

THE EFFECT OF MACROECONOMIC FACTORS IN
EMERGING MARKET FROM PERSPECTIVE OF
MALAYSIA, THAILAND AND INDONESIA

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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.
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LIST OF ABBREVIATIONS

BOP	Balance of Payment
INF	Inflation
NCF	Net Capital Flow
NEX	Net Export
RER	Real Exchange Rate
RINR	Real Interest Rate
FCRISIS	Financial Crisis
ASEAN	Association of Southeast Asian Nations
ADF	Augmented Dickey-Fuller Test
PP	Philips and Perron Test
USD	United Stated Dollar
OLS	Ordinary Least Square
VIF	Variance Inflation Factor

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PREFACE

This study 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 work done start from October 2013 to August 2014.

Emerging market is new and has a lot of potential to be explored. However, it contains of high risk and high return. In addition, emerging market act an important role to help developing countries to transform into advanced countries. There are a lot of potential of emerging market need to be explore so that to better help policy maker and investors to gain advantage on decision making. For examples, when inflation happens it will bring impact on the balance of payment of a country. Balance of payment is an important factor to determine or measure economy health of a country. Therefore, we decide to investigate how the macroeconomics factors will affect health of economy of developing countries. We come out with a research title for our final year project of “The Effect of Macroeconomic Factors in Emerging Market from the Perspective of Malaysia, Thailand and Indonesia”.

ABSTRACT

The objective of this study is to investigate the effect of macroeconomic factors in emerging market from perspective of Malaysia, Thailand and Indonesia. This research is to examine the effect of macroeconomic variables on balance of payment in Malaysia, Thailand and Indonesia by using quarterly data, where the periods are from year 2000 to year 2012.

After run the test, the macroeconomic variables show significant relationship to changes of balance of payment. The changes in these variables such as real exchange rate (RER), inflation (INF), net export (NEX), real interest rate (RINR), net capital flow (NCF), and financial crisis (FCRISIS) will influence the balance of payment (BOP) in emerging market of each developing country.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

The objective of this research is to examine and investigate the effect of macroeconomic factors in emerging market from perspective of Malaysia, Thailand and Indonesia from year 2000 to year 2012. The balance of payment in emerging market will effect by inflation, net capital flow, net export, real exchange rate, real interest rate and financial crisis. However, this chapter also including research background, problem statement, research question, hypothesis of study, significant of the study, chapter layout. At last, this research will end with a conclusion.

1.1 Research Background

Emerging market can be described as a developing country which is progressing toward becoming an advanced in country. Waheeduzzaman (2011) found that the term of emerging was created by economists at the International Finance Corporation (IFC) in 1981, when the first mutual fund was promoted in developing countries. The market structures developed from digitalization, deregulation, globalization and open-standard. Emerging market is bearing high level of risk in investment and bearing higher return. The market securities are transited from planned economies to free-market economies especially in developing countries with capital markets at an early stage of development such as Indonesia, Thailand and Malaysia. These three countries are the core members of the Association of Southeast Asian Nations

(ASEAN). According to the study of Lee and Tan (2006), these three countries gained momentum in attracting inflows of foreign direct investment (FDI). In addition, Lee and Hooy (2013) mention that Malaysia, Thailand and Indonesia perform well in the stock market over the past two decades. Thus, this study assumes that they have the potential to transform from developing country to advance country.

Malaysia was intended to achieve the transformative policy which is promoted by the Malaysia's fourth Prime Minister, Dato' Sri Mahathir bin Mohamad at year 1991. The objective is to achieve high gross domestic product (GDP) and developed nation economic status by year 2020. However, the Asian economic crisis and the global economic crisis had seriously cracked down the Malaysia's economic during year 1997-1998 and year 2008. The economic crisis had caused slowing down of Malaysia's export growth due to highly inflation and unemployment. Therefore, Malaysia had rebuilt their banking and financial sector to be more resilient and hence were able to avoid another financial disaster. Today, Malaysia's blueprint promotes a lot of project to stimulate the economic growth. The most attractive project is Iskandar project which can help to boost Malaysia's economic growth and developed low carbon environment country.

Thailand has a variety of natural resources, so it is known as one of the largest exporter in the world. Thailand also been affected by the Asian economic crisis during year 1997 and year 1998. However, Thailand is one of the fastest-growing and recovering countries in the Asian economic crisis. During the global economic crisis, Thailand had adopted a fiscal package named "Strong Thailand" and it was efficiency to increase GDP. The economics of Thailand is always harmful by the floods. The most serious floods were at year 2011 and it had seriously destroyed domestic production and distribution channels. The export had sharply decreased and causing GDP dropped significantly. The flood had driven large amount of investment and private consumption. This had caused the economics of Thailand increased significantly in year 2012. Nowadays, Thailand has been stabling inflation and increasing GDP.

Indonesia shows its strong economic performance to the global by its higher average growth than neighboring countries such as Malaysia, Philippines and Thailand. In addition, Ananta and Arifin (2014) mentioned that Indonesia's economic growth grows rapidly and have huge consumer market to attract foreign labor and investment. However, Indonesia's economic had nearly destroyed during Asian economic crisis, nevertheless Indonesia had miracle stood up and had overcome the crisis. The financial situation of Indonesia had slowly recovered due to the growth of investment had driven GDP growth and the improvement of trade. Nowadays, Indonesia economic has slightly slowdown because of the global effect on subprime mortgage crisis.

1.2 Problem Statement

Emerging market has potential explosive growth in demand for consumer product. The main problem for emerging market is that the need of capital to overcome underinvestment especially when capital is available only when there is a good condition of global liquidity. Therefore, there will be problem of insolvency for developing country that does not have strong based capital when compare to advanced country.

According to Aizenman and Pasricha (2013), the emerging markets facing high volatility in control capital flow and higher short term balance sheet exposures liberalized outflow less. Capital control can lead to local and global misallocation of resources, encourage corruption and perpetuate global imbalance. This is because the countries loosen in outflow capital mean that monetary policy control is liberalized outflow more than reserves accumulation. This makes result more liberalized to get

higher appreciation in stock price, influence in exchange market and real exchange rate volatility.

In addition, the researchers Ahmed and Zlate (2014) agreed that large capital inflow can overcome the intermediation capacity of domestic financial system but lead to extreme credit creation and financial instability. Moreover, when there is procyclical in economy system this will cause overheating when the countries cannot control surging capital inflow during high period of economic growth. Next, macroeconomic factors such as inflation, real exchange rate, financial crisis and other to be more volatile due to the effect of capital constraint. In addition, when foreign exchange valuation increase will lead to overvaluation of exchange rate thus this will affect competitiveness of export and economic growth performance in a developing country.

However, there are compelling reasons for researcher to convey further investigation on emerging market. First, this research can provide good indicator for regulator in developing country. Besides, regulator can improve efficiency during their investment in emerging market with the help of this research. There is another benefit which is capital liberalization will help to reduce likelihood of financial crisis and improve the degree of efficiency such as quality of investment, degree of liquidity and level of development.

In this research, the countries that choose are Malaysia, Thailand, and Indonesia. This is because these countries are under ASEAN countries and have initiative to transform from developing country to advance country. The macroeconomic factors that use to investigate the country in emerging market is balance of payment as dependent variable and other independent variable are inflation, net capital flow, net export, real exchange rate, real interest rate and financial crisis. The reason is that there are inter correlated relationship in this research. Balance of payment act as a tool to record all economic transaction between the country and rest of the world to show the position of surplus or deficit of country. When inflation happens, real exchange rate will depreciate and balance of payment will become deficit. However,

net capital inflow increase causes undervalue of currency thus increase international trade and also improve position of balance of payment. Furthermore, by using financial crisis as tool to further understand how much impact on international trade of these developing countries in emerging market. In conclusion, this research is to gain deeper understanding whether macroeconomic factor is significant to investigate the emerging market in these countries such as Malaysia, Thailand and Indonesia.

This research paper used real exchange rate as independent variable because it act as key relative price in economy and will significantly influences the international economic transaction in trade of goods and services. The central bank will adjust real exchange rate based on monetary policy implemented by the countries. According to Yu (2008), the different monetary policy rules will have different reaction in these three countries. In addition, Siregar (1999) also inspects the inability to control the inflation rate to adopt regime of the exchange rate management in the country. From inconsistent views point of previous researchers, this research wish to know how real exchange rate will have what impact on balance on payment position in developing countries.

Inflation happens when price level of goods and service increase in a country within a certain period. If unable to control inflation issues will lead to serious problem. Mansoorian and Mohsin (2006) studied that the increase of inflation rate will increase price of consumption relative to leisure and replace by substitutes will lead to problems such as decrease productivity of capital, labor and investment. Therefore, researchers have interest to know how big the impact of inflation towards consumption in economy, how it affects the movement of balance of payment in emerging market, and how it influence the ability of resource allocated effectively.

Real Interest rate is rate of interest investor expected to take after excluding inflation. It plays an important role in financial market. Boileau and Normandin (2008) found that most of the studies ignore the relationship between the current account and interest differential. Thus, this research wish to explore whether how strong and how efficient real interest rate affect balance of payment position through the current account in emerging market.

According to Paulino and Thirlwall (2004) stated that the liberalization policies have significant impact on net export and will influence the balance of payment. The issues such as shortage of resource, competition, market heterogeneity, insufficient infrastructure and others will influence demand in emerging market then bring problem to these countries. Hence, Sheth (2011) stated that, emerging market from different traditional capital society needed to rethink the core of assumption of marketing such as market orientation and segmentation to increase the growth of economy. Therefore, this research intend to understand the existing perspectives and practice and rethink how and why net export affect the balance of payment, and how the relationship between with balance of payment.

Net capital flow is an important variable that affect the economy growth of a country. According to Ding and Jinjark (2012), net capital flow has positive and significant relationship with balance of payment. However, according to Hutchison and Noy (2006) argued that if these is sudden stop happen in economy and reversal of capital flow then will caused balance of payment crisis problem. Hagen and Zhang (2014) stated that developing countries might have the problem of inadequate technology in their own country and this will increase the import of foreign direct investment and export of capital. In conclude, this research wish to examine the relationship between net capital flow and balance of payment in emerging market and how the balance of payment movement.

Finally, financial crisis is an important variable and known as global crisis that happen in year 2007 to 2008. According to Tosompark and Daly (2013), the relationship between balance of payment and financial crisis in Indonesia is positively related but negatively related but negatively related for Malaysia and Thailand. In addition, Basri and Rahardja (2010) agree that for Indonesia balance of payment have positively relationship with financial crisis. When financial crisis happen, the global trade will be affected and bring problem to economy such as unemployment. Hence, this research wish to determine and know how crisis will affect balance of payment and also how big it will bring impact to these three countries in emerging market.

