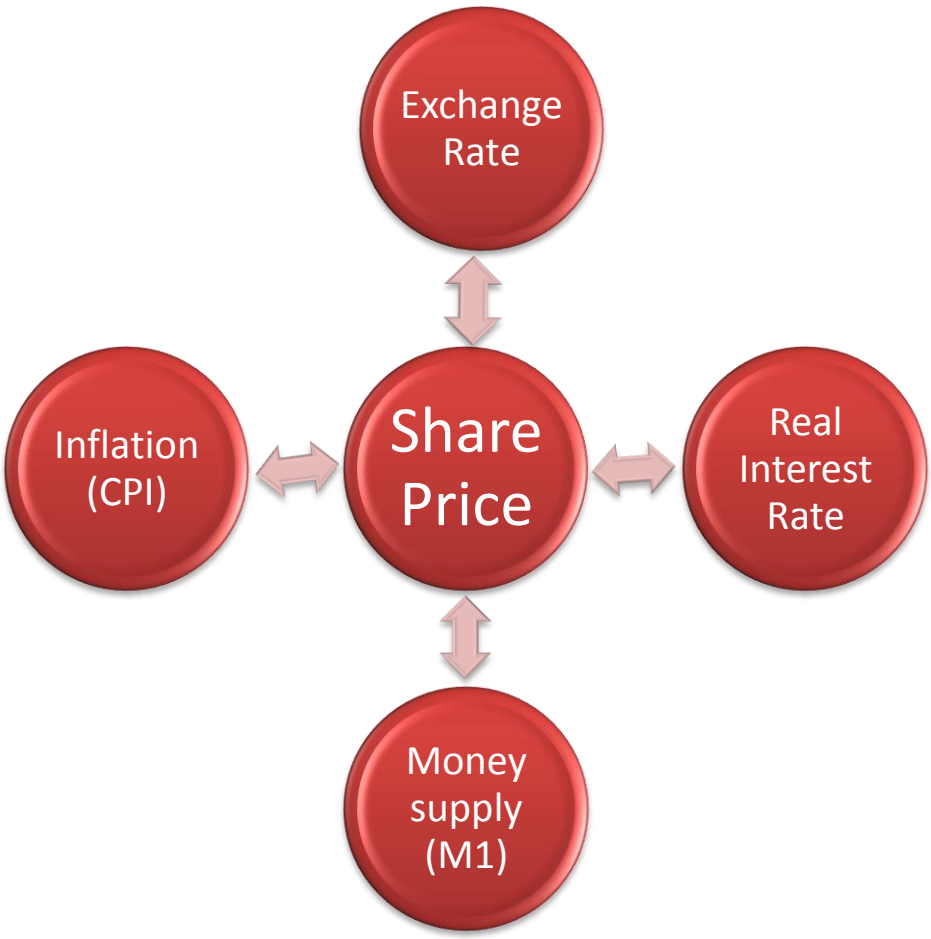
			Hong Kong, Singapore, Philippines, South Korea, Taiwan, United Stated and Japan
Click and Plummer (2005)	Crisis	Time Series Technique	Indonesia, Malaysia, Philippines, Singapore
Ghazali, Samsu, Ooi and Nelson (2008)	Exchange rate during crisis and pre crisis period,	Toda-Yamamoto causality test	Malaysia
Ismail and Isa (2009)	Exchange Rate	regimes multivariate Markow switching vector autoregression (MA-VAR) model	Malaysia
Jang and Su (2002)	Crisis	Granger Causality	Thailand, Indonesia, Korea, Japan, Hong Kong, Singapore and Taiwan

Thornton (1993)	Money supply	Granger Causality Test	United Kingdom
Alam and Uddin (2009)	Interest rate	Panel data, country-wise time series analysis	Australia, Bangladesh, Canada, Chile, Colombia, Germany, Italy, Jamaica, Japan, Malaysia, Mexico, Philiphine, S.Africa, Spain, Venezuela
Mofleh (2011)	Tadawul All Share Index (TASI), Money supply (M1 and M2), Inflation (CPI), Interest rate, Exchange rate, Standard & Poor's stock price index 500	Johansen Cointegration Test, Causality Test, Impulse Response Functions (IRF), and Forecast Error Variance Decompositions (FEVD)	Saudi
Nousheen, Syeda and Tahir (2008)	Interest rate	GARCH model, ARCH model	Pakistan

Pan, Fok and Liu (2007)	Exchange rates	Granger Causality Test, Variance Decomposition Analysis, and Impulse Response Anaysis	Hong Kong, Japan, Korea, Malaysia, Singapore, Taiwan, and Thailand
Raja and Kalyanasundaram (2010)	Inflation rate, and interest rate	Pearson Correlation Analysis	Brazil and India
Ratanapakorn and Sharma (2007)	Money supply, Interest rate, Inflation, Exchange rate.	Johansen Cointegration Test, Causality Test, and Forecast Error Variance Decomposition (FEVD) Anaysis	United States
Sheng and Tu (2000)	Money Supply, Interest Rate, pre and post crisis,	Cointegration test, Variance decomposition analysis,	Hong Kong, Singapore, Korea, Taiwan, Malaysia, Thailand, Indonesia (Jakarta), Philippines (Manila) Shanghai.

Shiblee (2009)	Inflation, Money supply	OLS regression, ANOVA, Pearson Correlation Analysis	United States
Zan and Wei (n.d)	Exchange rate, Money Supply, Inflation (CPI)	VAR model	Taiwan, South Korea, Singapore and Hong Kong
Wong, Khan and Du (2006)	Money Supply, Interest Rate,	Cointegration test, OLS based two step cointegration approach, multivariate approach and boarder notion of cointegration	Singapore and United States
Wu (2000)	Exchange rate	Mundell-Fleming, vector-error-correction model	Singapore

2.3 Proposed Theoretical/ Conceptual Framework



In this research, variables like exchange rate, real interest rate, money supply (M1) and inflation (CPI) uses to study the relationship with share price during the period of pre crisis, crisis and post crisis.

2.4 Hypotheses Development

2.4.1 Exchange rate

H_0 : Exchange rate insignificantly affect the stock price.

H_1 : Exchange rate significantly affect the stock price.

The relationship between exchange rate and share price will be examined, which to test the degree of significant of exchange rate with share price. Reject null hypothesis mean the independent is significantly in affecting the share price in Malaysia, Thailand or Malaysia.

2.4.2 Inflation (CPI)

H_0 : Inflation (CPI) insignificantly affect the stock price.

H_1 : Inflation (CPI) significantly affect the stock price.

The relationship between inflation and share price will be examined, which to test the degree of significant of inflation with share price. Reject null hypothesis mean the independent is significantly in affecting the share price in Malaysia, Thailand or Malaysia.

2.4.3 Money Supply (M1)

H_0 : Money supply (M1) insignificantly affect the stock price.

H_1 : Money supply (M1) significantly affect the stock price.

The relationship between money supply (M1) and share price will be examined, which to test the degree of significant of M1 with share price. Reject null hypothesis mean the independent is significantly in affecting the share price in Malaysia, Thailand or Malaysia.

2.4.4 Real Interest Rate

H_0 : Real interest rate insignificantly affect the stock price.

H_1 : Real interest rate significantly affect the stock price.

The relationship between real interest rate and share price will be examined, which to test the degree of significant of real interest rate with share price. Reject null hypothesis mean the independent is significantly in affecting the share price in Malaysia, Thailand or Malaysia.

2.5 Conclusion

In conclusion, this chapter literature review is trying to explain the relationship between the shares price with the factors, for instance, inflation, real interest rate, exchange rate and money supply during the period of pre crisis, crisis and post crisis. Furthermore, it is also telling that whether the factor significantly or insignificantly affecting the share price, the relationship between share price and factors affecting it which is either positively or negatively.

Lastly, this chapter also illustrates methodology on how pervious researchers conduct the studied of this area. Based on the research, the method commonly use to studied the share price with macroeconomic variables like exchange rate, inflation, real interest rate and money supply (M1) are Granger causality test, Cointegration test and Variance Autoregression (VAR) analysis.

CHAPTER 3: METHODOLOGY

3.0 Introduction

In this chapter will describe on how the research will be conducted in terms of the research model, model design, data collection method and data analysis.

3.1 Research Design

The data that are using in this research will be quantitative data, due to the research aim to determine the share price behavior by using the variables such as money supply (M1), real interest rate, inflation rate (CPI), and exchange rate. All of these variables are basically involve in numbering, thus the research is rely on the quantitative data rather than qualitative data.

3.2 Data Collection Method

The data will be collected based on the Datastream and Yahoo finance. This research basically used the secondary data, which is the data has already been collected to study the relationship between share prices with the factors affect it.

3.2.1 Share Price

The share price data which are included KLSE index for Malaysia, STI index for Singapore and FTSE index for Thailand will be collected from Yahoo finance for the period in between 1995 to 2010. The data will be in monthly data basis.

3.2.2 Exchange rate

The exchange rate data are collected from Datastream for the period in between 1995 to 2010. The data with be in monthly data basis. The base currency for this research is per US dollar (USD), which mean MYR/USD, Thai Baht/USD and Singapore Dollar/USD.

3.2.3 Inflation rate (CPI)

The inflation rate data are collected from Datastream for the period 1995 to 2010 in the index basis. The data with be in monthly data basis.

3.2.4 Money Supply (M1)

The money supply (M1) data are collected from Datastream in between the period of 1995 to 2010. The data collected are in monthly data basis.

3.2.5 Real interest rate

The real interest rate data are collected from Datastream for the period from 1995 to 2010 in percentage manner. The data collected will be in monthly data basis.

3.2.6 Crisis

Crisis will be use as three different periods to study in this research paper, meaning that it will be classified into pre crisis, during crisis and post crisis to study each independent variable towards the share price. This is to determine whether in which period the variables will significantly affect the share price. The year with crisis is on 1997 and 1998. However, the period will be divided into three categories within 1995 to 2010 according to the crisis period, for instance, pre crisis period which is in 1995 to 1996, during the crisis period which is in between 1997 and 1998 and after crisis which is from 1999 to 2010.

3.3 Data Analysis

The computer program used in this chapter to for the entire data is E-view. Below are the tests that will be used in this research.

3.3.1 Augmented Dickey Fuller (ADF) Unit Root test

This test was developed by Dickey and Fuller (1981) to test the stationery of the model. (Gujarati, 2003) The purpose of this test is to make sure which econometric model should be use in the research based on the integrated value and some theory stated that some variables should be integrated. (Sjo, 2008)

In addition, the test should be carry first before the test of cointegration. The ADF unit root test classified into two which are model with constant and without trend, and model with constant and with trend. In order to decided which model to be use is based on the graphical data shown in the E-view for Yt.

Model with constant and without trend:

$$\Delta Y_{t=}\ \mu +\ \delta Y_{t-1} + \sum_{i=1}^{k} \alpha_i\, \Delta Y_{t-1} +\ \varepsilon_i$$

Model with constant and with trend:

$$\Delta Y_{t=}\ \mu +\ \beta_t +\ \delta Y_{t-1} + \sum_{i=1}^{k} \alpha_i\, \Delta Y_{t-1} +\ \varepsilon_i$$

The unit root test will be conducted based on the OLS regression shown above.

The hypothesis statement as below:

$H_0 = Y_t$ *is non-stationary* (Y_t *has unit root)*

$H_1 = Y_t$ *is stationary* (Y_t *has no unit root)*

The decision rule is reject the null hypothesis when the test statistic is less than critical value otherwise, do not reject. In other words, it means that the unit root does not exist in the model and vice versa, if the test statistics is more than critical value, it indicates that there is unit root in the model. The critical value can be obtained from T statistical table that have been modified by Dickey and Fuller.

The t statistic can formula is :

$$\frac{\widehat{\delta} - \delta}{SE\ (\widehat{\delta})}$$

Besides, we reject the null hypothesis when the ADF test is more than "tau" or t* critical value shown at Eview, otherwise, do not reject. In other words, it means that the unit root no exist in the model and vice versa, if the ADF is less than t* critical value, it indicates that there is unit root in the model.

Whereby for none equation is -2.685718, -1.959071 and -1.607456 for 1%, 5% and 10% critical value at second differentiation for the t* test; whereas for first differentiation at -2.674290, -1.957204 and -1.608175 for 1%, 5% and 10% critical value.

However, for intercept only at second differentiation based on t* of -3.788030, -3.012363 and -2.646119 for 1%, 5% and 10% critical value. In contrast for first differentiation is at -3.769597, -3.004861 and -2.642242 for 1%, 5% and 10% critical value.

Lastly for intercept with trend for t* test is -4.440739, -3.632896 and -3.254671 for 1%, 5% and 10% significant level at first differentiation, second different at -4.467895, -3.644963 and -3.261452 at 1%,5% and 10% critical value, whereas for level form is at -4.023506, -3.441552 and -3.145341 for 1%, 5% and 10% significant level

3.3.2 Philips and Perron (PP) Test

This test is developed by Phillips and Perron (1988) that offer a non-parametric method to correct for serial correlation in unit root testing. Phillips-Perron test involves fitting the least square regression to estimate coefficients in the model. This PP test use modified Dickey-Fuller statistic so that the serial correlation does not affect the asymptotic distribution of the test statistic. Besides, this test allows user does not have to specify a lag length for the regression model. The PP test statistic can be viewed as Dickey-Fuller statistic which is robust to serial correlation through using the Newey-West heteroscedasticity and autocorrelation test.

The Phillips-Perron model is:

$$y_t = c + \delta t + \alpha\, y_{t-1} + \mu_t$$

The hypothesis statement is as follow:

H_0 =*There is a unit root.*

H_1 = *There is no unit root.*

The decision rule is reject the null hypothesis when the PP test is more than critical value "tau" or t* shown at Eview, otherwise, do not reject. In other words, it means that the unit root no exist in the model and vice versa, if the PP is less than "tau" t* critical value, it indicates that there is unit root in the model.

Whereby for none equation is -2.685718, -1.959071 and -1.607456 for 1%, 5% and 10% critical value at second differentiation for the t* test; whereas for first differentiation at -2.674290, -1.957204 and -1.608175 for 1%, 5% and 10% critical value.

However, for intercept only at second differentiation based on t* of -3.788030, -3.012363 and -2.646119 for 1%, 5% and 10% critical value. In contrast for first differentiation is at -3.769597, -3.004861 and -2.642242 for 1%, 5% and 10% critical value.

Lastly for intercept with trend for t* test is -4.440739, -3.632896 and -3.254671 for 1%, 5% and 10% significant level at first differentiation, second different at -4.467895, -3.644963 and -3.261452 at 1%,5% and 10% critical value, whereas for level form is at -4.023506, -3.441552 and -3.145341 for 1%, 5% and 10% significant level

3.3.3 Cointegration Test

In this chapter, the OLS based two step cointergration approach proposed by Engle and Granger (1978) will be carry out to test the relationship between the share Index in Malaysia, Singapore and Thailand with all the independent variables as discuss earlier.

Cointegration test is to study the relationship or association between the independents variable with dependent variables for time series data. The stationary level based on the integrated (I) times in the model for independent and dependent level respectively. For example, if the model Y_t and X_t is stationary in the same integration the cointegration test will be carry after that, for instance during the first time of differentiation both Y_t and X_t integrated in I(1). However, when the case of Y_t is stationary in I(1) but X_t stationary in d(3), then the next test should be using Vector autoregressive model (VAR) rather than cointegration test.

Now assume the model is stationary in the same integration for Y_t and X_t in this research, the cointegration test should be carry out to determine the number of vector cointegrated (r). The test started with no cointegrating vector, then one cointegrating vector and so far until the decision that do not reject the null hypothesis.

H_o : There is no cointegrating vector (r = 0)
H_1 : There is cointegrating vector (r > 0)

(If above Ho being rejected, the test will be proceed and stated as below)

H_o : There is one cointegrating vector (r = 0)
H_1 : There is more than one cointegrating vector (r > 0)

(The cointegrated value will keep increases until the Ho is accepted)

The above is the hypothesis statement used to test for the cointegration test. The decision rule is that reject null hypothesis when p-value less than α (5%), or the test statistical less than the critical value. The test is continuously until the value that we do not reject null hypothesis.

After the value being obtained, then the research can know either the relationship between the dependent or independent variables for instance long run relationship, short run relationship or either one, or even no relationship among the variables.

Below are the tests statistical for cointegrated test which use to make the decision for the association between the dependent variable with independent variables.

Maximum Eigenvalue

$\lambda_{max\,(r)} = -T In(1-\widehat{\lambda r+1})$

Trace Statistic

$\lambda_{trace(r)} = -T\sum In(1-\widehat{\lambda 1})$

3.3.4 Diagnostic Checking

Diagnostic checking will be run based on OLS times series data (mulitiple linear regression model). Times series analysis is where by the model using the different time period to investigate particular issue. In other hands, it means that the research based on one observation with many times period to obtain the result. For example, study exchange rate for year 1990-2010.

Times series model usually will face some econometric problem due to the model must be BLUE (Best, Linear, Unbiased and Estimator), but in fact

BLUE are not easily obtain, thus the econometric problems for instance multicollinearity problem, autocorrelation problem and other will occur when the model is not BLUE. However, if the econometric problem is not serous then the result is still acceptable and reliable.

3.3.4.1 Multicollinearity

Multicollinearity is a test used to detect the relationship between independent variables in the model. T-test is used to test the individual β while F-test is used to test whether the whole model is performing well in analyzing dependent variables. Variance Inflation Factor (VIF) is calculating for each independent variable.

$$VIF = 1 / R^2$$

*** Where R^2 is the coefficient of determination**

It shows perfect multicollinearity if VIF is undefined. If VIF is greater than 10, this indicates that there is a serious multicollinearity problem. As contrast, if VIF is in between 1 to 10, this indicates that there is not serious multicollinearity problem occurs. Lastly, there is no multicollinearity problem if VIF equals to 1.

However, the multicollinearity problem is not able to be eliminated in the research. Hence, the not serious multicollinearity problem is still can be accepted.

3.3.4.2 Heteroscedasticity

Heteroscedasticity problem shows that the variance of error term is not constant. To test whether there is heteroscedasticity problem exists in the model, White test is carrying out. Before this, hypothesis is stated as below:

H_0 : There is no heteroscedasticity problem in the model.

H_1 : There is heteroscedasticity problem in the model.

Do not reject null hypothesis if P-value is greater than 0.01. This means that there is no heteroscedasticity problem occurs. However, reject the null hypothesis if P-value is smaller than 0.01. This indicates that there is heteroscedasticity problem occurs.

3.3.4.3 Autocorrelation

Autocorrelation problem indicates that there is a correlation between error terms in the model. There are three test can be carry out specifically for different conditions to test whether there is an existence of autocorrelation problem. Durbin-Watson test and Durbin-H test are used for one autoregressive schemes (AR1) but Breusch-Godfrey LM test is used for more than one autoregressive schemes (AR2).

Hypothesis is stated as shown below:

H_0 : There is no autocorrelation problem in the model.

H_1 : There is an autocorrelation problem in the model.

Reject the null hypothesis if P-value smaller than 0.01 where it shows that there is an autocorrelation problem exists in the model. Nevertheless, do not reject it if P-value greater than 0.01 where it indicates that there is no autocorrelation problem occurs in the model.

3.3.4.4 Model Specification Test

Model specification test is the test to ensure the model is correct and best. Hypothesis is being stated as below:

H_0 : *Model specification is correct*

H_1 : *Model specification is incorrect*

Ramsey Regression Specification Error Test as known as Ramsey RESET test is used to test the existence of model specification error.

Critical value : $F_{\alpha\ ,\ 2,\ n-4}$

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

Reject the null hypothesis if P-value is smaller than 0.01, it shows that there is a model specification error exists in the model. Nevertheless, do not reject the null hypothesis if P-value greater than 0.01 where it indicates that there is no model specification error occurs in the model.

3.3.4.5 Normality Test

This test is carrying out to examine whether the error terms in the model is normally distributed. Hypothesis statements are stated as shown below:

> H_0 : *The error term is normally distributed.*
>
> H_1 : *The error term is not normally distributed.*

Jarque-Bera test (JB Test) is used to test the normality of the model.

> *Critical value :* $X^2_{\alpha, k}$
>
> $JB = n / 6 [Skewness + ¼ (Kurtosis – 3)^2]$

Reject the null hypothesis if P-value is smaller than 0.01, it shows that the model is not normally distributed. Nevertheless, the null hypothesis is not rejected if P-value greater than 0.01 where it indicates that the model is normally distributed.

3.3.5 Ordinary Least Square Based analysis (Panel Data)

The Ordinary Least Square (OLS) regression model will be formed as below:

$$\widehat{Y}_{it} = \beta_0 + \beta_1 \widehat{Exg\ Rate}_{it} + \beta_2 \widehat{CPI}_{it} + \beta_3 \widehat{Int\ Rate}_{it} + \beta_4 \widehat{M1}_{it}$$

Where,

$\widehat{Y}_{it}$ = *Price index for Malaysia, Singapore and Thailand*

Exg Rate = *Exchange rate per USD for Malaysia, Singapore and Thailand*

CPI = *Inflation rate in index for Malaysia, Singapore and Thailand*

Int Rate = *Real Interest Rate in percentage for Malaysia, Singapore and Thailand*

M1 = *Money Supply in Million for Malaysia, Singapore and Thailand*

Panel data is the data which include both time series data and cross sectional data. There are two types of data, which consists of balanced data (equal number of periods for each observation) and unbalanced data (unequal number of periods for each observation). The purpose of using the panel data is to test the significance of the independent variables toward the dependent variable in the model. Besides that, panel data consists Pooled OLS Model and Fixed Effect Model. In order to choose which model to be use in research, few tests should be conducted and decision making will be based on the tests result gathered.

3.3.5.1 Pooled OLS Model

Pooled OLS Model is also known as time-invariant model. In other words, it refers to the model that consists of constant observations over the time. Pooled OLS Model is used when there is homogeneity and same observations for intercept and coefficient value. However, it is vital to ensure that model must fulfill Classical Linear Regression Model to get unbiased, efficient and consistent data.

3.3.5.2 Fixed Effect Model

Fixed effect model is used to test the characteristics for each observation based on intercept regardless time effect. There are three conditions for this model. Firstly, in time invariant, there are different intercept and same slope for each observation. Secondly, in time variant, there are different intercept and same slope for each observation. Thirdly, in time invariant, there are different intercept and slope for each observation.

3.3.5.3 Poolability Test

To examine whether Pooled OLS Model or Fixed Effect Model is suitable for our model, Poolability hypothesis testing is carry out.

H_0: Pooled OLS Model better than Fixed Effect Model

H_1: Fixed Effect Model better than Pooled OLS Model

The decision rule is that reject null hypothesis if F-test is greater than critical value. Otherwise, do not reject the null hypothesis.

Restricted F- test :

$$F = \frac{(R^2_{FEM} - R^2_{POOLED}) / (k_{FEM} - k_{POOLED})}{(1- R^2_{FEM}) / [n- (k_{FEM} + 1)]}$$

If reject the null hypothesis, it indicates that fixed effect model is better than pooled OLS model. If it is not rejected, it shows that pooled OLS model is better than fixed effect model.

Lastly, normality test will be carried out to test on the normality of error term based on the panel data model to ensure that the model result is reliable and free from bias.

3.4 Conclusion

As a conclusion, ADF Unit Root Test, Phillip-Perron (PP) Test, Cointegration Test, diagnostic checking test based on times series data and OLS regression Panel data will be conducted in this research in order to meet this research paper's objective which is to study the determinants of the share price like real interest rate, exchange rate, CPI and M1 for three countries which are Malaysia, Singapore and Thailand during three periods which are pre-crisis, crisis and post-crisis.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

In this chapter, the results and analyses obtained are presented in order to determine the share price with the variables. All of the tests conducted are run by EViews 6.

4.1 Augmented Dickey-Fuller (ADF) Unit Root test and Philips-Perron (PP) test

Table 4.1.1 Malaysia's ADF and PP test

Variable	Period	ADF	PP
KLSE (Malaysia)	1995 – 1996	-8.42684 (d2, T@I)	-8.424684 (d2,T@I)
	1997 – 1998	-7.525349 (d2, T@I)	-9.125591 (d2,T@I)
	1999 – 2010	-9.944315 (d1, T@I)	-10.03755 (d1,T@I)
Interest Rate	1995 – 1996	-6.966366 (d2, T@I)	-6.894001 (d2,T@I)
	1997 – 1998	-6.785027 (d2, I)	-13.91756 (d2, I)
	1999 – 2010	-6.283583 (d1, T@I)	-10.59920 (d1,T@I)

Inflation	1995 – 1996	-6.725363 (d1, T@I)	-7.018746 (d1,T@I)
	1997 – 1998	-6.092498 (d2, T@I)	-12.12227 (d2,T@I)
	1999 – 2010	-8.329237 (d1, T@I)	-8.364735 (d1,T@I)
M1	1995 – 1996	-5.466922 (d1, T@I)	-5.238276 (d1,T@I)
	1997 – 1998	-6.899667 (d2, T@I)	-9.164127 (d2,T@I)
	1999 – 2010	-10.97343(d1, T@I)	-17.06001 (d1,T@I)
Exchange Rate	1995 – 1996	-7.348310 (d2, T@I)	-7.594186 (d2,T@I)
	1997 – 1998	-4.894649 (d1, T@I)	-5.139169 (d1,T@I)
	1999 – 2010	-5.187819 (d1, T@I)	-10.16974 (d1,T@I)

Source: developed from EViews 6

Table 4.1.2 Singapore ADF and PP test

Variables	Period	ADF	PP
STI (Singapore)	1995-1996	-4.526338 (d1,T@I)	-4.425692(d1, T@I)
	1997-1998	-5.027071(d1,T@I),	-5.028027(d1,T@I)
	1999-2010	-10.28360(d1,T@I)	-10.45334(d1,T@I)
Interest Rate	1995-1996	-4.123106(d1,I)	-4.690442(d1, I),
	1997-1998	-4.972086(d2, T@I)	-7.618315(d2, T@I)
	1999-2010	-8.568581(d1,T@I)	-8.337195(d1,T@I)
Inflation	1995-1996	-6.089421(d1, T@I)	-12.80864(d1, T@I)
	1997-1998	-11.75097(d2, T@I)	-11.75097(d2,T@I)
	1999-2010	-5.362571(d1, T@I)	-15.66502(d1,T@I)
M1	1995-1996	-6.112849(d1, T@I)	-12.25885(d1, T@I)
	1997-1998	-4.815096(d1,T@I)	-4.815096(d1,T@I)
	1999-2010	-14.69629 (d1,T@I)	-15.16822,(d1,T@I)
Exchange rate	1995-1996	-3.383108(d1,N)	-3.382080(d1,N)
	1997-1998	-4.481348(d1,T@I)	-4.729113,(d1, T@I)
	1999-2010	-12.13212(d1,T@I)	-12.14154(d1,T@I)

Table 4.1.3 Thailand ADF and PP test

Variables	Period	ADF	PP
FTSE (Thailand)	1995-1996	-5.117241(d1,T@I)	-5.111247(d1, T@I)
	1997-1998	-6.751058(d2,T@I)	-12.70785(d2,T@I)
	1999-2010	-11.70338(d1,T@I)	-11.71746(d1,T@I)
Interest Rate	1995-1996	-7.036581(d2,T@I)	-9.512797(d2,T@I)
	1997-1998	-5.887665(d2,T@I)	-8.183553(d2,T@I)
	1999-2010	-14.68558(d1,T@I)	-14.64961(d1,T@I)
Inflation	1995-1996	5.214016(d1,T@I)	-6.589882(d1,T@I)
	1997-1998	-4.943174(d2,N)	10.11885(d2,N)
	1999-2010	-11.30153(d1,T@I)	-11.31425(d1,T@I)
M1	1995-1996	-6.369076(d1,T@I)	-6.352127(d1,T@I)
	1997-1998	-5.531921(d1,T@I)	-5.793512(d1, T@I)
	1999-2010	-11.37819(level T@I)	-11.59354(level, T@I)
Exchange rate	1995-1996	-3.862699(d1,I)	-3.809172(d1,I)
	1997-1998	-5.339447(d2,T@I)	-13.16201(d2,T@I)
	1999-2010	-11.37146(d1,T@I)	-11.37648(d1,T@I)

Source: developed from EViews 6, at 1% significant level. (table 4.1.1-4.1.3)

** d1 = first differentiation*

** d2= second differentiation*

** T@I = trend and intercept*

** I= Intercept*

** N= without trend and intercept*

H_0 *: Variables are not stationary and has a unit root*

H_1*: Variables are stationary and has no unit root*

The decision rule is to reject the null hypothesis if the p-value is less than 1% significant level. If the results show failed to reject null hypothesis in level form, then begin with the first level differentiation and then continue to second differentiation if the first differentiation failed to reject the null hypothesis.

The summarized results obtained by the independent variables for all the countries namely Malaysia, Singapore and Thailand are mostly stationary in the first differentiation, while there are some independent variables stationary at second differentiation or even some have already stationary at the level form. The stationary levels for all the independent variables are more accurate in the intercept and trend form, moreover the Durbin Watson test results show no autocorrelation problem. However, there is a few that only stationary in none and intercept types and normally occurred in the crisis period.

Table 4.1.1 to table 4.1.3 Malaysia, Singapore and Thailand ADF and PP Test, the figures are the results generated by using all the variables in this research using Augmented Dickey-Fuller (ADF) unit root test and Phillips-Perron (PP) test. Result showed as below:

Table 4.1.1 Malaysia ADF and PP Test, stock price will only reach stationary after second differentiation during pre-crisis and crisis period while stock price be stationary with first differentiation for the period after crisis. Trend and intercept are included to run the ADF and PP test.

Almost all the independent variables except exchange rate need to differentiate twice in order to achieve stationary during crisis. Besides that, interest rate during crisis period will only be stationary with only intercept, no trend is included.

Interest rate and exchange rate during the pre-crisis period need to undergo second differentiation to achieve stationary, whereas the rest of the variables already achieved stationary just only undergo first differentiation included with trend and intercept.