1.3 Research Objective

1.3.1 General Objective

The research objective is to examine the effect of macroeconomic factors in emerging market from the perspective of Malaysia, Thailand and Indonesia.

1.3.2 Specific Objective

1. To determine the relationship between balance of payment and inflation.
2. To determine the relationship between balance of payment and net capital flow.
3. To determine the relationship between balance of payment and net export.

4. To determine the relationship between balance of payment and real exchange rate.
5. To determine the relationship between balance of payment and real interest rate.
6. To determine the relationship between balance of payment and financial crisis.

1.4 Research Question

1. How does the inflation influence balance of payment in emerging market from the perspective Malaysia, Thailand, and Indonesia?
2. How does the net capital flow influence balance of payment in emerging market from the perspective Malaysia, Thailand and Indonesia?
3. How does the net export influence balance of payment in emerging market from the perspective Malaysia, Thailand, and Indonesia?
4. How does the real exchange rate influence balance of payment in emerging market from perspective Malaysia, Thailand, and Indonesia?
5. How does the real interest rate influence balance of payment in emerging market from perspective Malaysia, Thailand, and Indonesia?
6. How does the financial crisis influence balance of payment in emerging market from perspective Malaysia, Thailand, and Indonesia?

1.5 Hypothesis of the study

1.5.1 Inflation

H₀: There is no relationship between inflation and balance of payment.

H₁: There is relationship between inflation and balance of payment

1.5.2 Net Capital Flow

H₀: There is no relationship between net capital flow and balance of payment.

H₁: There is relationship between net capital flow and balance of payment

1.5.3 Net Export

H₀: There is no relationship between net export and balance of payment.

H₁: There is relationship between net export and balance of payment.

1.5.4 Real Exchange Rate

H₀: There is no relationship between real exchange rate and balance of payment.

H₁: There is relationship between real exchange rate and balance of payment.

1.5.5 Real Interest Rate

H₀: There is no relationship between real interest rate and balance of payment.

H₁: There is relationship between real interest rate and balance of payment

1.5.6 Financial Crisis

H₀: There is no relationship between financial crisis and balance of payment.

H₁: There is relationship between financial crisis and balance of payment

1.6 Significant of Study

The important of conducting this study is to provide empirical evidence on the macroeconomic factors that will affect the balance of payment of emerging markets. This study is useful and helpful to the government because this study reveals different effect that might happen to the emerging market. Government may know more about emerging market and assist them on decision making that might help to improve the economic condition of our country. Government plays an important role on decision making and creating the legal framework of the country, it is important for policy maker to be clearer about the situation of the country and how macroeconomic factors really brings effect on the balance of payment of the country.

This study also important to future researcher as this study might provide help if they wish to gain deeper understanding in the effect on the balance of payment of emerging markets. Besides, this study can encourage future researcher to proceed on further study regarding of this topic as there are still lots of potential about emerging markets to be discovered.

Investor is one of the players in the market. The significance of the study provides the benefits to the investors who tend to make their investment in emerging market. Investors can make their investment in the lower interest rate. Hence, the investors can get the knowledge by go through this study before they decide to make their investment in which market. The emerging market consists of higher risks because it is not stable compare to other potential markets. Investors tend to hope for higher return in any investment they involved. Due to higher risk higher return, so the investors can involve themselves in emerging market to get the higher return as they wished. This study can be the reference for investors about the potential of the

investment in the emerging market. This study can provide a clearer view for investors about the difference between emerging market and the developed market.

This study can provide central bank about the information of the macroeconomic factors that will influence the balance of payment. Central bank can take a series of initiatives have been proposed and implemented in the emerging market to avoid involve in serious financial crisis.

1.7 Chapter Layout

This thesis consists of five chapters.

1.7.1 Chapter 1

This chapter will provide an overview of the research topic by introducing the related research background. Furthermore, this chapter is including research background, problem statement, research objective, research question, hypothesis of study and significant of study and conclusion where the macroeconomic factors effect in emerging market.

1.7.2 Chapter 2

This chapter is referring to the previous studies and reviews the previous researchers' consequence which is determinants of emerging market's balance of payment. In addition, it is including introduction, review of the literature, review of the theoretical models, proposed theoretical or conceptual framework, hypothesis development and conclusion.

1.7.3 Chapter 3

This chapter is intended to describe how the research using methodology and data collection methods, data analysis techniques, secondary data and conclusion of this chapter.

1.7.4 Chapter 4

This chapter is using the overview of the data description and Eviews 6 within the period to analyze the pattern of results to prove that the evidence which is related to the effect of macroeconomic factors in emerging market.

1.7.5 Chapter 5

This chapter shows the findings of research and limitations of study and given recommendations to future researcher for more realizing about the emerging market.

1.8 Conclusion

In conclusion, the purpose of this study is to investigate the significance of each independent variable to determine the balance of payment in emerging market in country Malaysia, Thailand and Indonesia. The regression analysis of the data will be obtained from emerging market involve in the study.

Chapter 2: LITERATURE REVIEW

2.0 Introduction

This chapter is emphasized on studying the review of the literature which is supported by the previous researchers. According to journals and articles which had reviewed by the previous researchers, there are six macroeconomic factors which affected the emerging market such has been chosen as independent variables in this study. However, theoretical models, conceptual framework and hypothesis will be used to investigate the relationship between dependent variable (balance of payment) and independent variables (inflation, net capital flow, net export, real exchange rate, real interest rate and financial crisis). This research paper explores the effect of macroeconomic factors in emerging market from perspective of Malaysia, Thailand and Indonesia for 13 years which from year 2000 to year 2012. The purpose of this chapter is to determine relationship of all independent variables towards the dependent variable.

2.1 Review of the Literature

There are many macroeconomic factors such as inflation, net capital flow, net export, real exchange rate, real interest rate and financial crisis that will affect the balance of payment in emerging market from the perspective of Malaysia, Thailand and

Indonesia (Yu, 2008) (Filho, Jr & Libanio, 2013) (Siregar, 1999). Although there are many determinants of macroeconomic factors on balance of payment in emerging market, however this research reviews focus on six major determinants in the literature review. The six major determinants are inflation rate (INF), and net capital flow (NCF), net export (NEX), real exchange rate (RER), real interest rate (RINR) and financial crisis (FCRISIS). Hence, this research uses balance of payment (BOP) as dependent variable to examine the effect of macroeconomic factors in emerging market.

2.1.1 Balance of Payment

According to Gulzar and Shafi (2011), the balance of payment (BOP) is an account that records all economic transactions between the home country and all the rest of the world during certain period and mostly used by developing country. The transaction is measured in term of receipts and payment. It includes current account, capital account and reserve accounts. In addition, the authors also mention that BOP could be used as an indicator of economic and political stability. BOP also includes the trade balance, foreign investments and investments by foreigners. A positive BOP means that more money is flowing in of the country than flowing out and vice versa.

Bobai (2013) stated that inflation has significant and positive relationship with BOP. Monetary authorities pay special attention to domestic creation when controlling the country's balance of payment. Therefore, increases in credit creation lead to a continuous loss of reserves. This may cause the increase in inflation rate and capital. Thus, the exchange rate would be depreciated and

cause the export of a country to increase. This will help to improve the position of BOP.

According to Ding and Jinjark (2012), net capital flow has positive and significant relationship with BOP. Forbes and Warnock (2012) also stated that capital flow will affect the overall macroeconomics become instability. Therefore, net capital flow has significant effect toward BOP.

From the perspective of theory, the studies stated that the significant relationship between real exchange rate (RER) and BOP. According to Filho, Jr and Libanio (2013), their study stated that in final the equilibrium of BOP will reached by adjustment of real exchange rate. Therefore, the movement of relative price will end the deficit in current account. Furthermore, Ong, Yoong, Lim and Tong (2009) also showed that the currency devaluation will cause a balance of payment surplus (increase capital flow in) while a sustained increase in the rate of devaluation induces BOP deficit by using monetary approach mechanism to examine the effect of the simple exchange rate devaluation on BOP.

In addition, Imoisi, Olatunji and Ekpenyong (2013) also claimed that real interest rate have significant relationship with BOP while exchange rate is not significant in different countries. This is because government may adopt different monetary policy by adjusting the interest rate to minimize inflation rate or increase export and less import to depreciate home currency in order to improve the position of BOP.

Finally, financial crisis also stated significantly relationship with BOP but different result in each country. Tosompark and Daly (2013) agreed that Malaysia and Thailand show negative relationship with BOP but only Indonesia show positive relationship with BOP. The reason shows policy taken by each country is different. Resosudarmo and Yusuf (2009) argued that Thailand and Indonesia only have little impact from global crisis because no concern on export in international trade.

2.1.2 Inflation

According to Glyfason, Herbertsson and Zoega (1999), the increase in inflation rate, the price level increase, it will decrease the exports. The author held that there is a negative effect between inflation rate and export; hence, inflation is negatively affecting the BOP. This is consistent with the finding by Mansoorian and Mohsin (2006). They agreed that increase in inflation rate will increase the price level of consumption relative to leisure. The effect of change in inflation is significant towards the current account. They found that a permanent increase or even a temporary change in INF will reduce the stability level of the employment, capital and output. The study from Mansoorian and Mohsin (2013) stated that there is a negative relationship between INF and real asset returns. This indirectly indicates that INF and BOP is negatively related where real asset returns can be referring as capital account in BOP.

Boyd, Levine and Smith (2001) also stated that INF is significant and negatively related with the financial sector performance. Since financial

account is one of the element in BOP, this indicated that INF is significantly negative related with the BOP. Furthermore, Azeez, Kolapo and Ajayi (2012) stand that inflation rate is negatively related with BOP and statistically significant in their study.

A study from the monetary approach to the Pakistan BOP has a different opinion. Ali (2011) found that there is a significant relationship among net foreign assets, exchange rate, inflation and balance of payment. The study also emphasized a strongly positive relationship of inflation associate with balance of payment. Furthermore, the study found that INF has no significant relationship with balance of payment in the short-run. Thanh and Kalirajan (2006) stated that to improve BOP, the depreciation of exchange rate shown a small effect on stimulating INF in the short run when assuming money supply growth is constant. The study stated that INF is not significant affect BOP if it is under controlled.

The study of Imoisi (2012) found that the relationship of INF and BOP is not statistically significant in Nigeria's economy which considers adequate level of wealth among less developed countries. The study stated that there is a negative relationship between balance of payment and INF. However, the entire relationship is significant between the dependent variable (BOP) and the independent variables of the study (Exchange rate, Inflation and Interest Rate), moreover, the degree of correlation is high and the study concluded a strong positive relationship between the dependent variable and independent variables. Besides, Bobai (2013) argued that the relationship between Nigeria's BOP and inflation is positive and statistically significant.

2.1.3 Net Capital Flow

NCF has a positive and significant to affect the balance of payment in the emerging market. According to Ding and Jinjark (2012), NCFs is positively related with the balance of payment of a country. The researcher had studied capital flows in a panel of 130 countries including developing countries and advance countries. Besides, Pasricha (2012) also mentioned in their research that it is important to implement capital outflow control to help decrease the net capital inflow pressures as it will affect the economic growth of the country. In order to support why it is important to conduct capital control, there are supporting resources from some researcher which are Cardarelli, Elekdag and Kose (2010) have done a research showing that large capital inflows might boost the GDP growth but however it will then drop significantly afterwards. The researcher shows how capital flow might bring benefit to the growth of the country but somehow it might also generate overheating, loss of competitiveness and finally boost up the chances of happening crisis. In their research, they show if the countries are currently having large capital inflows, they might adjust the exchange rates to move upwards. Therefore, the controls on capital inflows have been tightened in order to relieve upward pressure on exchange rates especially after financial crisis period. Besides, the researcher also mentioned there will be restrictions and imposed controls on capital inflows or by removing controls on capital inflows by policymakers in emerging markets. This means by maintaining monetary policy independence, the changes of the NCF will have insignificant effect on the balance of the payment to measure the economic growth of a country.

In addition, there are supporting material shows that NCF is an important variable that affecting the balance of payment of a country. According to Hutchison and Noy (2006), if there is a sudden stop happen in the economy the country might face balance of payment crisis with a reversal in capital flows. NCFs can be conduct out of the balance from the long term capital flows and the short term capital flows and it is group under the capital account as one of the important variable to compute the balance of payment. Based on the literature shows that there might be some different on how the NCF will affect the developing countries and advance countries. Hagen and Zhang (2014) mentioned that developing countries will bring in import foreign direct investment export financial capital most of the time due to the lack of technology or good investment in their own countries. Therefore they might always have negative NCFs as they export their capital to purchase or to get technology or invest in the foreign country. In the research of Beja Jr (2007), the author found out that capital is fleeing the developing countries but somehow the funds will come in the form of short term capital or external borrowings. This result can support why the developing countries always act as a net importers of foreign direct investment and net exporters of financial capital.

Moreover, according to Forbes and Warnock (2012) showed that capital flow volatility might also affect overall macroeconomic instability. Although capital flows might provide substantial benefits, it might somehow cause trouble to a country. The researcher proved that NCF have significant effect on the balance of payment.

2.1.4 Net Export

According to researcher's Gulzar and Shafi (2011) stated that import can defined as a good or service bought into one country from other country. In contrast, export is a good or service sold to other country from the country. If the value of import is higher than export, the balance of payment will become negative which mean that more money is flowing out of the country than coming in, and vice versa. The problem of deficit balance of payment will causes depreciates the local currency which increases the cost of imports and causes high inflation.

According to previous researches, import and export are high correlated with balance of payment. Besides that, the researcher Loser (2013) found that there have similar background of development country in emerging market such as Africa and Latin America are adopted policy to improve terms of trade (TOT) to influence the BOP. When the prices are occurring corrected, the impact on domestic activity will be reduced partially, although the impact on expenditure will move equally with the loss in term of trade. It also indicates that domestic output of export goods reacts to price changes in international markets. In conclusion, it lead the balance of payment tend to positive and GDI (Gross Domestic Income) has grown faster than GDP (Gross Domestic Product).

However, according to Paulino and Thirlwall (2004) argued that liberalization policies can stimulate export growth, the import growth raised greater than export. It will cause the balance of payment worsen. In the other hand, Sheth (2011) was indicated that China's government successful using policy to protecting fledgling domestic industries from foreign competition to develop

special economic zones and which help to lead export increase. Therefore, balance of payment will tend to positive due to cash inflow. In the study of Gouvea and Lima (2010), the authors found that Asian countries' structure of export and import have managed to change, which can lead their weighted income elasticity of export to grow faster than their weighted income elasticity of imports so that the cash inflow is more than cash outflow and tend to get positive balance of payment.

Lastly, Kennedy (2013) indicated that the net export has insignificant and negative relationship to the balance of payment. This is due to exchange rates is important in determining the trade balance. In addition, Kandil (2009) stated that trade balance has indirectly insignificant effect on the balance of payment. There will be no significant effect on the current account balance when currency appreciation increases the nominal value of export and import. This indirectly indicates that NEX is insignificant related with BOP where current account balance is one of the element in BOP.

2.1.5 Real Exchange Rate

According to researchers Kogid, Asid, Lily, Mulok and Loganathan (2012) stated that exchange rate is known as price of one currency in relation to another. It acts as a national currency's quotation in value the foreign currency. Besides that, the exchange rate can determine by demand and supply. While, the RER is defined as the nominal exchange rate that used to adjust for price changes (inflation) in domestic relative to those of trading partners. Therefore,

it is important for macroeconomic policy variable to indicate a country ability potential competition in national.

In the literature, the relationship between RER and balance of payment in perspective of Malaysia, Thailand and Indonesia are significantly but produced different result in emerging market. This is because according to past researcher, Gulzar and Shafi (2011) stated that the relationship between RER and balance of payment positively or negatively is depend on power of monetary policy in development country. This is because the market is confused by seasonal and asymmetrical factor the central banks steps in and play an important role for controlling the market disruption.

On the other hand, government will implement and do adjustment on exchange rate when incurred deficit on balance of payment. The result also supported by Siregar (1999) claimed that the monetary in Indonesia ensure the stability of real rupiah by intervene and attempt to stimulate export through aggressive depreciation when happen inflation. However, according to Yu (2008) argued that central bank in Indonesia and Malaysia would not take into consider exchange rate movement in pursuing their monetary policy and more rely on other policy instrument. The author showed that no evidence react between overnight rate to current exchange rate and lagged RER in Malaysia and Indonesia but for Thailand have negatively relationship current exchange rate and positively result when lagged the RER.

Lastly, the researchers Boyd, Caporale and Smith (2001) also stated that RER has significant effect on trade balance. This evidence provide mixed result for eight OECD countries and show the relationship between RER has influence on trade balance will lead to indirect improve the position of balance of

payment ,especially real devaluation improves the trade balance through the J-curve effects by policy maker. In addition, Yusoff (2007) also agree that exist long –run and short –run relationship between balance of trade with RER will effect economy growth and this also will indirect improve position balance of payment. For instance, real ringgit exchange rate depreciation will change the position of trade balance in long run.

2.1.6 Real Interest Rate

Balance of payment accounts can divide to current account and capital account. According to Aguiar and Gopinath (2006), the relationship between the RINR and current account is positively correlated. These two components are strongly countercyclical and have positive relationship among each other. In emerging market, the investors tend to make borrowing in lower interest rate while in a good time. The authors also mentioned that the effect of the shift of the curve to dominate the curve movement is needed to get the positive correlation between the current account and RINR. The increase of the RINR causes the current account increase and the balance of payment in the same time will increase as the current account is a part of the balance of payment.

Besides, Daly and Siddiki (2009) had proved that there is a long-run relationship between the RINR and the current account of the balance of payment by used 23 Organization for Economic cooperation and Development (OECD) countries as their sample sizes in the study. In their empirical conclusions, they found that 13 out of 23 countries have a long-run

relationship between the RINR and the current account deficit. The gain in budget deficit make the domestic expenses upturn and then cause the expansion in imports, this phenomenon make the current account deficits. Thus, an expansion in budget deficits and increase in the RINR increase the current account deficits. Hence, the long run relationship between RINR and the current account is negatively related.

Imoisi, Olatunji and Ekpenyong (2013) stated that RINR had significant relationship with balance of payment. The researchers stated that the negative sign of estimate coefficient of RINR consistent with the economic theory that the balance of payment and RINR are negatively correlated. The increases in money supply cause the interest rate to fall. RINR is the cost of borrowing funds from deposit money. The fall in RINR will encourage people to borrow money and this will make the level of investment opportunities increase in the country. The price of goods and services will become cheaper when their production increase. The exports of the country will become less expensive. The balance of payment position will be improved.

Boileau and Normandin (2008) stated that the correlations between the lags of current account and RINR differential are negative, but there is a positive correlation between the leads of current account and the RINR differential. The authors declared that the current account is inversely correlated with current and future interest rate differentials but with the past interest rate differentials is positively correlated.

On the other hand, according to Eita and Gaomab II (2012), the researcher stated that the RINR and balance of payment have positive relationship. The result of the study showed that the interest rate is one of the significant

components of balance of payment and RINR can be applied as policy tool which to secure the capital account. RINR also being an instrument for brings up the investment and reform the position of balance of payment. Eita and Gaomab II (2012) found that the result is same with the theoretical assumptions where the positive value of interest rate can bring in the capital.

2.1.7 Financial Crisis

In the studied of Tosompark and Daly (2013), the research show that, the foreign countries was attracted by Indonesia to invest during financial crisis period due to political stability and strong stimulus plan by government. However, Malaysia and Thailand was slightly hurt by financial crisis to reduce foreign direct investment (FDI) inflow. Therefore, the relationship of financial crisis and BOP is positive to Indonesia but negative to Malaysia and Thailand.

Based on the research of Basri and Rahardja (2010), there is a positive relationship between the global financial crisis and balance of payment in Indonesia. The economic crisis has been influenced the whole economy condition of Indonesia especially during the fourth quarter of year 2008. The researchers mentioned that due to the downfall of the exports has caused the slowing down of economic growth in Indonesia. The global financial crisis gives a great impact on the emerging market of Indonesia. There are two channels in the effect of global financial crisis mentioned in the study. Based on the financial channel, the global financial crisis has influenced the balance of payment and exchange rate of emerging markets. In addition, the downturn

of global trade in Indonesia cause the unemployment rate increase where the decrease in the export and value of commodity.

On the other hand, Basri and Rahardja (2010) also mentioned Indonesia is the country which less impact from global crisis compared Malaysia and Thailand. This phenomenon is due to the good condition of Indonesia's economy performance. The researchers stated the tailor-made policies had implemented by Bank Indonesia and Indonesia government to overcome the global crisis. The study also point out that Bank Indonesia had reducing the interest rate when the crisis happened in year 2008 in order to assure there is sufficient liquidity in the financial system. The small portion of export also recovered Indonesia where it brings down the economic growth and causes the local currency depreciated during year 2008. When the local currency dropped, the inflation will become more preserve and it lead to the increasing of purchasing power while generate the stability of economy. Hence, the financial crisis had insignificant effect to Indonesia.