In conclusion, table 4.1.1 Malaysia ADF and PP Test shows that during pre-crisis period, only inflation and M1 stationary at first level while the other variables stationary at the second level. However, exchange rate stationary at first level during crisis period and the others stationary at the second level. Last but not least, all the variables are stationary at the first level during post-crisis period. The PP test results are consistent with ADF results.

Whereas for table 4.1.2 Singapore ADF and PP test, during the crisis period, the interest rate and CPI only stationary at second differentiation; the others are stationary at the first differentiation; for CPI, even the test is stationary at first differentiation but the Durbin Watson test result shows there is autocorrelation problem. Thus, the test proceeds to second differentiation in order to avoid the autocorrelation result. However, the exchange rate stationary at first differentiation, but it is in the category of none which means there is no intercept and no trend included in the equation during per crisis period. Besides that, based on table 4.1.2 as well, the CPI stationary at first differentiation but at the level and trend only for the pre-crisis period. Other than that, the independent variables are stationary at first differentiation and in trend and intercept form.

In summary, table 4.1.2 Singapore ADF and PP Test, during pre-crisis and post-crisis period, all the independent variables stationary at first level, however during crisis period only CPI and interest rate stationary at second level the other stationary at the first level. The PP test results are consistent with ADF results.

Whereas, table 4.1.3 Thailand ADF and PP Test, the FTSE index, interest rate, exchange rate and CPI stationary at second level during crisis period, except M1

which is stationary at the first level; however, for CPI it is in the none form which means trend and intercept are not included. Furthermore, the interest rate is stationary at second differentiation even it is on pre-crisis period. In addition, for M1, after crisis period, the data stationary at the level form which means it does not need to differentiate the independent variable. Last but not least, the exchange rate during pre-crisis period, even the variables is stationary at the first differentiation but it is in the category of intercept only. The other variables are in first differentiation and in the form of trend and intercept.

In conclusion, table 4.1.3 Thailand ADF and PP Test shows that during pre-crisis period, all the variables are stationary at first level except interest rate; whereas during crisis period, mostly are stationary at second level except M1 and lastly on the post-crisis period, all variables are stationary at first level except M1 stationary at the level form. The PP test results are consistent with ADF results.

4.2 Cointegration Test

Table 4.2.1 Malaysia, Thailand and Singapore Cointegration test

Country	Period	Cointegration test (Trace Statistic)	5% critical value	Cointegration test (Max-Eigen Statistic)	5% critical value
Malaysia	**1995-1996**				
	R=0	97.94729*	69.81889	42.81794*	33.87687
	R=1	55.12935*	47.85613	32.58828*	27.58434
	R=2	22.54107	29.79707	19.88563	21.13162
	R=3	2.655436	15.49471	2.620085	14.26460
	1997-1998				
	R=0	97.38969*	69.81889	44.97503*	33.87687
	R=1	52.41465*	47.85613	25.38313	27.58434
	R=2	27.03152	29.79707	15.52950	21.13162
	R=3	11.50202	15.49471	6.885763	14.26460
	1999-2010				
	R=0	87.58204*	69.81889	35.52500*	33.87687
	R=1	52.05704*	47.85613	21.36440	27.58434
	R=2	30.69264*	29.79707	20.20100	21.13162
	R=3	10.49164	15.49471	7.136191	14.26460

Table 4.2.1 Malaysia, Thailand and Singapore Cointegration test

Country	**Period**	**Cointegration test (Trace Statistic)**	**5% critical value**	**Cointegration test (Max-Eigen Statistic)**	**5% critical value**
Thailand	**1995-1996**				
	R=0	89.76764*	69.81889	45.11801*	33.87687
	R=1	44.64963	47.85613	20.48293	27.58434
	R=2	24.16670	29.79707	15.50404	21.13162
	R=3	8.662662	15.49471	8.662315	14.26460
	1997-1998				
	R=0	79.70133*	69.81889	43.81398*	33.87687
	R=1	35.88735	47.85613	19.08455	27.58434
	R=2	16.80280	29.79707	12.32675	21.13162
	R=3	4.476048	15.49471	3.232442	14.26460
	1999-2010				
	R=0	90.58787*	69.81889	49.57242*	33.87687
	R=1	41.01546	47.85613	20.62607	27.58434
	R=2	20.38939	29.79707	15.36090	21.13162
	R=3	5.020300	15.49471	4.943066	14.26460

Table 4.2.1 Malaysia, Thailand and Singapore Cointegration test

Country	**Period**	**Cointegration test (Trace Statistic)**	**5% critical value**	**Cointegration test (Max-Eigen Statistic)**	**5% critical value**
Singapore	**1995-1996**				
	R=0	144.1090*	69.81889	70.73226*	33.87687
	R=1	73.37676*	47.85613	40.82323*	27.58434
	R=2	32.55353*	29.79707	27.53596*	21.13162
	R=3	5.017571	15.49471	4.836024	14.26460
	1997-1998				
	R=0	102.4946*	69.81889	53.15814*	33.87687
	R=1	49.33647*	47.85613	24.78591	27.58434
	R=2	24.55057	29.79707	12.98555	21.13162
	R=3	11.56502	15.49471	6.582508	14.26460
	1999-2010				
	R=0	96.28554*	69.81889	40.62356*	33.87687
	R=1	55.66198*	47.85613	30.04869*	27.58434
	R=2	25.61329	29.79707	15.94007	21.13162
	R=3	9.673217	15.49471	6.289698	14.26460

** Source: developed from EViews 6. At 5% critical value*

Cointegration test is aim to test for the relationship between the variables. The decision rule is do not reject the null hypothesis meaning that there is no cointegration; at most one; at most two; or at most three cointegration among the variables.

Based on table 4.2.1 Cointegration Test, Thailand shows that in the period of pre-crisis, during crisis and after crisis, all the independents variables are cointegrated at first level or in other words it means the variables are having long run association.

However, the pre-crisis and after crisis period for Singapore, the cointegration for both the test are align with each other, which is for pre-crisis cointegrated at the third level and after crisis is cointegrated at second level. During the crisis period, the both test show different cointegration test result, which is Trace statistic is at second cointegrated while for Max Eigen statistic at the first cointegrated level.

Table 4.2.1 Cointegration Test result shown during pre-crisis period the variables cointegrated at the second level for Malaysia, whereas for crisis period and after crisis period, both test show different cointegrated level, where Trace statistic cointegrated at second level while Max Eigen at first level for crisis period; while for after crisis period Trace statistic shows the variables cointegrated at third cointegrated but Max Eigen statistic shows first cointegrated.

> *H_0 : Long run relationship does not exist between variables.*
>
> *H_1 : Long run relationship exists between variables*.

.

Even some variables cointegrated in r = 1, r = 2 or r = 3, in a conclusion, the variables having the long run relationship regardless whether both test show the similar result. However, according to Gan et al (2006), it stated that it is normal that for the tests to show different result. The decision rule for this cointegrated is that the critical value should larger than 5% critical value, which mean sthe null hypothesis can be rejected.

4.3 Diagnostic Checking (Based on Times Series Data)

Table 4.3.1 Malaysia Times Series Result

Country	Period	Variables	Probability
Malaysia	**1995-1996**	KLSE	0.04487**
		Interest Rate	0.3868
		M1	0.2707
		Exchange rate	0.0197**
R^2= 0.806247		CPI	0.1321
	1997-1998	KLSE	0.0018***
		Interest Rate	0.0006***
		M1	0.0000***
		Exchange rate	0.0000***
R^2= 0.962257		CPI	0.0007***
	1999-2010	KLSE	0.0000***
		Interest Rate	0.0628*
		M1	0.0000***
		Exchange rate	0.0000***
R^2= 0.839139		CPI	0.0000***

Source: developed from EViews 6

Table 4.3.2 Thailand Times Series Result

Country	Period	Variables	Probability
Thailand	**1995-1996**	FTSE	0.0395**
		Interest Rate	0.9299
		M1	0.7093
		Exchange rate	0.6441
R^2= 0.957101		CPI	0.0000***
	1997-1998	FTSE	0.0274**
		Interest Rate	0.9809
		M1	0.4159
		Exchange rate	0.9642
R^2= 0.776388		CPI	0.0006***
	1999-2010	FTSE	0.0000***
		Interest Rate	0.0000***
		M1	0.6348
		Exchange rate	0.0134**
		CPI	0.8464
R^2= 0.416335			

Source: developed from EViews 6

Table 4.3.3 Singapore Times Series Result

Country	Period	Variables	Probability
Singapore	**1995-1996**	STI	0.0194**
		Interest Rate	0.0384**
		M1	0.0017***
		Exchange rate	0.7004
R^2= 0.506274		CPI	0.0206**
	1997-1998	STI	0.4085
		Interest Rate	0.5412
		M1	0.0027***
		Exchange rate	0.0000***
R^2= 0.956424		CPI	0.1870
	1999-2010	STI	0.0000***
		Interest Rate	0.0589***
		M1	0.0000***
		Exchange rate	0.0000***
R^2= 0.749614		CPI	0.0000***

Source: developed from EViews 6

Table 4.3.1, Table 4.3.2 and Table 4.3.3:

*1% significant level = ****

*5% significant level = ***

*10% significant level = **

Table 4.3.1 to 4.3.3, Malaysia, Thailand and Singapore Diagnostic Checking test, indicated that the significant of the each independent variable towards the share price for each country.

4.3.1 Multicollinearity

Table 4.3.1.1 Multicollinearlity Test

Country	**Period**	**R^2**	**VIF**
Malaysia	1995-1996 (Interest rate with CPI)	0.976494	42.54**
	1997-1998 (Exchange Rate with CPI)	0.664046	2.97
	1999-2010 (CPI with M1)	0.963875	27.68**
Thailand	1995-1996 (FTSE with CPI)	0.956152	22.80**
	1997-1998 (FTSE with CPI)	0.764371	4.24

	1999-2010 (CPI with M1)	0.623464	2.65
Singapore	1995-1996 (M1 with CPI)	0.687195	3.1969
	1997-1998 (Exchange rate with Interest Rate)	0.551701	2.23
	1999-2010 (M1 with CPI)	0.961424	25.92**

Source: developed from EViews 6

** indicated serious multicollinearity problem

Table 4.3.1.1 Multicollinearity Test shows that there is multicollinearity problem in each country, which means there are relationships between the independent variables. Some countries faced serious multicollinearity problem. It is a normal scenario for a times series data to have the multicollinearity problem, but it is better that the level of the multicollinearity problem is low.

4.3.2 Heteroscedasticity

Table 4.3.2.1 Heteroscedasticity Test

Country	Period	Probability, F
Malaysia	1995-1996	0.8235***
	1997-1998	0.9019***
	1999-2010	0.0000
Thailand	1995-1996	0.2685***
	1997-1998	0.5519***
	1999-2010	0.0136*
Singapore	1995-1996	0.3690***
	1997-1998	0.9847***
	1999-2010	0.1681***

Source: developed from EViews 6

*1% significant level = **

*5% significant level = ***

*10% significant level = ****

Table 4.3.2.1 Heteroscedacticity Test shows that the variances are constant. It is good that the data is having a constant variance so that the result obtain is efficient. The decision rule is that the p-value should larger than significant level so that the model is homoscedasticity.

4.3.3 Autocorrelation

Table 4.3.3.1 Autocorrelation Test

Country	Period	Probability, F
Malaysia	1995-1996	0.4269***
	1997-1998	0.8027***
	1999-2010	0.0000
Thailand	1995-1996	0.0448**
	1997-1998	0.0919**
	1999-2010	0.0000
Singapore	1995-1996	0.2501***
	1997-1998	0.9503***
	1999-2010	0.0000

Source: developed from EViews 6

*1% significant level = **

*5% significant level = ***

*10% significant level = ****

Table 4.3.3.1 Autocorrelation Test showing autocorrelation problem. It is good that the data has no autocorrelation problem, in other words there is no relationship between the independent variables with the error term so that the result obtain is efficient. The decision rule is that the p-value should larger than significant level so that the model is not having autocorrelation problem.

4.3.4 Model Specification

Table 4.3.4.1 Model Specification Test

Country	Period	Probability, F
Malaysia	1995-1996	0.7898***
	1997-1998	0.7334***
	1999-2010	0.0011
Thailand	1995-1996	0.0991**
	1997-1998	0.6349***
	1999-2010	0.9486***
Singapore	1995-1996	0.0025
	1997-1998	0.4663***
	1999-2010	0.3473***

Source: developed from Eviews 6

*1% significant level = **

*5% significant level = ***

*10% significant level = ****

Table 4.3.2.1 Model Specification Test, shows that the model specification, which means the model is correctly form. It is good that the model is correctly specified. The p-value should larger than significant level so that the model is correctly specified.

However, some model are not correctly specified, thus the model have been change into log model form in order to solve the model specification problem, such as Singapore and Thailand during post crisis period. But for Singapore the post crisis period, the model is not correct specified even the model have been change to log form.

4.3.5 Normality Test

Table 4.3.5.1 Normality Test

Country	Period	Probability, F
Malaysia	1995-1996	0.890148***
	1997-1998	0.926064***
	1999-2010	0.784032***
Thailand	1995-1996	0.730391***
	1997-1998	0.548754***
	1999-2010	0.002290
Singapore	1995-1996	0.594879***
	1997-1998	0.706731***
	1999-2010	0.017500*

Source: developed from Eviews 6

*1% significant level = **

*5% significant level = ***

*10% significant level = ****

Table 4.3.5.1 Normality Test shows that the error term is normal; it is good that the data is in normality form so that the result obtained is efficient and unbiased. The p-value should larger than significant level so that the error term is normality distributed.

4.4 Panel Data Analysis

This analysis is separate to three periods which is pre-crisis, during crisis, and after crisis for Malaysia, Thailand and Singapore. Thus, panel data is used to regress the pooled OLS model and fixed effects model (FEM).

4.4.1 Pre-Crisis

4.4.1.1Pooled OLS

Pooled OLS: $Price = \beta_0 + \beta_1 (int) + \beta_2 (CPI) + \beta_3 (M1) + \beta_4 (Exg) + \mu$

$Price = -6330.410 - 47.68685\ int + 92.26172\ CPI + 0.001467\ M1 + 124.1093\ exg$

Where Price = Price index for Malaysia, Singapore and Thailand

Int = Real Interest Rate in percentage for Malaysia, Singapore and Thailand

CPI = Inflation rate in index for Malaysia, Singapore and Thailand

M1 = Money Supply in Million for Malaysia, Singapore and Thailand

Exg = Exchange rate per USD for Malaysia, Singapore and Thailand

Table 4.4.1.1 Pooled OLS result

Component	**Coefficient**	**P-value**	**Standard Error**
Intercept	-6330.410	0.0000***	281.9324
Interest	-47.68685	0.0073***	17.24414
CPI	92.26172	0.0000***	2.380974
M1	0.001467	0.1126	0.000913
Exchange	124.1093	0.0000***	11.99196
R-square: 0.992872			

Source: developed from Eviews 6

*1% significant level = ****

*5% significant level = ***

*10% significant level = **

Table 4.4.1.1 Pooled OLS Result shows that interest rate has expected negative sign while CPI, M1 and exchange rate have expected positive sign. Intercept, interest rate, CPI and exchange rate are individually significance at 1%, 5% and 10% of significant level while M1 is not significance at 1%, 5% and 10%. R-square is reasonable high which is 0.992872.