Furthermore, Nidhiprabha (2010) stated that global financial crisis indirectly influenced Thailand's economy and significant effect BOP. This is because Thailand changed its economic structure by reduce the export from other foreign country. Therefore, government of Thailand is more focus on export to world business cycle. If global crisis lead to reduction of volume of trade, decrease the trade credit expansion in develop country that depend on more domestic sales and the output growth in these countries. This will lead to reduction of volume of trade, decrease the trade credit expansion in develop country that depend on more domestic sales and also the output growth in these countries .However, Thailand has only little impact from global financial crisis because Thai central bank has experienced to overcome the

financial crisis after the exposure to collateral debt in U.S sub-prime market in 1997.

In addition, Reddy (2012) mentioned that due to financial global crisis has brought impact on the housing sector. The researcher mentioned that there was a loss of confidence within the financial institutions due to not sufficient monetary transactions. Based on the researcher, global financial crisis also known as sub-prime mortgage crisis and is originated in year 2007. The researcher mentioned that a default financial institution will bring great impact of the economic system.

Lastly, Resosudarmo and Yusuf (2009) stated that Indonesia has a mild influence from the global financial crisis. The researcher mentioned that Indonesia do not put major focus on export. This indirectly indicates that global financial crisis only has a small impact on Indonesia. However, global financial crisis is a significant variable that effect BOP of Indonesia indirectly.

2.2 Review of Relevant Theoretical Models

2.2.1 Pearson Correlation Coefficients

Pearson Correlation Coefficients (PCC) is known as a measure for the linear correlation between two variables in a statistical way. When the result shows that there is strong correlation between two variables, it may imply a causal relationship. The objective of this test is to check the impact on GDP of different variables as the calculation of multiplier effect of exports is required. Through Pearson's Coefficients of Correlation, the equation shows a high correlation between import volumes and exports adjusted for term of trade. The analysis also indicated the correlation between export volumes and term of trade. Hence, Loser (2013) denoted that the domestic output of export goods does react to price changes in international markets.

2.2.2 Dynamic Panel Data Estimation

Dynamic panel data is introduced as autoregressive model with fixed effects. Instruments may be constructed for the lagged dependent variable from the second and the following level lags of independent variables.

The objective is to estimate the effect and significance of trade liberalization on export growth, import growth, the balance of trade and the balance of

payment. The two equations are estimated by using dynamic panel data estimation based on fixed effects estimator and generalized method of moments (GMM). The former technique includes dummy variables to account for individual country-specific effects while the latter controls for the endogeneity of explanatory variables. They are used based on lagged values of those explanatory variables. Both instruments have obtained the results and shown the same outcomes but GMM gives stronger results. Based on the analysis for the results obtained, Paulino and Thirlwall (2004) have denoted the significance of the impact of liberalization and it is positive.

2.2.3 Government policy – protecting fledgling domestic industries

According to Sheth (2011) stated that the China government has been protected fledgling domestic industries from foreign competition to developing special economic zones via government policy. The role of government is the largest customer to stimulate domestic industries to increasing export. When the export is more than the import, the relationship between balance of payment and import and export are positive.

2.2.4 Marketing Theory

In the last few decades, the marketing theory had become one of the fundamentals concepts in contestable market. The marketing must create differential advantage to obtain superior financial performance. Sheth (2011) found that several marketing scholars have brought forward their own theories or perspectives on how marketing can create a differential advantage. They have also used some frameworks developed in other disciplines to support their theories.

2.2.5 Exchange Rate Regime and Monetary Policy

In the research of Gulzar and Shafi (2011), the authors found that the relationship between balance of payment, exchange rate regime and monetary policy is intimate relationship. If the balance of payment is deficit, it will cause depreciation of the local currency. The result was presented the causality relationship. When the local currency was depreciated, the exchange rate will be decreasing and the purchasing power also will be decreasing. After then, the cost of imports of services or products will increase. In this situation, the government will adopt tight monetary policy to increase the interest rate in order to control the quantity of money in market.

According to Imoisi, Olatunji and Ekpenyong (2013), stated that monetary policy instruments applied by the Central Bank of Nigeria which the bank has the right to act as manipulator and regulator of the monetary policy to

accomplish the maintenance of price stability. Central Bank of Nigeria intend to attain the constant macroeconomic policy by applied the alternative instrument of monetary policy such as direct regulation of interest rate. The researches mentioned that this alternative instrument is usually applied in the Less Developing Countries (LDCs) where the interest rate is governed and supervised, unlike the More Developing Countries (MDCs) where the interest rate is discovered by the market forces to abundant degree.

2.2.6 Thirlwall's law theory

Thirlwall's law is important to international macroeconomics. The model is using the relationship between economic growth and external trade to estimate how the economic growth was affected by external constraint such as the demand of foreign countries for export or the income growth of foreign countries for import. In the study of Gouvea and Lima (2010), the authors found that the balance of payment is affected by the changes of sectoral composition of exports and imports. The 'Multisectoral Thirlwall's law' can elaborate as the growth rate of per capita income of a country is directly proportional to the growth rate of its export and inversely related to sectoral income elasticity of demand for imports (exports).

2.2.7 Unit root tests

The Augmented Dickey-Fully (ADF) unit root test is very popular test to determine out the structural change unit root test with one endogenously. The ADF test also can show the linear combination of variable such as real exchange rate and balance of payment for each of the countries is stationary when the variable has long run stable relationship.

The model show as below:

$$\text{Model A: } \Delta y_t = \mu + \theta DU_t + \beta t + \alpha \int_{t-1}^k + \sum \ddot{o} \Delta y_{t-1} + e_t$$

$$\text{Model C: } \Delta y_t = \mu + \theta DU_t + \beta t + \gamma DT + \alpha Y_{t-1} \sum \ddot{o} i \Delta Y_{t-1} + e_t$$

Where

DU_t = dummy variables T=time

DT = trend shift variable

t = 1, 2, 3

α = null

i = 1

The model A is use give change in intercept while model C give for a change in both the slope and intercept. The lag order, K should follow the general –to-specific approach based on significant of t –test of last coefficient. The result is show non- stationary in all series.

On the other hand, in order to ascertain the variables (BOP, fiscal balance, exchange rate, GDP growth and interest rate) used in the estimation is stationary or not stationary, Eita and Gaomab II (2012) used the Augmented

Dickey Fuller (ADF) test to figure out it by applied the vector autoregression (VAR) method which this methodology using the vector error correction model (VECM) specification to accurate the autocorrelation and endogeneity of the variables.

2.2.8 Cointegration Test

Cointegration test is known as Johnsen test .This test is used the maximum likelihood estimation procedure to find out the existence of cointegrating vectors in a VAR system. The formula can write as:

$$\Delta x_t = \lambda + \sum_{i=1}^{k-1} A_i X_{t-1} + a_t, i=1$$

Where

X=k-vector of I (1) variables in period t

λ =vector of constants

A=parameters

a_t = vector of random disturbance with zero mean and constant variance

Furthermore, Eita and Gaomab II (2012) applied the Johansen cointegration test in the study to test the long-run relationship between the balance of payment (BOP) and its independent variables (fiscal balance, GDP growth and interest rate) by used the lag length of the variables at 1, where the long-run balance of payment equation is the first relation and followed by the second which is domestic credit equation.

2.2.9 LM test hypothesis

LM test is known as Lagrange Multiplier (LM) test which is general principle for testing hypotheses about parameter in a likelihood structure. The hypothesis of LM test is one more constraint on the values of parameters. The function of LM test is used to evaluate the relationship between real exchange rate and balance of payment in Indonesia, Malaysia and Thailand. In addition, according to Yu (2008), provide the result is supported by conducted LM test hypothesis that show no evidence react between overnight rate to current exchange rate and lagged real exchange rate in Malaysia and Indonesia but different result for Thailand when lagged real exchange rate.

2.2.10 Capital Flow Measures

Capital Flow Measures include two types of measures which are capital controls and currency based measures. According to Pasricha (2012), the shift towards net capital inflow is influenced by a sharp slowdown in inflow liberalization trends. In order to identify the evolution of capital flows policies, capital flow measure had been carried out where measures on the capital account that differentiate based on residency of the transactor and measures that differentiate based on currency of transaction. The researcher had implied the measures under two session which to encourage or discourage Net Capital Inflows (NKI). This helps to better understand the direction of capital policy.

2.2.11 Traditional measures of sudden stops and capital flows

The traditional measures of sudden stops and capital flows is a measures that can better allow a better understanding of the differences from focusing on gross instead of net flows. Researcher been conducted using quarterly gross flows data in a samples of 58 countries during the period of 1980 until 2009 collecting data from 58 countries to help identify 4 types of episodes including surges, stops, flight and retrenchment. According to Forbes and Warnock (2012), surges and stops are driven by the foreigners. On the other hand, flight and retrenchment are driven by domestic investors.

2.2.12 OLS Regressions

The OLS regression is used to evaluate the unknown parameters in linear regression model. The purpose of OLS regression is to estimate the parameter with minimum total squares regardless the data given is big or small. This will help to make sure that the result such as real exchange rate and balance of payment is meaningful and then can get an unbiased and efficient estimator parameter at the best level. According to author Yu (2008) also stated that he or she has use the OLS model to test whether the model is linear or not and to make sure suitable for model. Therefore, the researchers should using OLS regression n model by included the independent variable such as inflation, real exchange rate, real interest rate, growth of export and import and net capital flow. In addition, the researcher also had constructed a panel of non-

overlapping 5 year average for each country in order to test the significance of explanatory variables. Patterns of capital flow been examined and there are samples includes annual observations for a total of 130 countries which include 108 of developing countries and 22 of industrial countries during the period of 1980 until 2003. According to Ding and Jinjarak (2012), time and country dummies are included in the panel regression and that the results support the results from cross country analysis.

2.2.13 The model with Cash-in-Advance (CIA) constraints

The replacement cost of capital with CIA on investment equals to $1+r+\pi$, which incorporates the cost of having to hold real money balance to financing investment. It derived from the nominal interest rate with the equation of $r+\pi$. The replacement cost of capital is depending on the inflation rate. The equation model $(1+r+\pi_t) \phi'(I_t) = q_t$, reflect that when capital is subject to CIA constraint, the increase in π will raise the replacement cost of capital.

2.2.14 The model subject to CIA on investment and bond purchases

Mansoorian and Mohsin (2013) assumed when inflation increases, the real bond returns fall because money uses to buy the bonds. The assumption of that bonds are bought with money was the central to development of the traditional IS-LM-BP model. All transactions are subject to CIA constraints, even those involving bonds. The CIA constraints facing the representative agent can be written as $m_t = c_t + b_t + I_t$ where b_t are bond purchases at time t , m_t is real domestic money balances, I_t is the investment expenditures at time t .

2.2.15 Expenditure Reducing Policy and Expenditure Switching Policy

According to Imoisi, Olatunji and Ekpenyong (2013), their research showed that both expenditure reducing policy and expenditure switching policy are the policy measures which used in balance of payment (BOP). Expenditure reducing policy related to fiscal policy and monetary policy which the interest rate influenced by the changes of money supply and this policy's purpose is to decrease the expenses of household consumption including rising up the investment. Expenditure switching policy related to depreciation and appreciation of the domestic currency where its purpose is likely to change the household demand from imported foreign goods to goods which produce locally.

2.2.16 Inflationary Theory

Inflationary theory has been proposed to undertake the balance of payment imbalance. The study of Imoisi, Olatunji and Ekpenyong (2013) showed that the inflation of Nigeria is caused by the rise of money supply although the foreign currency reserve had shown in declining value.

2.2.17 Multiple Regression Analysis

The economic model used to analyze and test the relationship between dependent variable (BOP) and independent variables (money supply, interest rate and exchange rate) is the multiple regression analysis in the study of Imoisi, Olatunji and Ekpenyong (2013). In the economy theory, money supply increase will cause the rise in the productive and investment activities therefore the export activities also increasing and resulted gain in the balance of payment (BOP). Besides, the upturn of interest rate can decreasing the borrowing funds in the financial industry, hence follow by the declining in productive and investment activities will cause the BOP deficit. The rise in exchange rate can cause the local currency become lower compare with other currencies in the foreign exchange market and it will brings up the export activities as the export become more cheaper, thus, the BOP will be increased. Moreover, Imoisi et al (2013) used the F test, t test, R^2 and adjusted R^2 to test the significance of the model.

2.2.18 Mundell-Fleming Framework

According to Daly and Saiddiki (2009), in the situation of flexible exchange rates, the increasing deficits of government can encourage the real interest rate being upturn. Hence, it can cause the capital inflows and by means that the foreign exchange value of domestic currency will rise. When the currency of the country increase, the export activities will decrease as the price of goods become expensive. In the result, the trade deficit will increase and reduce the balance of payment.

2.2.19 The Keynesian Absorption Theory

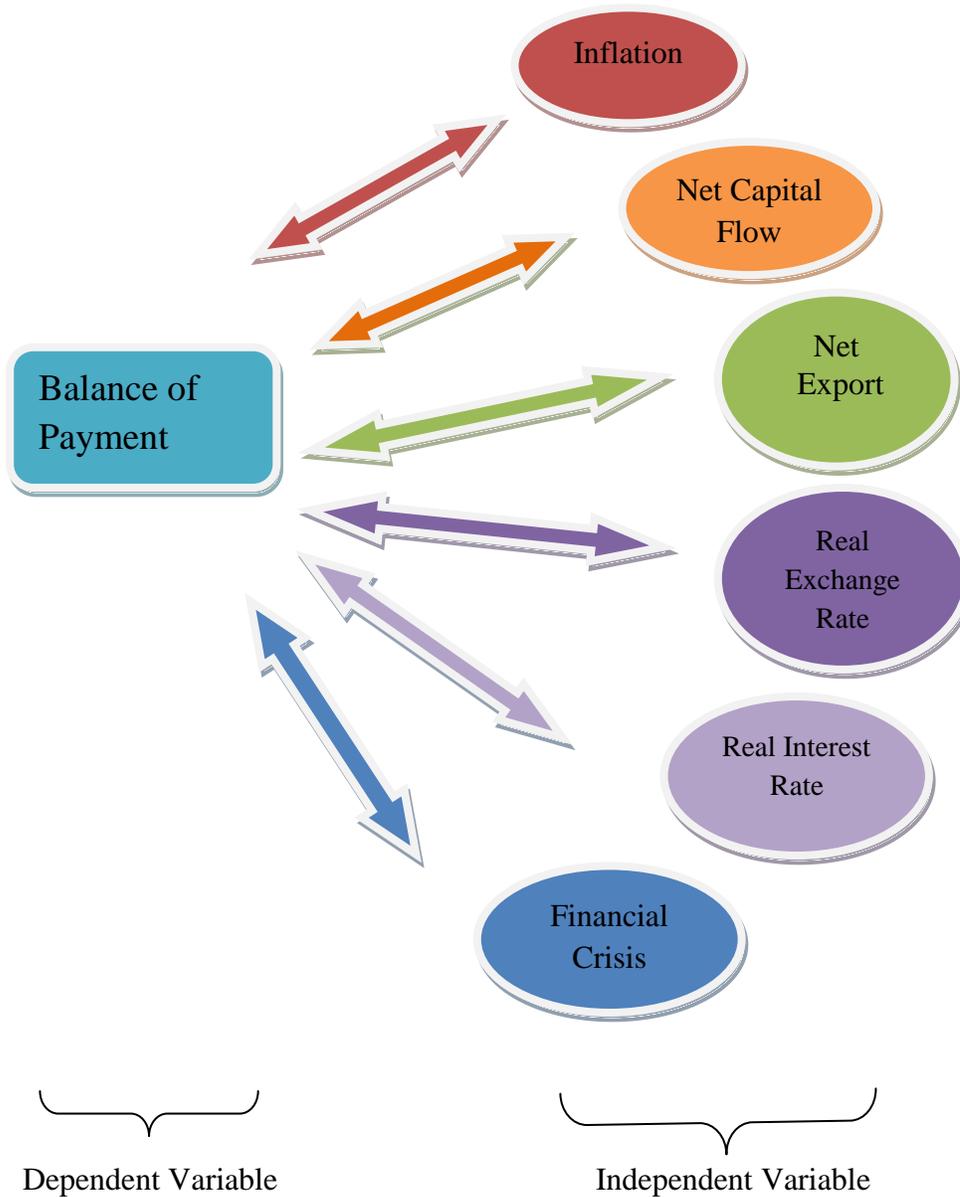
The Keynesian absorption theory had discussed in the study of Daly and Siddiki (2009) which assumes that increasing in the budget deficit can cause the domestic expenses growth. Therefore, the demand of imports will be enlarge while make the current account insufficiency. In brief, the accession in budget deficits can bring up the real interest rate throughout the time there is shortfall of the current account.

2.2.20 Ricardian Equivalence Hypothesis

In the research of Daly and Siddiki (2009), the researches mentioned that the Ricardian Equivalence Hypothesis (REH) is contra with the Mundle-Fleming framework where the real interest rate is not influenced by any changes between the trade and budget deficits. According to the previous researchers, the decline in taxes brings no effect to the national saving as the expenditure of government is fixed with non-borrowing constraints.

2.3 Proposed Theoretical / Conceptual Framework

Figure 2.1 Dependent variable and independent variables in this study



The figure 2.1 show that the independent variables (inflation, net capital flow, net export, real exchange rate, real interest rate and financial crisis) that used to test the dependent variable (balance of payment). Based on the previous researchers had

studied, there are many macroeconomic factors that will affect the balance of payment. Hence, this discussion is more focus on the correlation between independent variables that will affect the dependent variable.

2.4 Hypotheses Development

2.4.1 Inflation

Inflation is known as the price of goods and services increase over period of time. It means that the loss of value of money. The rate of inflation will affect the different constituents of balance of payment. Moreover, it can also get affected by the changes in the latter. The higher inflation rate would lead to investors do not buy the goods and services of the country and vice versa. High inflation rate will reduce the balance of payment of the country.

H₀: There is no relationship between inflation and balance of payment.

H₁: There has relationship between inflation and balance of payment.

2.4.2 Net Capital Flow

Net capital flow defined as the total movement of funds for investment or trade. The amount can be obtained from the difference between the net capital inflow and net capital outflow by a country during a certain period. The net capital inflow means that investment inside the country and vice versa. It shows the strength or weakness of the markets such as capital market and stock market. The growth rate of the net capital flow will affect the components in balance of payment specifically in the capital account. The trend of the net capital flow is depending on the circumstances. It might indicate future investment opportunities or risks to the investors.

H₀: There is no relationship between net capital flow and balance of payment.

H₁: There has relationship between net capital flow and balance of payment.

2.4.3 Net Export

The growth of export can be measured as the price of a country's export relative to foreign price of related goods expressed in common currency. While, the growth of import can be measured as the price of country's import relative to foreign price of related goods expressed in common currency. Net export is playing important variable for trade liberalization, trade balance, and balance of payment in a country. The expected relationship between balance of payment and net export will be positively if the export is more than import.

H₀: There is no relationship between net export and balance of payment.

H₁: There has relationship between net export and balance of payment.

2.4.4 Real Exchange Rate

Real exchange rate is the price of one currency in relation to other. RER also can defined as the nominal exchange rate adjusted for changes in price level in domestic good and service relative to those trading partner. RER is important variable for macroeconomic policy to identify currency effect, inflation, and represents the comparative cost in common currency. The expectation result relationship between balance of payment and real exchange rate will be negatively or positively depend on monetary policy in these countries.

H₀: There is no relationship between real exchange rate and balance of payment.

H₁: There has relationship between real exchange rate and balance of payment.

2.4.5 Real Interest Rate

Real interest rate defined as the growth rate of purchasing power derived from investment. It is the actual cost of funds to the borrower and also the actual yield to the lender. The effect of inflation risk is eliminated in order to show the real interest rate. It can be defined in the equation:

Real interest rate = Nominal interest rate – Expected inflation

Nominal interest rate is adjusted to compensate for inflation. Therefore, real interest rate will cause the keeping of purchasing power. The expected result between real interest rate and balance of payment will be positively related.

H₀: There is no relationship between real interest rate and balance of payment.

H₁: There has relationship between real interest rate and balance of payment.

2.4.6 Financial Crisis

The financial crisis is known as global crisis that happen year 2007 to year 2008. This related with a panic or a run on the banks, in which investors sell all assets or take out all money from savings accounts because they expectation that the value of assets will fall if they still keep. This will make economy growth of a country reduce. The relationship between balance of payment and financial crisis will be related but provide inconsistent result because of monetary policy taken by each countries is different.

H₀: There is no relationship between financial crisis and balance of payment.

H₁: There has relationship between financial crisis and balance of payment.