4.4.1.2 Fixed Effects Model

FEM: Price = $\alpha_1 + \beta_1 (Int) + \beta_2 (CPI) + \beta_3 (M1) + \beta_4 (Exg) + \alpha_2 D_{Thailand} + \alpha 3 D_{Singapore} + \mu$

Price = -5917.75 – 36.03396 int + 84.17559 CPI + 0.001563 M1+ 178.643exg – 1375.017 $D_{Thailand}$ +192.2521 $D_{Singapore}$

Table 4.4.1.2 Fixed Effect Model Result

Component	Coefficient	P-value	Standard Error
Intercept	-6312.006	0.0000***	934.6481
Interest	-36.03396	0.1987	27.74868
CPI	84.17559	0.0000***	14.93524
M1	0.001563	0.2169	0.001253
Exchange	178.6430	0.1268	115.4920
Fixed Effects (Cross)			
Malaysia-C	394.2528		
Thailand-C	-980.7610		
Singapore-C	586.5081		
R-square:	0.992909		

Source: developed from research

*1% significant level = ****

*5% significant level = ***

*10% significant level = **

Table 4.4.1.2 Fixed Effect Model Result shows that intercept and CPI are individually significance at 1%, 5% and 10% of significance level. Interest rate, M1 and exchange rate are not significance at any of the significance level.

4.4.1.3 Poolability Test

Poolability test is used to determine which panel regression model is appropriate to explain the characteristics among three countries in term of share price from 1995 to 2010. The null hypothesis of the poolability test is set as pooled OLS model better than fixed effects model. The decision rule is reject null hypothesis if p-value is smaller than alpha of 1%, 5% and 10%. Otherwise, do not reject null hypothesis.

Cross-section F : 0.172958	Prob. F (2,65) : 0.8416
Cross-section Chi-square : 0.382152	Prob. Chi-Square(2) : 0.8261

Based on the result shown, the conclusion is do not reject the null hypothesis since the p-value is greater than alpha of 1%, 5% and 10%. Therefore, this indicates that pooled OLS model is better than fixed effect model. Thus, the pooled OLS data has been selected for the research.

4.4.2 During Crisis

4.4.2.1 Pooled-OLS

Pooled OLS: Price = $\beta_0 + \beta_1 (int) + \beta_2(CPI) + \beta_3(M1) + \beta_4(Exg) + \mu$

Price = *-5472.728- 141.1171int + 79.51482CPI + 0.011783 M1 + 37.53258exg*

Table 4.4.2.1. Pooled OLS Result

Component	Coefficient	P-value	Standard Error
Intercept	-5472.728	0.0014***	1642.959
Interest	-141.1171	0.0011***	41.46262
CPI	79.51482	0.0000***	15.33863
M1	0.011783	0.0000***	0.001374
Exchange	37.53258	0.0177**	15.43895
R-square: 0.963031			

Source: developed from EViews 6

*1% significant level = ****

*5% significant level = ***

*10% significant level = **

Table 4.4.2.1 Pooled OLS Result shows that interest rate has expected negative sign while CPI, M1 and exchange rate have expected positive sign. All the coefficients are individually significance at 1%, 5% and 10% of significant level. R-square is reasonable high which is 0.9630

4.4.2.2 Fixed Effects Model

$$FEM: \ Price = \alpha_1 + \beta_1 (int) + \beta_2(CPI) + \beta_3(M1) + \beta_4(Exg) + \alpha_2 D_{Thailand} + \alpha_3 D_{Singapore} + \mu$$

$$Price = -1674.1535 - 145.8703int + 43.58355\ CPI - 0.000836\ M1 + 48.81881exg + 3861.168D_{Thailand} + 4.404D_{Singapore}$$

Table 4.4.2.2. Fixed Effect Model Result

Component	Coefficient	P-value	Standard Error
Intercept	-385.6295	0.8957	2928.801
Interest	-145.8703	0.0143**	57.97787
CPI	43.58355	0.1383	29.04308
M1	-0.000836	0.8806	0.005546
Exchange	48.81881	0.0034***	16.04149
Fixed Effects (Cross)			
Malaysia-C	-1288.524		
Thailand-C	2572.644		
Singapore-C	-1284.120		
R-square: 0.965953			

Source: developed from Eviews 6

*1% significant level = ****

*5% significant level = ***

*10% significant level = **

Table 4.4.2.2 Fixed Effect Model Result above shows that interest rate is individually significance at 1%, 5% and 10% of significance level. Interest rate, M1 and exchange rate are not significance at any of the significance level.

4.4.2.3 Poolability test

Cross-section F : 2.789136	Prob. F (2,65) : 0.0688
Cross-section Chi-square : 5.928124	Prob. Chi-Square(2) : 0.0516

Based on the result shown, the conclusion is do not reject the null hypothesis since the p-value is greater than alpha of 1% and 5%. Therefore, this indicates that pooled OLS model is better than fixed effect model. Thus, the pooled OLS data has been selected for the research.

4.4.3 After crisis

4.4.3.1 Pooled-OLS

Pooled OLS: $Price = \beta_0 + \beta_1 (Int) + \beta_2(CPI) + \beta_3(M1) + \beta_4(Exg) + \mu$

$Price = -3530.908 – 113.5050\ int + 54.48936\ CPI – 0.001023\ M1 + 130.1331\ exg$

Table 4.4.3.1 Pooled OLS Result

Component	Coefficient	P-value	Standard Error
Intercept	-3530.908	0.0001***	881.0772
Interest	-113.5050	0.0034***	38.52097
CPI	54.48936	0.0000***	8.164201
M1	-0.001023	0.0047 ***	0.000360
Exchange	130.1331	0.0000***	7.704400
R-square: 0.802231			

Source: developed from Eviews 6

*1% significant level = ****

*5% significant level = ***

*10% significant level = **

Table 4.4.3.1 Pooled OLS Model shows that interest rate and M1 have expected negative sign while CPI and exchange rate have expected positive sign. All the coefficients are individually significance at 1%, 5% and 10% of significant level. R-square is reasonable high which is 0.802231.

4.4.3.2 Fixed Effects Model

FEM: $Price = \alpha_1 + \beta_1 (int) + \beta_2 (CPI) + \beta_3 (M1) + \beta_4 (Exg) + \alpha_2 D_{Thailand} + \alpha_3 D_{Singapore} + \mu$

$Price = -5295.592 + 286.3639int + 47.41315\ CPI - 0.001771\ M1 - 45.58492exg + 6873.462 D_{Thailand} + 1584.261 D_{Singapore}$

Table 4.4.3.2 Fixed Effect Model Result

Component	**Coefficient**	**P-value**	**Standard Error**
Intercept	-2476.351	0.0007***	722.6393
Interest	286.3639	0.0000***	40.79272
CPI	47.41315	0.0000***	4.769650
M1	-0.001771	0.0000***	0.000372
Exchange	-45.58492	0.0087***	17.29707
Fixed Effects (Cross)			
Malaysia-C	-2819.241		
Thailand-C	4054.221		
Singapore-C	-1234.980		
R-square:	0.933003		

Source: developed from Eviews 6

*1% significant level = ****

*5% significant level = ***

*10% significant level = **

Table 4.4.3.2 Fixed Effect Model Result shows all coefficients are individually significance at 1%, 5% and 10% of significance level.

4.4.3.3 Poolability test

Cross-section F : 414.780441	Prob. F (2,425) : 0.0000
Cross-section Chi-square : 467.619146	Prob. Chi-Square(2) : 0.0000

Based on the result shown for poolability test, the conclusion is reject the null hypothesis since the p-value is smaller than alpha of 1%, 5% and 10%. Therefore, this indicates that fixed effect model is better than pooled-OLS model. Thus, the FEM OLS data model has been selected for the research purpose.

4.5 Panel Data Normality test

4.5.1 Pre Crisis

H_0 : The error term is normally distributed.

H_1 : The error term is not normally distributed

The decision rule is reject null hypothesis when p value is less than 1% significant level. Based on the result obtain, the p value for normality during pre crisis is 0.308901 (refer to appendix for the graph). Therefore, it can conclude that the error term is normally distributed during pre crisis period.

4.5.2 Crisis

H_0 : The error term is normally distributed.

H_1 : The error term is not normally distributed

The decision rule is reject null hypothesis when p value is less than 1% significant level. Based on the result obtain, the p value for normality during pre crisis is 0.217525 (refer to appendix for the graph). Therefore, it can conclude that the error term is normally distributed during pre crisis period.

4.5.3 Post Crisis

H_0 : The error term is normally distributed.

H_1 : The error term is not normally distributed

The decision rule is reject null hypothesis when p value is less than 1% significant level. Based on the result obtain, the p value for normality during pre crisis is 0.376707 (refer to appendix for the graph). Therefore, it can conclude that the error term is normally distributed during pre crisis period.

4.6 Conclusion

In a nutshell, in this chapter all the data obtained have been tested with variety of test by using EViews 6. The test that carried out in this research are diagnostic checking test based on times series analysis, panel data analysis, Augmented Dickey-Fuller unit root test, Philips-Perron test and Cointegrated test.

The variables are stationary and having a long run relationship based on the ADF Unit root test and PP test. Besides that, based on the panel data analysis all the variables are significant to affect the share price for three periods except money supply (M1) which is the only variable that not significant during pre crisis period.

Lastly, all the variables are significant during crisis period and post crisis period. However, for pre crisis period, only M1 is not significant the other variables are significant.

The result on panel data is more reliable than times series analysis as based on the diagnostic checking, the times series model facing the econometric problem for instance multicollinearity, heteroscedasticity, autocorrelation, model specification error and model not normal distribute at certain period for each country. Therefore, the research based on panel data result to undergoes further discussion and analysis rather than using times series analaysis result.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

There will be a detailed summary of the statistical analyses from previous chapter. Furthermore, the major findings in the thesis, implications of the study for policy makers will also be discussed in this chapter. Lastly, the limitation when conducting this research paper will be determined and recommendations to improve this research will be suggested in the last chapter.

5.1 Summary of Statistical Analyses

This research paper is mainly discussed on the determinants of share price in Malaysia, Singapore and Thailand. The independent variables involved are interest rates, inflation (CPI), money supply (M1) and exchange rate. The share price will be determined based on three periods which is pre-crisis, crisis and after crisis.

The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) test are conducted to determine whether the data are stationary or not. These tests are carried out three times as for the pre-crisis period, crisis period and also after-crisis period for each of the countries in this study. All the data are non-stationary in level form, and then it will become stationary after the first difference. However, those data that are unable to meet the requirement, which is ADF results should lower than the test critical value 1%, 5% and 10% at first difference have to undergo second difference only can achieve stationary.

Table 5.1.1 Stationary Test

	Stationary	
Variables	**ADF Unit Root**	**PP test**
Share price		
1995-1996	✓	✓
1997-1998	✓	✓
1999-2010	✓	✓
Interest Rate		
1995-1996	✓	✓
1997-1998	✓	✓
1999-2010	✓	✓
CPI		
1995-1996	✓	✓
1997-1998	✓	✓
1999-2010	✓	✓
M1		
1995-1996	✓	✓
1997-1998	✓	✓
1999-2010	✓	✓
Exchange Rate		
1995-1996	✓	✓
1997-1998	✓	✓
1999-2010	✓	✓

Table 5.1.1 Stationary Test shows all the variables for three countries are stationary. Intercept and trend are included as every data has its own trend. However, there are still a few data unable to become stationary when included trend analysis in the test. Therefore, intercept will only be tested to achieve the stationary of the data.

Furthermore, for cointegrated analysis, all the variables in Malaysia, Thailand and Singapore having long run association for the three period which is pre crisis, during crisis and after crisis.

Besides that, the econometric problem is tested based on the times series data.

Table 5.1.2 Summarized of econometric problem

Econometric problem	Country and Period	Result
Multicollinearity	**Malaysia**	
	1995-1996	Serious multicollinearity problem
	1997-1998	Not serious multicollinearity problem
	1999-2010	Serious multicollinearity problem
	Thailand	
	1995-1996	Serious multicollinearity problem
	1997-1998	Not serious multicollinearity problem
	1999-2010	Not serious multicollinearity problem
	Singapore	
	1995-1996	Not serious multicollinearity problem
	1997-1998	Not serious multicollinearity problem
	1999-2010	Serious multicollinearity problem

Heteroscedasticity	**Malaysia**	
	1995-1996	No heteroscedasticity problem
	1997-1998	No heteroscedasticity problem
	1999-2010	Having heteroscedasticity problem
	Thailand	
	1995-1996	No heteroscedasticity problem
	1997-1998	No heteroscedasticity problem
	1999-2010	No heteroscedasticity problem
	Singapore	
	1995-1996	No heteroscedasticity problem
	1997-1998	No heteroscedasticity problem
	1999-2010	No heteroscedasticity problem
Autocorrelation	**Malaysia**	
	1995-1996	No autocorrelation problem
	1997-1998	No autocorrelation problem
	1999-2010	Have autocorrelation problem

	Thailand	
	1995-1996	No autocorrelation problem
	1997-1998	No autocorrelation problem
	1999-2010	Have autocorrelation problem
	Singapore	
	1995-1996	No autocorrelation problem
	1997-1998	No autocorrelation problem
	1999-2010	Have autocorrelation problem
Model Specification	**Malaysia**	
	1995-1996	Model correctly specified
	1997-1998	Model correctly specified
	1999-2010	Model not correctly specified
	Thailand	
	1995-1996	Model correctly specified
	1997-1998	Model correctly specified
	1999-2010	Model correctly specified

	Singapore	
	1995-1996	Model not correctly specified
	1997-1998	Model correctly specified
	1999-2010	Model correctly specified
Normality test	**Malaysia**	
	1995-1996	Model is normally distributed
	1997-1998	Model is normally distributed
	1999-2010	Model is normally distributed
	Thailand	
	1995-1996	Model is normally distributed
	1997-1998	Model is normally distributed
	1999-2010	Model is not normally distributed
	Singapore	
	1995-1996	Model is normally distributed
	1997-1998	Model is normally distributed
	1999-2010	Model is normally distributed

Based on Table 5.1.2 Summarize of econometric problem, during the pre crisis period, Malaysia and Thailand faced serious multicollinearity problem while for Singapore did not face a serious multicollinearity problem. Furthermore, there is no heteroscedasticity, autocorrelation and normality distributed problem during

pre crisis period for all three countries. However, for model specification during pre crisis period only Singapore faced the problem of model not correctly specified, while for Thailand and Malaysia the models are correctly specified.

Besides that, all the countries in this paper namely Malaysia, Thailand and Singapore do not face any of the econometric problems during crisis.

In addition, for the period on post crisis period, all the countries faced the autocorrelation problem. Not only that, Malaysia and Singapore faced serious multicollinearity problem while Thailand only suffering from not serious multicollinearity problem. For heteroscedasticity problem, only Malaysia showed a heteroscedasticity problem wheares for Singapore and Thailand do not face heteroscedasticity problem.

Furthermore, for model specification, only Malaysia has model specification error during post crisis period while for Thailand and Singapore each of the models is correctly specified. Last but not least, for normality distributed only Thailand not correctly specified during the post crisis period whereas for Malaysia and Singapore is normally distributed.