2.5 Conclusion

In conclusion, the determinants that can influence the balance of payment (BOP) through the observation have been speculated with different independent variables. There are number of tests that can be used to determine the relationship between the BOP and the independent variables. Models that have been applied by the previous researchers are Pearson Correlation Coefficients, Dynamic Panel Data Estimation, Government policy, Marketing Theory, Exchange rate regime and Monetary Policy, Thirlwall's Law Theory, Unit Root Test, Cointegration Test, LM Test Hypothesis, Capital Flow Measures, Traditional measures of sudden stops and capital flows, OLS Regressions, Monetary Policy, Inflationary Theory, Multiple Regression Analysis, Mundell-Fleming Framework, The Keynesian Absorption Theory, Ricardian Equivalence Hypothesis, Causality Test, The model subject to Cash-in-advance (CIA) on investment and bond purchases, The model with Cash-in-Advance (CIA) constraints, Expenditure Reducing Policy and Expenditure Switching Policy. Therefore, the methodology for this research will be explained in detail in next chapter.

Chapter 3: Methodology

3.0 Introduction

This chapter will describe on the research that will be conducted by including the research design, data collection method and data research. The methodology theory of test is to examine the relationship between the dependent variable and the independent variables.

3.1 Research Design

Quantitative data will be used in the research as to determine the relationship among the dependent variable and the independent variables. This research is to determine the relationship between the balance of payment (dependent variable) and the independent variables such as inflation, net capital flow, net export, real exchange rate, real interest rate and financial crisis. This research mainly focused on three developing countries which are Malaysia, Thailand and Indonesia from year 2000 to year 2012. The time range of this research will be based on quarterly data.

3.2 Data Collection Methods

The research will be using secondary data and collected from the Datastream. Secondary data is the kind of data that has been collected to aid researcher that needed the data in order to carry out their research. This research studies how the independent variables might influence the balance of payment of three of the developing countries.

3.2.1 Balance of Payment

Balance of payment data from the three developing countries which are Malaysia, Thailand and Indonesia are collected from Central Bank of Malaysia, Bank of Thailand and Bank of Indonesia in quarterly data basis. The unit measurement is in US Millions Dollar. The period of data collected is from year 2000 to year 2012.

3.2.2 Inflation

Inflation data is measure in percentage form (consumer price index) and the data are collected from Oxford Economics. The data collected is in quarterly data basis from the period year 2000 to year 2012.

3.2.3 Net Capital Flow

The data of net capital flow are collected from Oxford Economics (Malaysia), Bank of Thailand and Bank of Indonesia in quarterly data basis within the period of year 2000 to year 2012. This data use US dollar million (USD) as currency for the three developing countries.

3.2.4 Net Export

The net export data is collected from Department of Statistic (Malaysia), Office of the National Economic, Social Development, Board (Thailand) and Oxford Economics (Indonesia) . The unit measurement is in US millions Dollar. The data collected from period year 2000 to year 2012 in quarterly data basis.

3.2.5 Real Exchange Rate

The real exchange rate data are collected from Oxford Economics in quarterly data basis from year 2000 to year 2012. This research use US dollar (USD) as the based on local currency for the three developing countries showing MYR/USD, Thai Baht/USD and Indo Rupiah/USD. The unit measurement is in index basis.

3.2.6 Real Interest Rate

The real interest rate data are collected from International Monetary Fund and Oxford Economics in quarterly data basis. The data collected is within the period from year 2000 to year 2012 and measure in percentage form.

3.3 Data Analysis

Ordinary Least Squared (OLS) Regression will be used as a research instrument to analyze the economic data. The data collected will be run by using E-view. There will be a few tests to be used throughout this research as shown in below.

3.3.1 Descriptive Analysis

In this research, t test statistic, f test statistic, r^2 and adjusted r^2 act as an important role to examine relationship between the dependent variable and independent variable.

3.3.1.1 T-test statistic

T-test is a test to test the single independent variable in the model whether it is significance to the dependent variable. Decision rule of using p-value: Reject H_0 if the p-value is smaller than the significant level, otherwise do not reject H_0 . Decision rule of using critical value: Reject H_0 if the test statistic is greater than the critical value, otherwise do not reject H_0 .

$H_0: \beta_i = 0$ (insignificant)

$H_1: \beta_i \neq 0$ (significant)

Where i = independent variables in the model

3.3.1.2 F-test statistic

F test is used to test the whole model whether it is significance to the dependent variable. Decision rule of using p-value: Reject H_0 if the p-value is

smaller than the significant level, otherwise do not reject H_0 . Decision rule of using critical value: Reject H_0 if the test statistic is greater than the critical value, otherwise do not reject H_0 .

$$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$$

H_1 : At least one of the β_i is not equal to zero, where $i = 1, 2, 3, 4, 5, 6$

3.3.1.3 R^2 and Adjusted R^2

R^2 shows how much of the variation in the dependent variable can be explained by the variation of the independent variables. Adjusted R^2 shows how much of the variation can be explained by the variation of the independent variables, taking account the number of sample size and number of independent variables.

3.3.2 Diagnostic Checking

Diagnostic checking are significant tools to identify the adequacy of the time series data in the representation model. Diagnostic checking are mostly carry out in time series data due to it may contain of potential economic problems in the estimated model. Diagnostic checking is to find out the problems exist in the model and whether there is other improvement in the estimated model. Theoretically time series model must always be BLUE (Best, Linear, Unbiased and Estimator). There are unavoidable economic problems in time

series data such as inflation will occur and affect the result such as multicollinearity and autocorrelation problem. However, the result is still considered liable and acceptable if the unavoidable problems detected to be not serious affect the model.

3.3.2.1 Multicollinearity

Multicollinearity test is used to detect the degree of correlated relationship between all independent variable in a multiple regression model. T-test is used to test single variable and F-test is used to test the whole model's independent variable. In this research, Variance Inflation Factor (VIF) is used to measure the amount of multicollinearity in a multiple regression model.

$$\mathbf{VIF = 1/1-R^2}$$

- Where R^2 (R square) is the coefficient of determination
- If $VIF > 10$, there is very serious multicollinearity problem.
- If $1 < VIF < 10$, there is no serious multicollinearlity problem.
- If $VIF = 1$, there is no multicollinearity problem.

3.3.2.2 Pearson Correlation Coefficient

The test is used to test the relationship between two variables in order to verify differences in effects of a dependent variable by an independent variable. The formula is stated as below:

$$r = \frac{\sum_{i=1}^n XiYi - n\bar{X}\bar{Y}}{\sqrt{\sum_{i=1}^n X^2 - n\bar{X}^2} \sqrt{\sum_{i=1}^n Y^2 - n\bar{Y}^2}}$$

The range of r is $-1 < r < 1$. If $r > 0$, a positive correlation between two variables. If $r < 0$, a negative correlation between two variable. If $r = 0$, two variables are uncorrelated.

3.3.2.3 Heteroscedasticity

The characteristic of heteroscedasticity problem is the variance of error term not constant. In this research, the white test will be used to detect the heteroscedasticity problem in the model. The hypothesis is stated as below:

H_0 : There is no heteroscedasticity problem in the model.

H_1 : There is heteroscedasticity problem in the model.

The decision rule is to reject the null hypothesis if the P-value is smaller than the level of significant 0.10 because it means that the model has heteroscedasticity problem. Do not reject null hypothesis if the P-value is more than the level of significant 0.10 because it means that the model does not have heteroscedasticity problem.

3.3.2.4 Autocorrelation

Autocorrelation problem exists if there is a relationship between the error terms in the model. Autocorrelation is associated with time series data. There are three tests to investigate for different conditions of the model whereby to check the existence of autocorrelation problem. Durbin-Watson test and Durbin's H test can identify for one autoregressive (AR1) schemes and with the limitation whereby cannot detect higher orders of the autocorrelation and the lagged of dependent variable. Breush-Godfrey LM test was developed to detect the autocorrelation problem for more than one autoregressive (AR2 or more) schemes and without any limitation.

The hypothesis is stated as below:

H₀: There is no autocorrelation problem in the model.

H₁: There is autocorrelation problem in the model

Reject the null hypothesis if the P-value smaller than the significance level of 0.10 which means that the model has autocorrelation problem. Otherwise, do not reject null hypothesis if the P-value is greater than the significant level of 0.10 which means that the model do not consist of autocorrelation problem.

3.3.2.5 Jarque-Bera Normality Test

Jarque-Bera normality test is to test the normality of error terms in the model. Jarque-Bera test (JB Test) is conducted to detect whether the error term is normally distributed. If the error term is normally distributed, the model specification is correct and otherwise. Hypothesis is stated as below:

H₀: The error term is normally distributed.

H₁: The error term is not normally distributed

Critical value: $\chi^2_{\alpha, k}$

Critical value is obtained from the Chi-Square table with two degrees of freedom.

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

Note: S = Skewness

K = Kurtosis

Reject the null hypothesis if the P-value is smaller than significant level of 0.10, whereby it shows that the model is not normally distributed. Otherwise, do not reject the null hypothesis if the P-value is greater than significant level of 0.10 which means that the model is normally distributed.

3.3.2.6 Model Specification Test

Model specification test is the test to make sure the model is correct and good. Ramsey Regression Specification Error Test (Ramsey's RESET Test) is used to detect the misspecification model. Hypothesis is stated as below:

H_0 : Model specification is correct.

H_1 : Model specification is incorrect.

Critical value: $F_{\alpha, 2, n-5}$

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

Reject the null hypothesis if the P-value is smaller than the significance level of 0.10. This means that the model has a model specification error. Otherwise, do not reject the null hypothesis if the P-value is greater than the significance level of 0.10. This means that the model does not have model specification error.

3.3.3 Differential Analysis

Augmented Dickey Fuller (ADF) and Philips-Perron (PP) are the two test that used by researchers to test the stationary of the time series data.

3.3.3.1 Unit Root Test – ADF unit root test

Augmented Dickey-Fully (ADF) unit root test is a test developed by Dickey and Fuller (1981) to determine the structural change unit root test with one endogenously and make sure there is no structural breaks exist in a series across time. ADF test also show the linear combination of variable such as real exchange rate and balance of payment for each of the countries is stationary or non- stationary hold that the relationship is stable in long run. However, the test of integration must conduct first before the unit root test.

The ADF Unit Root test can divide into two types of model. The first type is the model with constant and without trend; second type is the model with constant and with trend. In addition, the lag length for unit root test model is based on minimum AIC (Schwarz's Information Criterion) or SIC (Akaike's Information Criterion), therefore this will make sure no autocorrelation problem exist in the model. Lastly, the unit root test will be conducted based on OLS regression.

Model 1: with constant and without trend

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

Model 2: with constant and with trend

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

The hypothesis statement show at 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 test statistic:

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

The hypothesis statement above, the decision rule is to reject the null hypothesis if the P-value is less than the significance level of 0.10. Otherwise, do not reject null hypothesis. This mean there is no unit root exist in the model if reject null hypothesis while no reject null hypothesis is mean that there is exist unit root in the model. Besides that, critical value can obtain from the t statistical table that has been modified by Dickey and Fuller.

3.3.3.2 Philips and Perron test (PP test)

Philips–Perron test was founded by Philip and Perron (1988) and used as a non- parametric method to test the unit root by control the serial correlation of time series data. The PP test used to correct any serial correlation and heteroscedasticity in error by modifying the Dickey –Fuller test statistic.

The purpose of PP test is to find out non–ADF test and then modified Dickey–Fuller statistic therefore serial correlation does not affect the asymptotic

distribution of the test statistic. This test will allow researcher does not have to specify a lag length for regression model.

Philips – Perron model:

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

Hypothesis statement as below:

H₀: There is unit root problem.

H₁: There is no unit root problem.

The decision rule is will be reject the null hypothesis if the P-value is less than the significance level of 0.10. Otherwise, do not reject null hypothesis. This mean there is no unit root exist in the model if reject null hypothesis while no reject null hypothesis is mean that there is exist unit root in the model.

3.4 Conclusion

In a nutshell, there will be descriptive analysis, diagnostic checking and inferential analysis conducted in this research in order to examine the relationship among the dependent variable (balance of payment) and the independent variables (inflation, net capital flow, net export, real exchange rate, real interest rate and financial crisis). This research will focus on three developing countries which are Malaysia, Thailand and Indonesia on quarterly data basis from year 2000 to year 2012.

Chapter 4: Data Analysis

4.0 Introduction

In this chapter, the OLS regression will be analyze using EViews 6. The results and analysis are based on time series data. The purpose is to determine the effect of each independent variable with the dependent variable in three developing countries that are chosen. The regression model is set as below:

$$\widehat{BOP}_t = \hat{\beta}_0 \pm \hat{\beta}_1 INF_t \pm \hat{\beta}_2 NCF_t \pm \hat{\beta}_3 NEX_t \pm \hat{\beta}_4 RER_t \pm \hat{\beta}_5 RINR_t \pm \hat{\beta}_6 D_t + \varepsilon_t$$

Where,

BOP=BALANCE OF PAYMENT (Millions in US Dollar)

INF= INFLATION (Consumer Price Index)

NCF=NET CAPITAL FLOW (Millions in US Dollar)

NEX=NET EXPORT (Million in MYR, Malaysia)

(Billion in Baht, Thailand)

(Billion in Rupiah, Indonesia)

RER=REAL EXCHANGE RATE (MYR/US Dollar, Malaysia)

(BAHT/ US Dollar, Thailand)

(Rupiah/US Dollar, Indonesia)

RINR=REAL INTEREST RATE (In Percentages, %)

D= DUMMY VARIABLE (1 if Financial Crisis (07-08), and 0 if otherwise)

4.0.1 Regression Model

4.0.1.1 Malaysia

$$\widehat{BOP}_t = -361.6193 + 591.1107 INF_t + 0.447177NCF_t + 0.098163NEX_t - 64.66155RER_t + 417.2546RINR - 979.6492FCRISIS_{07-08}$$

Table 4.1: Time series data result (Malaysia)

Component	Coefficient	P-value	Standard Error	T-statistic
Intercept	-361.6193	0.9136	3315.375	-0.109073
Inflation	591.1107	0.0332	269.0656	2.196902
Net Capital Flow	0.447177	0.0344	0.204918	2.182221
Net Export	0.098163	0.0894	0.056551	1.735830
Real Exchange Rate	-64.66155	0.0355	29.82068	-2.168346
Real Interest Rate	417.2546	0.0933	243.3653	1.714519
Financial Crisis	-979.6492	0.3346	1004.308	-0.975447
R-square = 0.371514				
P-value of T-test = 0.001327				

Source: developed from EViews 6

10% significant level

Table 4.1 time series data from Malaysia shows the independent variables INF, NCF, NEX and RINR show positive sign towards the BOP of Malaysia. The independent variables of RER and FCRISIS are negative related with BOP.

4.0.1.2 Thailand

$$\widehat{BOP}_t = 1675.507 - 1637.449INF_t + 0.705602NCF_t + 0.004203NEX_t + 138.7520RER_t - 1456.760RINR_t + 2958.107 FCRISIS_{07-08}$$

Table 4.2: Time series data result (Thailand)

Component	Coefficient	P-value	Standard Error	T-statistic
Intercept	1675.507	0.7866	6150.642	0.272412
Inflation	-1637.449	0.0264	713.3603	-2.295402
Net Capital Flow	0.705602	0.0752	0.387403	1.821363
Net Export	0.004203	0.3082	0.004077	1.030753
Real Exchange Rate	138.7520	0.0723	75.39375	1.840364
Real Interest Rate	-1456.760	0.0364	675.3202	-2.157140
Financial Crisis	2958.107	0.0483	1457.119	2.030106
R-square = 0.321649				
P-value of T-test = 0.005742				

Source: developed from EViews 6

10% significant level

Table 4.2 time series data from Thailand shows the independent variables NCF, NEX, RER and FCRISIS show positive sign with BOP. The independent variables of INF and RINR show negative sign with BOP.

4.0.1.3 Indonesia

$$\widehat{BOP}_t = -16152.08 + 744.3270INF_t + 0.243480NCF_t - 0.053343 NEX_t + 85.55873RER_t + 733.5518RINR_t - 75.73344 FCRISIS_{07-08}$$

Table 4.3: Time series data result (Indonesia)

Component	Coefficient	P-value	Standard Error	T-statistic
Intercept	-16152.08	0.0081	5824.491	-2.773132
Inflation	744.3270	0.0136	289.8241	2.568202
Net Capital Flow	0.243480	0.6709	0.569261	0.427713
Net Export	-0.053343	0.4292	0.066863	-0.797799
Real Exchange Rate	85.55873	0.0263	37.25358	2.296658
Real Interest Rate	733.5518	0.0094	270.2936	2.713908
Financial Crisis	-75.73344	0.9556	1352.866	-0.055980
R-square = 0.237745				
P-value of T-test = 0.047367				

Source: developed from EViews 6

10% significant level

Table 4.3 show time series data from Indonesia with the independent variables INF, NCF, RER and RINR show positive sign to explain BOP. The independent variables of NEX and FCRISIS show negative sign with BOP.

4.1 T-test

4.1.1 T-test Result from Malaysia

Table 4.4: T-test (Malaysia)

Independent Variables	P-value	Significance Level	Result
INF	0.0332	< 0.10	Significant
NCF	0.0344	< 0.10	Significant
NEX	0.0894	< 0.10	Significant
RER	0.0355	< 0.10	Significant
RINR	0.0933	< 0.10	Significant
FCRISIS	0.3346	> 0.10	Insignificant

Source: developed from EViews 6

10% significant level

The decision rule for T-test is reject the H_0 if p-value smaller than 0.10. Since the p-value of T-test for inflation, net cash flow, net export, real exchange rate and real interest rate are smaller than 0.10. There is sufficient evidence to conclude that there is significant relationship between balance of payment and the independent variables (INF, NCF, NEX, RER, RINR) at the significance level of 0.10. Since the p-value of T-test for financial crisis is greater than 0.10. There is sufficient evidence to conclude that there is insignificant relationship between BOP and FCRISIS at the significance level of 0.10.

4.1.2 T-test Result from Thailand

Table 4.5: T-test (Thailand)

Independent Variables	P-value	Significance Level	Result
INF	0.0264	< 0.10	Significant
NCF	0.0752	< 0.10	Significant
NEX	0.3082	> 0.10	Insignificant
RER	0.0723	< 0.10	Significant
RINR	0.0364	< 0.10	Significant
FCRISIS	0.0483	< 0.10	Significant

Source: developed from EViews 6

10% significant level

The decision rule for T-test is reject the H_0 if p-value smaller than 0.10. Since the p-value of T-test for inflation, net capital flow, real exchange rate, real interest rate and financial crisis are smaller than 0.10. There is sufficient evidence to conclude that there is significant relationship between balance of payment and the independent variables (INF, NCF, RER, RINR, FCRISIS) at the significance level of 0.10. Since the p-value of T-test for net export is greater than 0.10. There is sufficient evidence to conclude that there is insignificant relationship between BOP and NEX at the significance level of 0.10.

4.1.3 T-test Result from Indonesia

Table 4.6: T-test (Indonesia)

Independent Variables	P-value	Significance Level	Result
INF	0.0136	< 0.10	Significant
NCF	0.6709	> 0.10	Insignificant
NEX	0.4292	> 0.10	Insignificant
RER	0.0263	< 0.10	Significant
RINR	0.0094	< 0.10	Significant
FCRISIS	0.9556	> 0.10	Insignificant

Source: developed from EViews 6

10% significant level

The decision rule for T-test is reject the H_0 if p-value smaller than 0.10. Since the p-value for inflation, real exchange rate and real interest rate are smaller than the significance level of 0.10. There is enough evidence to conclude that there is significant relationship between balance of payment and the independent variables (INF, RER and RINR) at significance level of 0.10.

Since the p-value for net capital flow, net export and financial crisis are greater than the 0.10 significance level. There is sufficient evidence to conclude that there is insignificant relationship between the balance of payment and independent variables (NCF, NEX and FCRISIS) at significance level of 0.10.

4.2 F-test

4.2.1 F-test Result from Malaysia

Table 4.7: F-test (Malaysia)

Probability (F-test)	Significance Level	Result
0.001327	< 0.10	Significant

Source: developed from EViews 6

10% significant level

The significance of entire model has been carried out by using F-test. Since the P-value 0.001327 is lower than the 0.10 significance level, there is enough evidence to conclude that this model is significant at the 10% significance level. This means at least one independent variable is significant to explain the balance of payment.

4.2.2 F-test Result from Thailand

Table 4.8: F-test (Thailand)

Probability (F-test)	Significance Level	Result
0.005742	< 0.10	Significant

Source: developed from EViews 6

10% significant level

F-test of the regression model of Thailand shows significant result. Since the P-value 0.005742 is smaller than the 0.10 significance level. There is enough evidence to conclude that this model is significant at the 10% significance level. This means at least one independent variable is significant to explain the balance of payment.

4.2.3 F-test Result from Indonesia

Table 4.9: F-test (Indonesia)

Probability (F-test)	Significance Level	Result
0.047367	< 0.10	Significant

Source: developed from EViews 6

10% significant level

The result of F-test for the regression model of Indonesia is significant. Since the P-value 0.047367 is smaller than the 0.10 significance level, there is enough evidence to conclude that this model is significant at the 10% significance level. This means at least one independent variable is significant to explain the balance of payment

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

The decision mentioned in chapter 3 for this test is reject the null hypothesis if the p-value is less than 10% significance level. The test will continue to first differentiation if the results obtained cannot reject null hypothesis in level form. The test will proceed to second differentiation if the results still failed to reject null hypothesis in level form.