Based on the table 5.1.2 the result is not satisfied, thus in this research paper, panel data have been apply to ensure that the econometric problems have been reduced.

A summary of panel data result as shown below. The result presents the significant of every variable during pre crisis period, crisis period and post crisis period by combining three countries namely Thailand, Malaysia and Singapore.

Figure 5.1.3 Summarized of Panel Data Result

Periods	Variables	P-value	Significant
1995-1996	Share Price	0.0000	Significant
	Interest rate	0.0073	Significant
	CPI	0.0000	Significant
	M1	0.1126	Not Significant
	Exchange rate	0.0000	Significant
R^2= 0.992872			
1997-1998	Share Price	0.0014	Significant
	Interest rate	0.0011	Significant
	CPI	0.0000	Significant
	M1	0.0000	Significant
R^2= 0.963031	Exchange rate	0.0177	Significant
1999-2010	Share Price	0.0007	Significant
	Interest rate	0.0000	Significant
	CPI	0.0000	Significant
	M1	0.0000	Significant
R^2= 0.933003	Exchange rate	0.0087	Significant

Based on figure 5.1.3 Summarized of Panel Data Result above, the result show that all the variables is significant in affecting the share price, except for Money supply (M1) during the pre crisis period. The R-squared for each period is high as well which use to indicate how well the test being carry out, the higher the R square meaning higer accuracy.

5.2 Discussions of Major Findings

Based on the result obtain from chapter 4, panel data analysis, the exchange rate is significant to affect the share price during pre crisis period, crisis period and post crisis period for the three country namely Malaysia, Thailand and Singapore. However for pre crisis period and post crisis period the exchange rate is having positive relationship with the share price, whereas for post crisis period the exchange rate is having negative relationship with share price.

Based on the result obtained from chapter 4, the variables are mostly stationary at first differentiation while some are stationary at second differentiation. However, the result of STI index for Singapore obtained is aligned with the previous research done by Royfaizal, Lee and Azali, (2009) which stated that the stationary is at first differentiation for the Asian Market which included Malaysia, Thailand and Singapore. However, in this research, there are some periods like crisis period for Thailand need to undergo second differentiation and for Malaysia it need to undergoes second differentiation for the pre crisis and crisis period.

The cointegrated analysis show long run association for the variables on the country investigated during the pre crisis, during crisis and post crisis period. This result is consistent with Royfaizal, Lee and Azali, (2009). However the result is inconsistent with Zan and Wei (n.d) research who stated that there is long run relationship during post crisis period whereas during pre crisis there is no long run association.

According to Franck and Young (1972) -{As cited in Ismail & Isa 2009} Ang and Ghallab (1976) -{As cited in Ismail & Isa 2009}, and Zan and Wei (n.d) research studied, they found out that exchange rate is not significant in affecting the share

price, which the result is not consistent with this research paper's result. Furthermore, Solnik (1978)- {As cited in Ismail & Isa 2009} and Mofleh (2011) stated in their research that exchange rate has negative relationship with share price but is insignificant which the result is not consistent with this research paper where exchange rate is significant and is negative relationship during post crisis period.

However, there are some research finding is consistent with this research paper which stated that exchange rate either have positive or negative relationship, for instance Abu-Libdeh and Harasheh (2011); Zan and Wei (n.d). In addition, Wu (2000); Ratanapakorn and Sharma (2007) research is result is similar with this research paper for pre crisis and during crisis period which stated that exchange rate and share price have positive relationship. Furthermore, according to Pan, Fok and Liu (2007), the research indicated that before crisis period for Malaysia and Thailand whereas during crisis period for Singapore, the exchange rate is having significant relationship.

Based on the major findings from the EViews 6, the result shows that there is a significant relationship between share price and real interest rate. The expected sign for all the coefficient results are negative, except for post crisis of fixed effect model. These strongly prove that there is an inversely relationship between interest rate and stock price. When interest rate increases, stock price will decrease and increasing in stock price is caused by the decreasing of interest rate. Therefore, the results is consistent and supported by the previous researchers found such as Wong, Khan and Du (2006), Alam and Uddin (2009), Nousheen, Syeda and Tahir (2008) as well as Bento (2002). Further, high interest rate lead to high return and profit as the higher interest rate, the higher the risk and thus resulted in decreasing in stock price.

The next determinant is money supply (M1). In the study of Wu (2001), the research found that there is insignificant in explaining the share price with M1 even though M1 has a positive effect with share price. This is consistent with the result of positive but insignificant relationship for the pre-crisis period. According to Wong, Khan and Du (2006) and Ratanapakorn and Sharma (2007), when M1

increase, the money inflow to the public will increase then increase the opportunity for the public to invest in financial asset, so the share price will goes up when demand is more than supply which is consistent with the result of positive relationship for during crisis period. Besides, the result for after crisis is significant and negative relationship which is consistent with Mofleh (2011).

Based on the results generated by panel data analysis of inflation (CPI) during pre crisis, crisis period and after crisis period for three countries, it show a significant result as the coefficient of CPI generated a positive sign. Therefore, it has tally with the results from the past researches.

According to Zan and Wei (n.d), Fama (1981) and Mofleh (2011) CPI has a negative relationship with stock price as if a country has a high CPI, it will lead to the decline of stock price. Besides that, stock price index has a negative but insignificantly impact on inflation during financial crisis. (Naghdi, Kaghazian & Kakoei, 2012) However, these studied does not consistent with this research paper where based on this research paper the inflation having positive relationship with share price during pre crisis, crisis and post crisis period and is significant to affect the share price.

However, there are still a few researches that have a tally results with this thesis, whereby there is a positive relationship between CPI and stock price. (Raja & Kalyanasundaram, 2010) (Ratanapakorn & Sharma, 2007)

5.3 Implications of the Study

5.3.1 Managerial Implications

The results obtained in this research paper provide useful information to the stock market investor, as well as the government and also the public. The policy makers, central bank of Malaysia Bank Negara Malaysia (BNM), central bank of Thailand and also Singapore, the economist, the

investor and government should understand and have sufficient knowledge about the concept regarding the stock market in each country for instance the determinants of share price; what are the factors that will affect the share price on each country further during the extreme event like crisis, how the market reacts to those incident. All the respective parties will know their roles they played and dealing and handling well with it by knowing all the factors.

Based on the table 5.1.3, it indicated that all the variables are significantly affect the share price during pre crisis period, crisis period and after crisis period except M1 during pre crisis it is not significantly affect the share price.

According to Wu (2000), the paper indicated that real interest rate indirectly influences the exchange rate with share price; when interest rate increase, foreign investors will invest into the country due to higher return compared to their home country, this indirectly causes the appreciated of that particular country currency demand is higher than currency supply, thus this show the positive relationship between the exchange rate with share price.

With this information, the government can clearly know that when will the interest rate for own country predicted to be increase, they should expect that the currency will be appreciated, the appreciation of currency will lead to lower level of export as it is expensive for foreigner to purchase the goods and services then import increase, this will eventually cause deflation, therefore in order to solve this problem, the government should find a way to solve the problem for example supply more money in the market that will eventually cause currency to be depreciated.

According to Moffett, Stonehill and Eiteman (2012), a high interest rate is expected to have high inflation. Based on this research paper, the interest rate and inflation rate having a positive relationship with share price for post crisis period. In other words, when both interest rate and inflation rate increase, the share price will increase as well, vice versa. Therefore for the

investors, by knowing this information they able to make prediction that after the crisis period, they can start to invest as the interest rate and inflation expected to increase which will eventually raised the share price if it is positively relationship.

However, during pre and crisis period, the interest rate is negatively influences the share price whereas the inflation is positively affect share price; meaning when interest rate increase the share price is decrease, vice versa but for inflation when increase the share price increase as well. Therefore, the government and central bank for each country should have a better knowledge as to control the interest rate and inflation that will eventually affect the share price and later the whole market and economic. In order to make the share market to stay stable the government can maintain the money supply as the interest rate can be maintain, if money supply increase the interest rate will be drop based on the economic theory.

According to Danson and Cyrus (2013), there is negative relationship between inflation and share price. Consumers tend to pay more for better earning when they get latest news that the company will be growing. Hence, if inflation happened, the growth of the company will be affected as less people willing to pay more for the higher price. Further, pay more in other words means worth less since people aim to get profit instead of losses. Therefore, share price increase when inflation decreases, vice versa.

Apart from that, based on the previous chapter, the model show that the variables having a long run relationship at 1% significant level. Therefore, the investors should consider the long run relationship for the investment either on the stable stock, defensive stock, income stock or growth stock. Basically the longer the time the higher the uncertainty then the return will be higher. The riskier the stock the higher the return, therefore the risk taking is based on the characteristic of investors.

Interest rate has a negative relationship with stock price. According to Alam and Uddin (2009), increases in interest rate normally attract the attention of lender while decrease in interest rate will attract borrowers'

attention to invest in the market. Investors are willing to take risk in order to gain higher return rather than saving money when the interest rate decreases. They assume the stock price will increase since lower interest rate increase demand by borrowers. Furthermore, increase in interest rate will attracts risk takers who willing to take risk because high interest rate has higher risk and the higher the risk, the higher the return.

Besides, there is a negative relationship between share price and interest rates which prove by Dimitrova (2005), who comments that interest rate can be known as an opportunity cost of holding and earning more cash in hand. Lower interest rate decrease the dependency on borrowing from bank. Hence, when interest rate decreases, consumer can get more chances to earn more by paying less money, vice versa. So, investors expect the future profit will be increase.

5.4 Limitations of the Study

There are several limitations encountered when completing this research paper. First of all, data constraint is one of the major limitations encountered. Monthly data basis has been used for all the variables in this study, but gross domestic product (GDP) data is not in monthly data, therefore, GDP is no longer included as one of the independent variables in this research.

Besides that, there are missing data for CPI of the foreign countries in this research which are Singapore and Thailand. From the year 1995 to 2009 for the same base year which is year 2005 the data are able to collect from the department of Statistic for all the countries. However, the data collect from Datastream is in different base year for each country even the data are available from year 1995 to 2010. Therefore, the data have to manually convert in order to meet the same base year with this research.

Apart from that, this research faced serious multicollinearity for certain period. Based on the Gujarati (2004) there is common for times series data to have

multicollinearity problem but in condition that it is not serious. Furthermore, the multicollinearity problem occurred due to the nature of the data.

Furthermore, in this research, the countries involve are Malaysia, Thailand and Singapore. Therefore, the other research done by developed countries like US, UK, Japan and China is not applicable in this research context due to the different in background, culture and many other factors. However, it can be use as a reference.

In addition, the independent variables included in this research are not sufficient. There are some factors such as crude palm oil does not include in this research. Besides, for the interest rate during the period 1995 to 1996 for Singapore is unable to determine as according to Eviews 6 the data is nearly singular and unable to run.

The times series data analysis has been apply in this research and test on the diagnostic checking. However, there are many factors that lead to times series data face problems, furthermore according to Dimitrova (2005), the research stated that time series macroeconomics model usually face the problem and thus the result will be inconsistent and lead to bias. Therefore, in this research the panel data analysis has been carry out in order to prevent those problem face by times series analysis, which will provide better result or more accurate result.

Besides, a research is consider good can be due to the reliability and attractiveness of the study. This attraction and reliability of data can be rated through one's perspective and interest. Everyone has different interest, own perception and taste on different kind of research study. It is an optional for everyone to choose. Hence, opinion and suggestion from major group of lecturers and students also vital for this study.

In addition, policy makers can be the great affection for the result of this study. The decision on policy makers must be alert when influencing the economy through the macroeconomic variables such as money supply, interest rate, inflation and exchange rate. Moreover, different practitioners have different views and opinions. Hence, when the results change, this study may need to be revised again for further accuracy information.

5.5 Recommendations for Future Research

In order to make the research more precise, future research can be adding more relevant variables to the study. Furthermore, by including more independent variable can also solve the serious multicollinearity problem. For example, future researchers are suggested to include the gross domestic product (GDP) and government spending which is not involved in this study as monthly data for these variables are not currently available. However, this must be with the condition that data for the variables must be complete, either taking from datastream or other reliable websites. Further, precautions must be taken as some of the variables may be irrelevant for the study.

In addition, this study investigates the relationship between a set of macroeconomics variables and share prices. These variables include interest rates, inflation (CPI), money supply (M1), exchange rate and crisis. Therefore, future interest researchers can include some non-economic factors that account for high constant to examine the share prices. This is due to different countries may have different country policy and economy condition, so the non-economic factors may not be connected with the economy downturn in some countries stock markets.

Moreover, future researchers are also recommended that to include more countries in the study in future as this will let the local investor get to know more about the foreign market condition. South East Asia countries are recommended as the country's culture is similar with Malaysia. Besides, the problem of multicollinearity problem has to be solving first so that the result is BLUE (best, linear, unbiased and efficient). Therefore, the panel data have been carry out to solve these problem.

According to Ghazali, Samsu, Ooi and Nelson (2008), there is no confirming relationship between the share price and exchange rate, thus further studied need to highlight this issue in further research.

By doing the above recommendation for future study, the improvement for share price in Malaysia, Thailand and Singapore will be better and getting advance than other developed countries with the help of advance technology nowadays. In other

words, these countries can stand alone to compete with other international developed countries.

5.6 Conclusion

As a conclusion, this thesis is study about the relationship between the stock price and the macroeconomic factors like interest rate, M1, inflation and exchange rate during three specific periods which are pre-crisis period, crisis and also after crisis.

This chapter had discussed the major findings of the research and implications of the study for policy makers. This analysis also faces some limitations such as data constraint, multicollinearity problem, and insufficient of independents variables. Therefore, some recommendations have been stated for future research to get better results.

Besides, this study has contributed to the investors so that can understand the relationship between share prices and macroeconomic factors. This can help them to make sound investment decision to minimize the risk and losses.

In the nutshell, the objectives of this research have meet whereby to study the determinants of share price during pre crisis, crisis and post crisis. The variables such as the exchange rate, CPI, M1, and real interest rate are significant influence the share price.

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Appendix

Appendix A: Malaysia

Times series data diagnostic checking

Malaysia : Pre crisis (1995-1996)

Multicollinearity

	PRICE	INT	CPI	M1	EXCH
PRICE	1.000000	0.852950	0.859449	0.770699	-0.124279
INT	0.852950	1.000000	0.988177	0.887762	0.035932
CPI	0.859449	0.988177	1.000000	0.913218	0.106893
M1	0.770699	0.887762	0.913218	1.000000	0.331425
EXCH	-0.124279	0.035932	0.106893	0.331425	1.000000

Dependent Variable: INT
Method: Least Squares
Date: 09/24/12 Time: 15:59
Sample: 1995M01 1996M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	0.586743	0.019409	30.23113	0.0000
C	-39.08112	1.553104	-25.16323	0.0000

R-squared	0.976494	Mean dependent var	7.862500
Adjusted R-squared	0.975425	S.D. dependent var	0.921984
S.E. of regression	0.144533	Akaike info criterion	-0.950960
Sum squared resid	0.459577	Schwarz criterion	-0.852788
Log likelihood	13.41152	Hannan-Quinn criter.	-0.924915
F-statistic	913.9211	Durbin-Watson stat	0.823511
Prob(F-statistic)	0.000000		

Heteroscdasticicty

Heteroskedasticity Test: ARCH

F-statistic	0.051035	Prob. F(1,21)	0.8235
Obs*R-squared	0.055760	Prob. Chi-Square(1)	0.8133

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

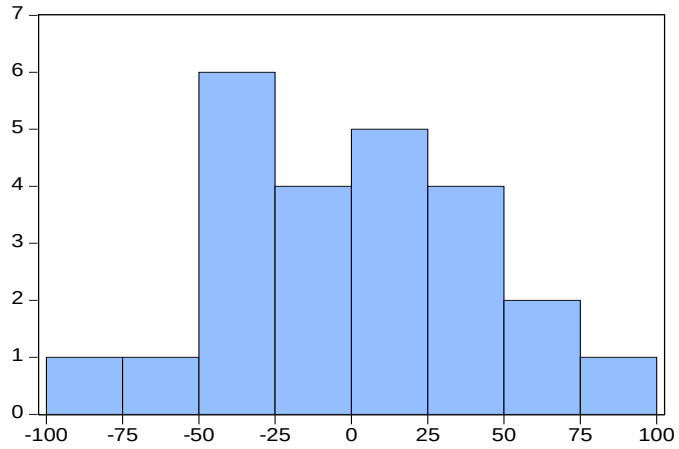
F-statistic	0.895200	Prob. F(2,17)	0.4269
Obs*R-squared	2.286785	Prob. Chi-Square(2)	0.3187

Model specification

Ramsey RESET Test:

F-statistic	0.073180	Prob. F(1,18)	0.7898
Log likelihood ratio	0.097375	Prob. Chi-Square(1)	0.7550

Normality test



Series: Residuals
Sample 1995M01 1996M12
Observations 24

Mean	3.54e-14
Median	-0.747751
Maximum	89.97016
Minimum	-84.70853
Std. Dev.	41.64241
Skewness	0.200224
Kurtosis	2.730971
Jarque-Bera	0.232735
Probability	0.890148

Times series data result

Dependent Variable: KLSE
Method: Least Squares
Date: 09/24/12 Time: 16:15
Sample: 1995M01 1996M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M1	0.007672	0.006763	1.134474	0.2707
INT	-67.36323	76.05344	-0.885736	0.3868
EXG	-967.1985	379.8270	-2.546418	0.0197
CPI	74.97335	47.65080	1.573391	0.1321
C	-2376.511	3071.880	-0.773634	0.4487

R-squared	0.806247	Mean dependent var	1065.229
Adjusted R-squared	0.765456	S.D. dependent var	94.60435
S.E. of regression	45.81661	Akaike info criterion	10.67022
Sum squared resid	39884.07	Schwarz criterion	10.91565
Log likelihood	-123.0427	Hannan-Quinn criter.	10.73533
F-statistic	19.76569	Durbin-Watson stat	1.394299
Prob(F-statistic)	0.000001		

Malaysia : Crisis (1997-1998)

Multicollinearity

	PRICE	INT	CPI	M1	EXCH
PRICE	1.000000	-0.437096	-0.833659	0.730356	-0.926876
INT	-0.437096	1.000000	0.397588	-0.401668	0.557421
CPI	-0.833659	0.397588	1.000000	-0.868754	0.814890
M1	0.730356	-0.401668	-0.868754	1.000000	-0.580532
EXCH	-0.926876	0.557421	0.814890	-0.580532	1.000000

Dependent Variable: CPI
Method: Least Squares
Date: 09/24/12 Time: 16:33
Sample: 1997M01 1998M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXCH	2.927355	0.443920	6.594329	0.0000
C	75.76440	1.541123	49.16181	0.0000

R-squared	0.664046	Mean dependent var	85.74667
Adjusted R-squared	0.648775	S.D. dependent var	2.389733
S.E. of regression	1.416256	Akaike info criterion	3.613566
Sum squared resid	44.12719	Schwarz criterion	3.711737
Log likelihood	-41.36279	Hannan-Quinn criter.	3.639611
F-statistic	43.48517	Durbin-Watson stat	0.469928
Prob(F-statistic)	0.000001		

Heteroscdasticity

Heteroskedasticity Test: ARCH

F-statistic	0.015567	Prob. F(1,21)	0.9019
Obs*R-squared	0.017037	Prob. Chi-Square(1)	0.8962

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

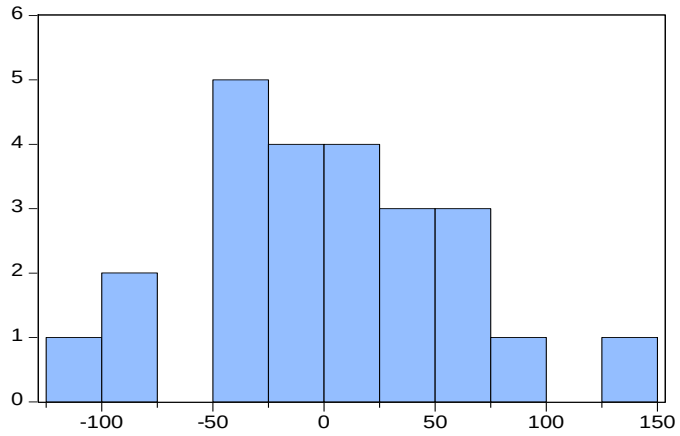
F-statistic	0.222697	Prob. F(2,17)	0.8027
Obs*R-squared	0.612739	Prob. Chi-Square(2)	0.7361

Model specification

Ramsey RESET Test:

F-statistic	0.119655	Prob. F(1,18)	0.7334
Log likelihood ratio	0.159012	Prob. Chi-Square(1)	0.6901

Normality test



Series: Residuals
Sample 1997M01 1998M12
Observations 24

Mean	-8.34e-13
Median	-1.726730
Maximum	130.0578
Minimum	-108.9133
Std. Dev.	57.71317
Skewness	0.134155
Kurtosis	2.714284
Jarque-Bera	0.153624
Probability	0.926064

Times series data result

Dependent Variable: KLSE
Method: Least Squares
Date: 09/24/12 Time: 17:09
Sample: 1997M01 1998M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M1	0.038307	0.006098	6.282453	0.0000
EXG	-521.0830	46.08120	-11.30793	0.0000
INT	59.13942	14.26978	4.144382	0.0006
CPI	76.70963	19.10207	4.015775	0.0007
C	-6867.832	1889.449	-3.634834	0.0018

R-squared	0.962257	Mean dependent var	733.9758
Adjusted R-squared	0.954311	S.D. dependent var	297.0680
S.E. of regression	63.49830	Akaike info criterion	11.32296
Sum squared resid	76608.64	Schwarz criterion	11.56838
Log likelihood	-130.8755	Hannan-Quinn criter.	11.38807
F-statistic	121.1006	Durbin-Watson stat	1.636026
Prob(F-statistic)	0.000000		

Malaysia : Post crisis (1999-2010)

Multicollinearity

	PRICE	INT	CPI	M1	EXCH
PRICE	1.000000	-0.220170	0.811442	0.854246	-0.904454
INT	-0.220170	1.000000	-0.385673	-0.433494	0.103957
CPI	0.811442	-0.385673	1.000000	0.986891	-0.855113
M1	0.854246	-0.433494	0.986891	1.000000	-0.877325
EXCH	-0.904454	0.103957	-0.855113	-0.877325	1.000000

Dependent Variable: LOG(CPI)
Method: Least Squares
Date: 09/24/12 Time: 21:09
Sample: 1999M01 2010M12
Included observations: 144

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(M1)	0.197896	0.003215	61.55332	0.0000
C	2.307037	0.037433	61.63111	0.0000

R-squared	0.963875	Mean dependent var	4.609845
Adjusted R-squared	0.963621	S.D. dependent var	0.079624
S.E. of regression	0.015187	Akaike info criterion	-5.522957
Sum squared resid	0.032752	Schwarz criterion	-5.481710
Log likelihood	399.6529	Hannan-Quinn criter.	-5.506197
F-statistic	3788.811	Durbin-Watson stat	0.168517
Prob(F-statistic)	0.000000		

Heteroscdasticity

Heteroskedasticity Test: ARCH

F-statistic	88.27016	Prob. F(1,141)	0.0000
Obs*R-squared	55.05572	Prob. Chi-Square(1)	0.0000

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

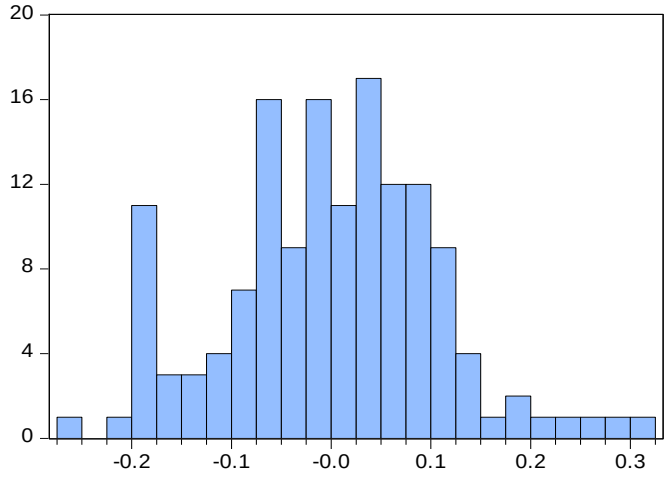
F-statistic	198.4092	Prob. F(2,137)	0.0000
Obs*R-squared	107.0436	Prob. Chi-Square(2)	0.0000

Model specification

Ramsey RESET Test:

F-statistic	11.03194	Prob. F(1,138)	0.0011
Log likelihood ratio	11.07460	Prob. Chi-Square(1)	0.0009

Normality test



Series: Residuals
Sample 1999M01 2010M12
Observations 144

Mean	2.51e-15
Median	0.006229
Maximum	0.317953
Minimum	-0.251950
Std. Dev.	0.106721
Skewness	0.093813
Kurtosis	3.214239
Jarque-Bera	0.486610
Probability	0.784032

Times series data result

Dependent Variable: LOG(KLSE)
Method: Least Squares
Date: 09/24/12 Time: 21:06
Sample: 1999M01 2010M12
Included observations: 144

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(INT)	0.334395	0.178313	1.875328	0.0628
LOG(M1)	1.055112	0.147533	7.151696	0.0000
LOG(EXG)	-2.360729	0.319930	-7.378887	0.0000
LOG(CPI)	-3.815741	0.675312	-5.650336	0.0000
C	14.54771	1.922358	7.567640	0.0000

R-squared	0.839139	Mean dependent var	6.806801
Adjusted R-squared	0.834510	S.D. dependent var	0.266087
S.E. of regression	0.108245	Akaike info criterion	-1.574728
Sum squared resid	1.628671	Schwarz criterion	-1.471609
Log likelihood	118.3804	Hannan-Quinn criter.	-1.532826
F-statistic	181.2754	Durbin-Watson stat	0.303720
Prob(F-statistic)	0.000000		

Appendix A : Singapore

Times series data diagnostic checking

Singapore : Pre crisis (1995-1996)

Multicollibearity

	PRICE	INT	CPI	M1	EXCH
PRICE	1.000000	-0.389163	0.290177	0.544225	-0.105993
INT	-0.389163	1.000000	-0.647944	-0.462658	0.307268
CPI	0.290177	-0.647944	1.000000	0.828972	-0.404076
M1	0.544225	-0.462658	0.828972	1.000000	-0.356151
EXCH	-0.105993	0.307268	-0.404076	-0.356151	1.000000

Dependent Variable: M1
Method: Least Squares
Date: 09/24/12 Time: 16:57
Sample: 1995M01 1996M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	1103.096	158.6714	6.952081	0.0000
C	-77450.01	14802.41	-5.232258	0.0000

R-squared	0.687195	Mean dependent var	25454.18
Adjusted R-squared	0.672977	S.D. dependent var	1023.090
S.E. of regression	585.0637	Akaike info criterion	15.66097
Sum squared resid	7530589.	Schwarz criterion	15.75914
Log likelihood	-185.9317	Hannan-Quinn criter.	15.68702
F-statistic	48.33144	Durbin-Watson stat	1.741980
Prob(F-statistic)	0.000001		

Heteroscdasticity

Heteroskedasticity Test: ARCH

F-statistic	0.842844	Prob. F(1,21)	0.3690
Obs*R-squared	0.887495	Prob. Chi-Square(1)	0.3462

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

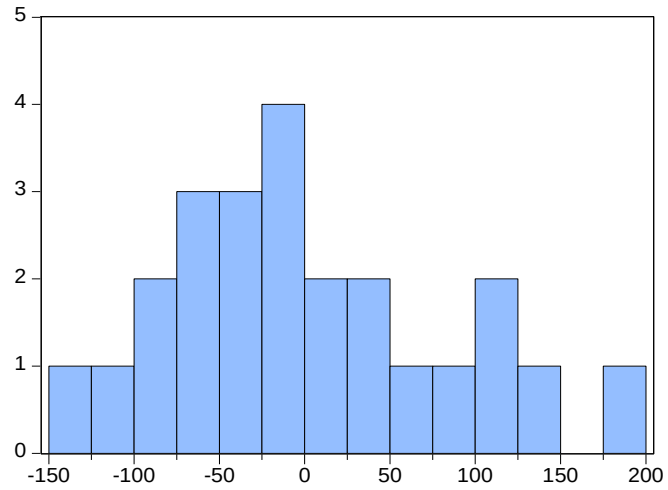
F-statistic	1.505055	Prob. F(2,17)	0.2501
Obs*R-squared	3.610307	Prob. Chi-Square(2)	0.1644

Model specification

Ramsey RESET Test:

F-statistic	12.29999	Prob. F(1,18)	0.0025
Log likelihood ratio	12.49862	Prob. Chi-Square(1)	0.0004

Normality test



Series: Residuals
Sample 1995M01 1996M12
Observations 24

Mean	2.35e-12
Median	-14.08984
Maximum	189.2107
Minimum	-146.7868
Std. Dev.	84.62591
Skewness	0.465415
Kurtosis	2.584847
Jarque-Bera	1.038795
Probability	0.594879

Times series data result

Dependent Variable: LOG(STI)
Method: Least Squares
Date: 09/24/12 Time: 21:22
Sample: 1995M01 1996M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(INT)	-1.529460	0.687271	-2.225411	0.0384
LOG(M1)	1.413176	0.386916	3.652407	0.0017
LOG(EXG)	0.355562	0.910202	0.390640	0.7004
LOG(CPI)	-5.645127	2.235425	-2.525304	0.0206
C	21.59524	8.458568	2.553061	0.0194

R-squared	0.506274	Mean dependent var	7.695201
Adjusted R-squared	0.402331	S.D. dependent var	0.054013
S.E. of regression	0.041757	Akaike info criterion	-3.330844
Sum squared resid	0.033129	Schwarz criterion	-3.085417
Log likelihood	44.97013	Hannan-Quinn criter.	-3.265732
F-statistic	4.870714	Durbin-Watson stat	1.228599

Singapore : Crisis period (1997-1998)

Multicollinearity

Dependent Variable: EXG
Method: Least Squares
Date: 09/24/12 Time: 17:14
Sample: 1997M01 1998M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INT	0.129049	0.024801	5.203302	0.0000
C	0.734243	0.164323	4.468284	0.0002

R-squared	0.551701	Mean dependent var	1.585158
Adjusted R-squared	0.531323	S.D. dependent var	0.115142
S.E. of regression	0.078826	Akaike info criterion	-2.163495
Sum squared resid	0.136698	Schwarz criterion	-2.065324
Log likelihood	27.96194	Hannan-Quinn criter.	-2.137450
F-statistic	27.07435	Durbin-Watson stat	0.708872
Prob(F-statistic)	0.000032		

Heteroscadasticity

Heteroskedasticity Test: ARCH

F-statistic	0.000378	Prob. F(1,21)	0.9847
Obs*R-squared	0.000414	Prob. Chi-Square(1)	0.9838

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

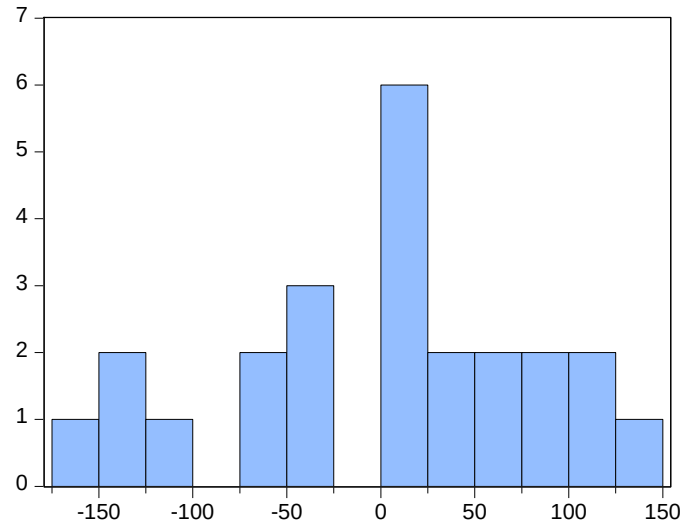
F-statistic	0.051113	Prob. F(2,17)	0.9503
Obs*R-squared	0.143456	Prob. Chi-Square(2)	0.9308

Model specification

Ramsey RESET Test:

F-statistic	0.554076	Prob. F(1,18)	0.4663
Log likelihood ratio	0.727626	Prob. Chi-Square(1)	0.3937

Normality test



Series: Residuals
Sample 1997M01 1998M12
Observations 24

Mean	1.32e-12
Median	8.930950
Maximum	144.2704
Minimum	-169.8754
Std. Dev.	85.30134
Skewness	-0.241867
Kurtosis	2.321612
Jarque-Bera	0.694209
Probability	0.706731

Times series data result

Dependent Variable: STI
Method: Least Squares
Date: 09/24/12 Time: 18:00
Sample: 1997M01 1998M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXG	-2611.701	313.3950	-8.333576	0.0000
CPI	56.35291	41.16402	1.368985	0.1870
INT	36.39755	58.49798	0.622202	0.5412
M1	0.117051	0.033882	3.454675	0.0027
C	-3051.292	3609.871	-0.845263	0.4085

R-squared	0.956424	Mean dependent var	1593.357
Adjusted R-squared	0.947250	S.D. dependent var	408.6329
S.E. of regression	93.85188	Akaike info criterion	12.10436
Sum squared resid	167355.3	Schwarz criterion	12.34979
Log likelihood	-140.2524	Hannan-Quinn criter.	12.16948
F-statistic	104.2555	Durbin-Watson stat	1.994964
Prob(F-statistic)	0.000000		

Singapore : Post Crisis (1999-2010)

Multicollinearity

Dependent Variable: M1
Method: Least Squares
Date: 09/24/12 Time: 17:27
Sample: 1999M01 2010M12
Included observations: 144

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	3886.102	65.32411	59.48956	0.0000
C	-343809.9	6668.650	-51.55614	0.0000

R-squared	0.961424	Mean dependent var	52262.22
Adjusted R-squared	0.961152	S.D. dependent var	23106.34
S.E. of regression	4554.240	Akaike info criterion	19.69930
Sum squared resid	2.95E+09	Schwarz criterion	19.74054
Log likelihood	-1416.349	Hannan-Quinn criter.	19.71606
F-statistic	3539.007	Durbin-Watson stat	0.282295
Prob(F-statistic)	0.000000		

Heteroscadasticity

Heteroskedasticity Test: White

F-statistic	1.411961	Prob. F(12,131)	0.1681
Obs*R-squared	16.49189	Prob. Chi-Square(12)	0.1697
Scaled explained SS	15.62153	Prob. Chi-Square(12)	0.2092

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

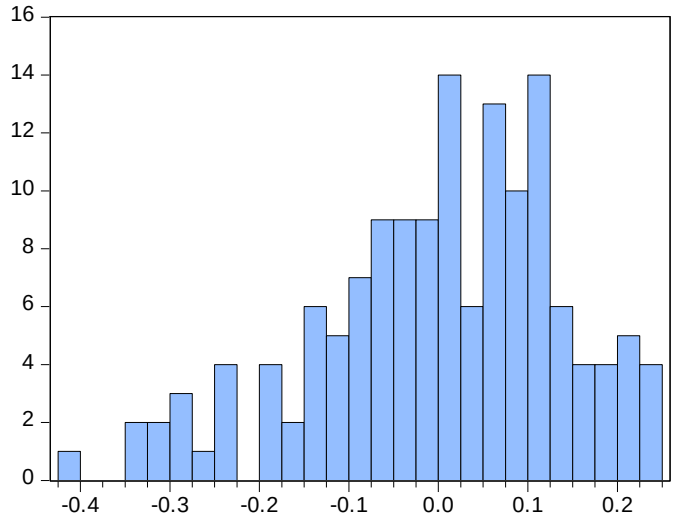
F-statistic	182.2593	Prob. F(2,137)	0.0000
Obs*R-squared	104.6635	Prob. Chi-Square(2)	0.0000

Model specification

Ramsey RESET Test:

F-statistic	0.889205	Prob. F(1,138)	0.3473
Log likelihood ratio	0.924889	Prob. Chi-Square(1)	0.3362

Normality test



Series: Residuals	
Sample 1999M01 2010M12	
Observations 144	
Mean	3.42e-15
Median	0.012817
Maximum	0.248022
Minimum	-0.402681
Std. Dev.	0.138840
Skewness	-0.580391
Kurtosis	3.033193
Jarque-Bera	8.091090
Probability	0.017500

Times series data result

Dependent Variable: LOG(STI)
Method: Least Squares
Date: 09/24/12 Time: 17:23
Sample: 1999M01 2010M12
Included observations: 144

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(INT)	0.532387	0.279481	1.904913	0.0589
LOG(M1)	0.912431	0.201672	4.524335	0.0000
LOG(EXG)	-4.032167	0.343503	-11.73836	0.0000
LOG(CPI)	-9.412972	1.232840	-7.635194	0.0000
C	42.47606	3.845586	11.04541	0.0000

R-squared	0.749614	Mean dependent var	7.671457
Adjusted R-squared	0.742409	S.D. dependent var	0.277467
S.E. of regression	0.140824	Akaike info criterion	-1.048508
Sum squared resid	2.756561	Schwarz criterion	-0.945389
Log likelihood	80.49257	Hannan-Quinn criter.	-1.006606
F-statistic	104.0359	Durbin-Watson stat	0.327241
Prob(F-statistic)	0.000000		

Appendix A : Thailand

Times series data diagnostic checking

Thailand : Pre crisis (1995-1996)

Multicollibearity

	EXG	CPI	INT	M1	C
EXG	763.5547	249.5625	929.1846	0.003151	-63559.43
CPI	249.5625	246.8711	172.1035	-0.005297	-31443.68
INT	929.1846	172.1035	3632.613	0.016503	-92666.67
M1	0.003151	-0.005297	0.016503	3.30E-07	0.031511
C	-63559.43	-31443.68	-92666.67	0.031511	6248816.

Dependent Variable: FTSE
Method: Least Squares
Date: 09/24/12 Time: 16:47
Sample: 1995M01 1996M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	119.0606	5.435884	21.90272	0.0000
C	-5300.054	406.6992	-13.03188	0.0000

R-squared	0.956152	Mean dependent var	3602.704
Adjusted R-squared	0.954159	S.D. dependent var	313.5810
S.E. of regression	67.13965	Akaike info criterion	11.33108
Sum squared resid	99170.13	Schwarz criterion	11.42925
Log likelihood	-133.9730	Hannan-Quinn criter.	11.35713
F-statistic	479.7290	Durbin-Watson stat	1.008814
Prob(F-statistic)	0.000000		

Heteroscdasticty

Heteroskedasticity Test: ARCH

F-statistic	1.292121	Prob. F(1,21)	0.2685
Obs*R-squared	1.333152	Prob. Chi-Square(1)	0.2482

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

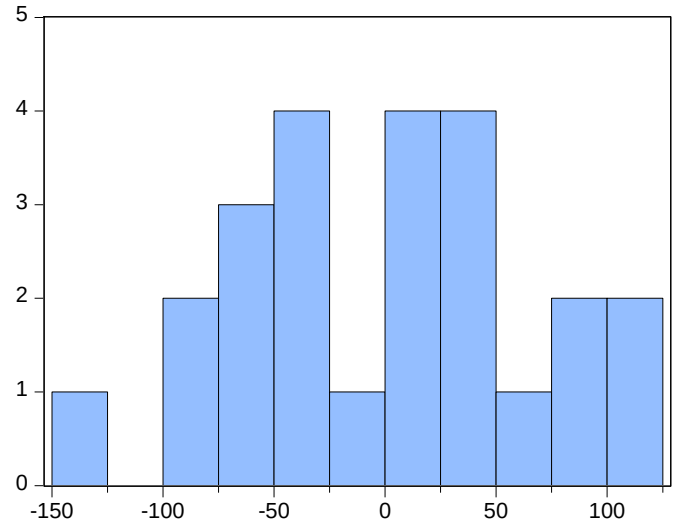
F-statistic	3.748676	Prob. F(2,17)	0.0448
Obs*R-squared	7.345139	Prob. Chi-Square(2)	0.0254

Model specification

Ramsey RESET Test:

F-statistic	3.023620	Prob. F(1,18)	0.0991
Log likelihood ratio	3.726595	Prob. Chi-Square(1)	0.0536

Normality test



Series: Residuals
Sample 1995M01 1996M12
Observations 24

Mean	-7.58e-13
Median	14.33613
Maximum	107.1451
Minimum	-134.5960
Std. Dev.	64.94926
Skewness	-0.159619
Kurtosis	2.274440
Jarque-Bera	0.628350
Probability	0.730391

Times series data result

Dependent Variable: FTSE
Method: Least Squares
Date: 09/24/12 Time: 16:33
Sample: 1995M01 1996M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INT	3.025656	33.94294	0.089139	0.9299
M1	-0.000392	0.001036	-0.378489	0.7093
EXG	-51.58794	109.8923	-0.469441	0.6441
CPI	127.1304	16.38927	7.756926	0.0000
C	-4496.680	2033.667	-2.211120	0.0395

R-squared	0.957101	Mean dependent var	3602.704
Adjusted R-squared	0.948069	S.D. dependent var	313.5810
S.E. of regression	71.45972	Akaike info criterion	11.55920
Sum squared resid	97023.33	Schwarz criterion	11.80462
Log likelihood	-133.7104	Hannan-Quinn criter.	11.62431
F-statistic	105.9748	Durbin-Watson stat	1.011280
Prob(F-statistic)	0.000000		

Thailand : Crisis (1997-1998)

Multicollibearity

Dependent Variable: FTSE
Method: Least Squares
Date: 09/24/12 Time: 16:39
Sample: 1997M01 1998M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	136.0753	16.10756	8.447913	0.0000
C	-6311.283	1361.635	-4.635077	0.0001

R-squared	0.764371	Mean dependent var	5180.954
Adjusted R-squared	0.753661	S.D. dependent var	580.5690
S.E. of regression	288.1513	Akaike info criterion	14.24450
Sum squared resid	1826685.	Schwarz criterion	14.34267
Log likelihood	-168.9340	Hannan-Quinn criter.	14.27055
F-statistic	71.36723	Durbin-Watson stat	0.870617
Prob(F-statistic)	0.000000		

Heteroscdasticity

Heteroskedasticity Test: White

F-statistic	0.948217	Prob. F(14,9)	0.5519
Obs*R-squared	14.30305	Prob. Chi-Square(14)	0.4274
Scaled explained SS	6.648634	Prob. Chi-Square(14)	0.9474

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

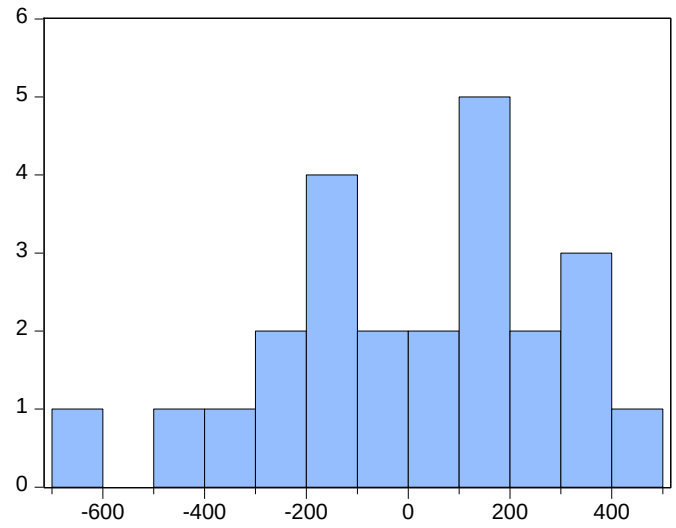
F-statistic	2.756298	Prob. F(2,17)	0.0919
Obs*R-squared	5.876813	Prob. Chi-Square(2)	0.0530

Model sprcification

Ramsey RESET Test:

F-statistic	0.233294	Prob. F(1,18)	0.6349
Log likelihood ratio	0.309061	Prob. Chi-Square(1)	0.5783

Normality test



Series: Residuals	
Sample 1997M01 1998M12	
Observations 24	
Mean	-1.86e-13
Median	23.92646
Maximum	413.1535
Minimum	-622.6621
Std. Dev.	274.5373
Skewness	-0.483038
Kurtosis	2.483369
Jarque-Bera	1.200210
Probability	0.548754

Times series data result

Dependent Variable: FTSE
Method: Least Squares
Date: 09/24/12 Time: 16:37
Sample: 1997M01 1998M12
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INT	3.142425	129.5268	0.024261	0.9809
M1	0.003850	0.004630	0.831636	0.4159
EXG	0.741582	16.28653	0.045533	0.9642
CPI	139.5828	34.10155	4.093152	0.0006
C	-8193.303	3428.298	-2.389904	0.0274

R-squared	0.776388	Mean dependent var	5180.954
Adjusted R-squared	0.729312	S.D. dependent var	580.5690
S.E. of regression	302.0567	Akaike info criterion	14.44216
Sum squared resid	1733527.	Schwarz criterion	14.68759
Log likelihood	-168.3059	Hannan-Quinn criter.	14.50727
F-statistic	16.49216	Durbin-Watson stat	1.062882
Prob(F-statistic)	0.000006		

Thailand : Post Crisis (1999-2010)

Multicollibearity

Dependent variable: LOG (M1)
Method L Least Square
Date: 09/24/12 Times: 18.00
Sample: 1999M01 1998M12
Included observation: 144

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(CPI)	2.939958	0.191732	15.33369	0.0000
C	-0.026995	0.882269	-0.030597	0.9756

R-squared	0.623464	Mean dependent var	13.49854
Adjusted R-squared	0.620813	S.D. dependent var	0.356653
S.E. of regression	0.219620	Akaike info criterion	-0.180042
Sum squared resid	6.849091	Schwarz criterion	-0.138795
Log likelihood	14.96306	Hannan-Quinn criter.	-0.163282
F-statistic	235.1222	Durbin-Watson stat	1.581301
Prob(F-statistic)	0.000000		

Heteroscdasticity

Heteroskedasticity Test: White

F-statistic	2.139594	Prob. F(14,129)	0.0136
Obs*R-squared	27.13624	Prob. Chi-Square(14)	0.0185
Scaled explained SS	25.46789	Prob. Chi-Square(14)	0.0302

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

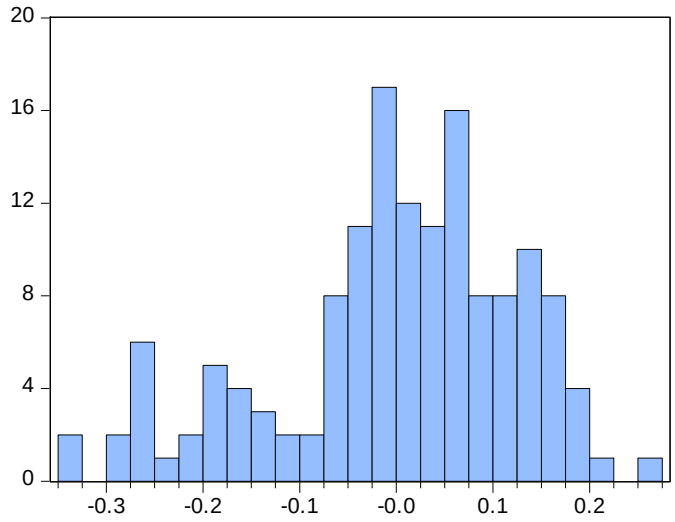
F-statistic	322.3014	Prob. F(2,137)	0.0000
Obs*R-squared	118.7596	Prob. Chi-Square(2)	0.0000

Model specification

Ramsey RESET Test:

F-statistic	0.004166	Prob. F(1,138)	0.9486
Log likelihood ratio	0.004347	Prob. Chi-Square(1)	0.9474

Normality test



Series: Residuals
Sample 1999M01 2010M12
Observations 144

Mean	-2.16e-15
Median	0.017019
Maximum	0.253403
Minimum	-0.334090
Std. Dev.	0.126338
Skewness	-0.711717
Kurtosis	3.014507
Jarque-Bera	12.15824
Probability	0.002290

Times series data result

Dependent Variable: LOG(FTSE)
Method: Least Squares
Date: 09/24/12 Time: 17:08
Sample: 1999M01 2010M12
Included observations: 144

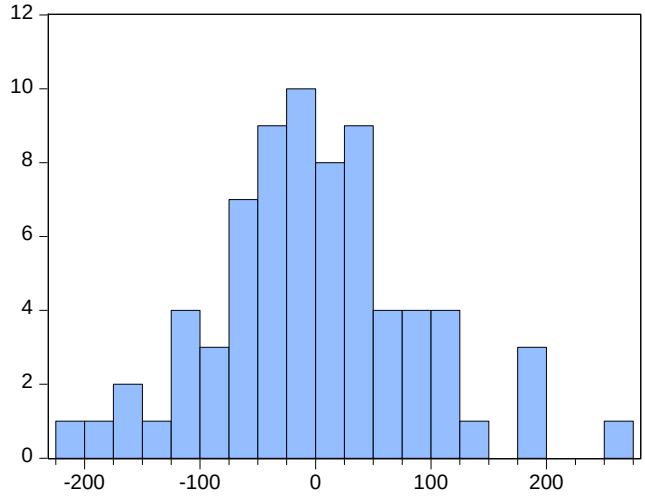
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(INT)	0.549761	0.082808	6.638988	0.0000
LOG(M1)	-0.025354	0.053255	-0.476082	0.6348
LOG(EXG)	-0.483568	0.193130	-2.503847	0.0134
LOG(CPI)	0.053916	0.277778	0.194099	0.8464
C	9.327842	1.845922	5.053217	0.0000

R-squared	0.416335	Mean dependent var	8.571942
Adjusted R-squared	0.399539	S.D. dependent var	0.165368
S.E. of regression	0.128143	Akaike info criterion	-1.237237
Sum squared resid	2.282462	Schwarz criterion	-1.134119
Log likelihood	94.08109	Hannan-Quinn criter.	-1.195336
F-statistic	24.78760	Durbin-Watson stat	0.179878
Prob(F-statistic)	0.000000		

Appendix B

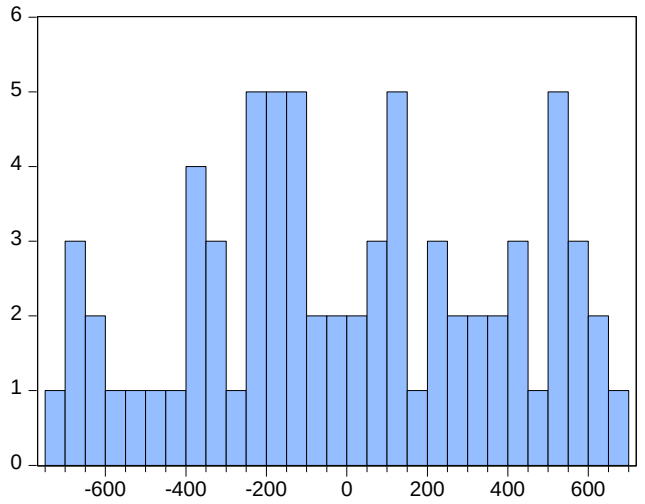
Panel Data Normality Test

Pre crisis (1995-1996)



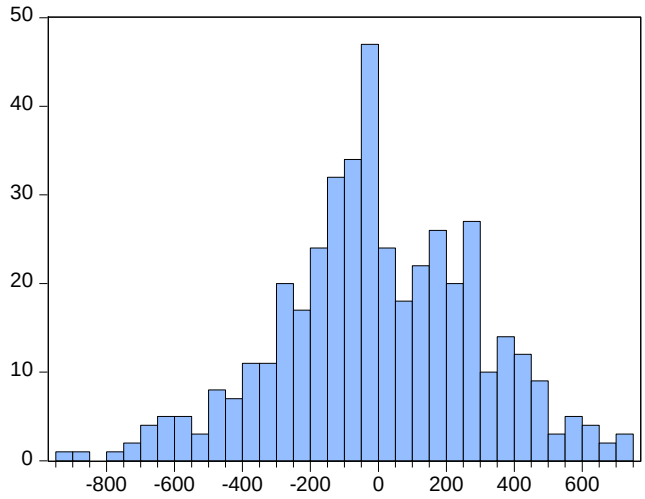
Series: Standardized Residuals	
Sample 1995M01 1996M12	
Observations 72	
Mean	-7.67e-13
Median	-3.339719
Maximum	273.4567
Minimum	-204.5078
Std. Dev.	89.82114
Skewness	0.307568
Kurtosis	3.636210
Jarque-Bera	2.349466
Probability	0.308901

Crisis period (1997-1998)



Series: Standardized Residuals	
Sample 1997M01 1998M12	
Observations 72	
Mean	-3.32e-13
Median	-33.52474
Maximum	650.5409
Minimum	-716.5830
Std. Dev.	382.3070
Skewness	-0.041405
Kurtosis	1.994961
Jarque-Bera	3.050881
Probability	0.217525

Post crisis (1999-2010)



Series: Standardized Residuals	
Sample 1999M01 2010M12	
Observations 432	
Mean	5.15e-13
Median	-14.21631
Maximum	717.2524
Minimum	-944.3441
Std. Dev.	292.3764
Skewness	-0.158147
Kurtosis	3.091839
Jarque-Bera	1.952574
Probability	0.376707

Appendix C
E-Views Results of Panel Data

Pre-crisis

Pooled OLS

Dependent Variable: PRICE_?
Method: Pooled Least Squares
Date: 09/24/12 Time: 17:05
Sample: 1995M01 1996M12
Included observations: 24
Cross-sections included: 3
Total pool (balanced) observations: 72

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6330.410	281.9324	-22.45365	0.0000
INT_?	-47.68685	17.24414	-2.765396	0.0073
CPI_?	92.26172	2.380974	38.74957	0.0000
M1_?	0.001467	0.000913	1.607656	0.1126
EXH_?	124.1093	11.99196	10.34938	0.0000

R-squared	0.992872	Mean dependent var	2289.610
Adjusted R-squared	0.992446	S.D. dependent var	1063.851
S.E. of regression	92.46350	Akaike info criterion	11.95842
Sum squared resid	572816.5	Schwarz criterion	12.11652
Log likelihood	-425.5031	Hannan-Quinn criter.	12.02136
F-statistic	2332.989	Durbin-Watson stat	0.608082
Prob(F-statistic)	0.000000		

Fixed Effects Model

Dependent Variable: PRICE_?
Method: Pooled Least Squares
Date: 09/24/12 Time: 17:07
Sample: 1995M01 1996M12
Included observations: 24
Cross-sections included: 3
Total pool (balanced) observations: 72

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6312.006	934.6481	-6.753350	0.0000
INT_?	-36.03396	27.74868	-1.298583	0.1987
CPI_?	84.17559	14.93524	5.636039	0.0000
M1_?	0.001563	0.001253	1.246840	0.2169
EXH_?	178.6430	115.4920	1.546800	0.1268
Fixed Effects (Cross)				
M--C	394.2528			
T--C	-980.7610			
S--C	586.5081			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.992909	Mean dependent var	2289.610
Adjusted R-squared	0.992255	S.D. dependent var	1063.851
S.E. of regression	93.62644	Akaike info criterion	12.00867
Sum squared resid	569784.2	Schwarz criterion	12.23001
Log likelihood	-425.3121	Hannan-Quinn criter.	12.09679
F-statistic	1516.986	Durbin-Watson stat	0.617216
Prob(F-statistic)	0.000000		

Poolability Test

Redundant Fixed Effects Tests
Pool: POOL02
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.172958	(2,65)	0.8416
Cross-section Chi-square	0.382152	2	0.8261

During Crisis

Pooled-OLS

Dependent Variable: PRICE_?
Method: Pooled Least Squares
Date: 09/24/12 Time: 17:16
Sample: 1997M01 1998M12
Included observations: 24
Cross-sections included: 3
Total pool (balanced) observations: 72

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5472.728	1642.959	-3.331019	0.0014
INT_?	-141.1171	41.46262	-3.403479	0.0011
CPI_?	79.51482	15.33863	5.183959	0.0000
M1_?	0.011783	0.001374	8.575068	0.0000
EXH_?	37.53258	15.43895	2.431033	0.0177

R-squared	0.963031	Mean dependent var	2502.762
Adjusted R-squared	0.960824	S.D. dependent var	1988.356
S.E. of regression	393.5537	Akaike info criterion	14.85523
Sum squared resid	10377264	Schwarz criterion	15.01333
Log likelihood	-529.7882	Hannan-Quinn criter.	14.91817
F-statistic	436.3338	Durbin-Watson stat	0.482800
Prob(F-statistic)	0.000000		

Fixed Effects Model

Dependent Variable: PRICE_?
Method: Pooled Least Squares
Date: 09/24/12 Time: 17:17
Sample: 1997M01 1998M12
Included observations: 24
Cross-sections included: 3
Total pool (balanced) observations: 72

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-385.6295	2928.801	-0.131668	0.8957
INT_?	-145.8703	57.97787	-2.515966	0.0143
CPI_?	43.58355	29.04308	1.500652	0.1383
M1_?	-0.000836	0.005546	-0.150754	0.8806
EXH_?	48.81881	16.04149	3.043285	0.0034
Fixed Effects (Cross)				
M--C	-1288.524			
T--C	2572.644			
S--C	-1284.120			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.965953	Mean dependent var	2502.762
Adjusted R-squared	0.962810	S.D. dependent var	1988.356
S.E. of regression	383.4475	Akaike info criterion	14.82845
Sum squared resid	9557080.	Schwarz criterion	15.04979
Log likelihood	-526.8241	Hannan-Quinn criter.	14.91657
F-statistic	307.3545	Durbin-Watson stat	0.335176
Prob(F-statistic)	0.000000		

Poolability test

Redundant Fixed Effects Tests
Pool: POOL02
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.789136	(2,65)	0.0688
Cross-section Chi-square	5.928124	2	0.0516

After crisis

Pooled-OLS

Dependent Variable: PRICE_?
Method: Pooled Least Squares
Date: 09/24/12 Time: 17:23
Sample: 1999M01 2010M12
Included observations: 144
Cross-sections included: 3
Total pool (balanced) observations: 432

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3530.908	881.0772	-4.007490	0.0001
INT_?	-113.5050	38.52097	-2.946578	0.0034
CPI_?	54.48936	8.164201	6.674181	0.0000
M1_?	-0.001023	0.000360	-2.839003	0.0047
EXH_?	130.1331	7.704400	16.89076	0.0000

R-squared	0.802231	Mean dependent var	2839.425
Adjusted R-squared	0.800378	S.D. dependent var	1957.837
S.E. of regression	874.7437	Akaike info criterion	16.39725
Sum squared resid	3.27E+08	Schwarz criterion	16.44433
Log likelihood	-3536.805	Hannan-Quinn criter.	16.41584
F-statistic	433.0200	Durbin-Watson stat	0.051604
Prob(F-statistic)	0.000000		

Fixed Effects Model

Dependent Variable: PRICE_?
Method: Pooled Least Squares
Date: 09/24/12 Time: 17:26
Sample: 1999M01 2010M12
Included observations: 144
Cross-sections included: 3
Total pool (balanced) observations: 432

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2476.351	722.6393	-3.426814	0.0007
INT_?	286.3639	40.79272	7.019976	0.0000
CPI_?	47.41315	4.769650	9.940592	0.0000
M1_?	-0.001771	0.000372	-4.763083	0.0000
EXH_?	-45.58492	17.29707	-2.635412	0.0087
Fixed Effects (Cross)				
M--C	-2819.241			
T--C	4054.221			
S--C	-1234.980			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.933003	Mean dependent var	2839.425
Adjusted R-squared	0.932057	S.D. dependent var	1957.837
S.E. of regression	510.3274	Akaike info criterion	15.32405
Sum squared resid	1.11E+08	Schwarz criterion	15.38998
Log likelihood	-3302.995	Hannan-Quinn criter.	15.35008
F-statistic	986.4256	Durbin-Watson stat	0.180012
Prob(F-statistic)	0.000000		

Poolability test

Redundant Fixed Effects Tests
Pool: POOL02
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	414.780441	(2,425)	0.0000
Cross-section Chi-square	467.619146	2	0.0000