4.3.1 Malaysia

Table 4.10(a): ADF unit root test

ADF	L@I	L@T&I	D1@I	D1@T&I
BOP	0.7481	0.7779	0.0000	0.0000
INF	0.0013	0.0061	0.0000	0.0000
NCF	0.7650	0.0000	0.0000	0.0000
NEX	0.2496	0.2099	0.0000	0.0002
RER	0.7191	0.0217	0.0005	0.0029
RINR	0.0008	0.0000	0.0000	0.0000
FCRISIS	0.2942	0.6287	0.0000	0.0000

Source: developed from EViews 6

10% significant level

Table 4.10(b): PP unit root test

PP	L@I	L@T&I	D1@I	D1@T&I
BOP	0.0001	0.0001	0.0001	0.0001
INF	0.0311	0.1124	0.0003	0.0020
NCF	0.0000	0.0000	0.0000	0.0000
NEX	0.3883	0.2099	0.0000	0.0000
RER	0.8227	0.2431	0.0011	0.0083
RINR	0.0008	0.0000	0.0001	0.0001
FCRISIS	0.2494	0.5666	0.0000	0.0000

Source: developed from EViews 6

10% significant level

The results of ADF test and PP test show all dependent and independent variables are stationary at the first differentiation either in intercept form or trend and intercept form. Both test no need to undergo second differentiation as all dependent and independent variables are already stationary in first differentiation. ADF test shows inflation and real interest rate are already

stationary start from level form. PP test shows balance of payment, inflation, net capital flow and real interest rate are already stationary start from level form. ADF test and PP test results are consistent where all variables stationary and no unit root in first differentiation.

L@I = Level Form with Intercept

L@T&I = Level Form with Trend and Intercept

D1@I = First Differentiation with Intercept

D1@T&I = First Differentiation with Trend and Intercept

4.3.2 Thailand

Table 4.11(a): ADF unit root test

ADF	L@I	L@T&I	D1@I	D1@T&I
BOP	0.0001	0.0002	0.0000	0.0000
INF	0.0004	0.0012	0.0000	0.0000
NCF	0.0000	0.0000	0.0001	0.0005
NEX	0.8490	0.2123	0.0000	0.0000
RER	0.9496	0.0782	0.0040	0.0249
RINR	0.0025	0.0085	0.0000	0.0000
FCRISIS	0.2942	0.6287	0.0000	0.0000

Source: developed from EViews 6

10% significant level

Table 4.11(b): PP unit root test

PP	L@I	L@T&I	D1@I	D1@T&I
BOP	0.0001	0.0002	0.0001	0.0001
INF	0.0111	0.3043	0.0016	0.0114
NCF	0.0000	0.0000	0.0001	0.0001
NEX	0.9047	0.1556	0.0000	0.0000
RER	0.9364	0.0140	0.0000	0.0000
RINR	0.0678	0.2240	0.0009	0.0062
FCRISIS	0.2494	0.5666	0.0000	0.0000

Source: developed from EViews 6

10% significant level

The results of ADF test and PP test show all dependent and independent variables are stationary at the first differentiation either in intercept form or trend and intercept form. ADF test and PP test no need to undergo second differentiation as all dependent and independent variables are already stationary in first differentiation. Balance of payment, inflation, net capital flow and real interest rate are already stationary start from level form as showed by the table above for both ADF test and PP test. ADF test and PP test results are consistent where all variables stationary and no unit root in first differentiation.

L@I = Level Form with Intercept

L@T&I = Level Form with Trend and Intercept

D1@I = First Differentiation with Intercept

D1@T&I = First Differentiation with Trend and Intercept

4.3.3 Indonesia

Table 4.12(a): ADF unit root test

ADF	L@I	L@T&I	D1@I	D1@T&I
BOP	0.0014	0.0039	0.0000	0.0000
INF	0.1625	0.0051	0.0001	0.0005
NCF	0.7617	0.0011	0.0000	0.0000
NEX	0.7258	0.0018	0.0000	0.0000
RER	0.9453	0.0944	0.0000	0.0000
RINR	0.0034	0.0374	0.0002	0.0009
FCRISIS	0.2942	0.6287	0.0000	0.0000

Source: developed from EViews 6

10% significant level

Table 4.12(b): PP unit root test

PP	L@I	L@T&I	D1@I	D1@T&I
BOP	0.0013	0.0035	0.0000	0.0000
INF	0.0607	0.0392	0.0000	0.0002
NCF	0.3290	0.0008	0.0000	0.0000
NEX	0.1285	0.0031	0.0000	0.0000
RER	0.9515	0.1190	0.0000	0.0000
RINR	0.0033	0.0311	0.0000	0.0001
FCRISIS	0.2494	0.5666	0.0000	0.0000

Source: developed from EViews 6

10% significant level

The results of ADF test and PP test show all dependent and independent variables are stationary at the first differentiation either in intercept form or trend and intercept form. ADF test and PP test no need to undergo second differentiation as all dependent and independent variables are already

stationary in first differentiation. ADF test shows balance of payment and real interest rate are already stationary start from level form. PP test shows balance of payment, inflation and real interest rate are already stationary start from level form. ADF test and PP test results are consistent where all variables stationary and no unit root in first differentiation.

L@I = Level Form with Intercept

L@T&I = Level Form with Trend and Intercept

D1@I = First Differentiation with Intercept

D1@T&I = First Differentiation with Trend and Intercept

4.4 Diagnostic checking

4.4.1 Multicollinearity

Table 4.13: Multicollinearity Test

Country	Independent variables highly correlated	R ²	VIF
Malaysia	NEX with RER	0.483876	1.9375
Thailand	NEX with RINR	0.225062	1.2904
Indonesia	NEX with RER	0.720133	3.5731

Source: developed from EViews 6

10% significant level

Multicollinearity exists when there are linear relationships between the independent variables. It is hardly to differentiate the individually significant effect on dependent variables for each independent variable if the relationship of the variables is highly correlated with each other. Pearson's correlation analysis is a statistical technique used to measure any high pair wise correlation between independent variables. The study will conduct the regression analysis for the highly pair-wise correlation independent variables. The Multicollinearity Test for each country show there is no serious multicollinearity problem. The β estimator in each model still consider unbiased, efficient and consistent.

4.4.2 Heteroscedasticity (Autoregressive Conditional Heteroscedasticity Test)

Table 4.14: Autoregressive Conditional Heteroscedasticity Test (ARCH)

Country	Probability Chi-Square	Result
Malaysia	0.7602	No heteroscedasticity problem.
Thailand	0.1818	No heteroscedasticity problem.
Indonesia	0.0000	Heteroscedasticity problem exist.

Source: developed from EViews 6

10% significant level

Autoregressive Conditional Heteroscedasticity (ARCH) test is used to detect the heteroscedasticity problem in time series data. This test is used 10% significant level to determine the results. Based on the results, Malaysia and Thailand show that there is enough evidence to conclude that the models do

not consist of heteroscedasticity problem (P-value > 0.10). In contrast, Indonesia's OLS model consists of heteroscedasticity problem. The heteroscedasticity problem cannot be tolerant using EViews 6.

4.4.3 Autocorrelation (Breusch-Godfrey Serial Correlation LM Test)

Table 4.15: Breusch-Godfrey Serial Correlation LM Test

Country	Probability Chi-Square	Result
Malaysia	0.9188	No autocorrelation problem.
Thailand	0.4460	No autocorrelation problem.
Indonesia	0.0134	Autocorrelation problem exist.

Source: developed from EViews 6

10% significant level

Breusch-Godfrey Serial Correlation LM Test used to detect whether the existence of autocorrelation problem. This test is used 10% significant level to determine the results. Based on the results from Table 4.15, Malaysia and Thailand show that there is enough evidence to conclude that the models do not have autocorrelation problem (P-value > 0.10). However, the model of Indonesia consists of autocorrelation problem and it is unavoidable.

4.4.4 Normality test (Jarque-Bera Test)

Table 4.16: Jarque-Bera Test

Country	Probability	Results
Malaysia	0.174575	Error term is normal.
Thailand	0.000111	Error term is not normal.
Indonesia	0.119254	Error term is normal.

Source: developed from EViews 6

10% significant level

The results in Table 4.16 shows that the model is fulfill normality assumption .Jarque-Bera test (JB Test) is conducted in order to test whether error term are normally distributed, if error term is not normally distributed the result will become biased, inefficient and inconsistent. This research tests the model at 10% significance level for three of the developing countries which are Malaysia, Thailand and Indonesia. The results show that Malaysia and Indonesia have enough evidence to conclude that error term is normally distributed at 10% significance level (P-value < 0.10). However, Thailand show there is not enough evidence to conclude that the error term is normality in model.

4.4.5 Model Specification Error (Ramsey Reset Test)

Table 4.17: Ramsey Reset Test

Country	Probability	Result
Malaysia	0.0075	Model specification error exists.
Thailand	0.0083	Model specification error exists.
Indonesia	0.6950	No model specification error.

Source: developed from EViews 6

10% significant level

Table 4.17 shows that whether the OLS regression model is in correctly form. If the model is good and correctly specific, the result will show that the p-value is greater than the significant level at 10%. According to the result, the model of Thailand is good and correctly specific. However, the model of Malaysia and Indonesia have model specification problem.

4.5 Conclusion

In conclusion, in this chapter all the data obtained have been undergoes variety of test by using EViews 6. The tests conducted are based on time series analysis of Malaysia, Thailand and Indonesia respectively. The tests include T-test, F-test, Augmented Dickey-Fuller unit root test, Philips-Perron test and the diagnostic checking test which are Multicollinearity, Heteroscedasticity, Autocorrelation, Normality, and Model Specification Error.

The results on time series model of the three countries considered reliable. There is no serious multicollinearity in the time series analysis of the three countries respectively. The results of the diagnostic checking showed the econometric problem for instance heteroscedasticity and autocorrelation problem exist in Indonesia's regression model while these problem does not exist in the model of Malaysia and Thailand. The model is normally distributed for the model of Malaysia and Indonesia but not normal for the model of Thailand. Model specification is correct for Indonesia's model but the problem exist in the model of Malaysia and Thailand.

In addition, the following chapter will further discuss in detailed of the statistical analysis, major findings, implication of study, limitations of study and recommendation for future study.

Chapter 5: Discussion, Conclusion and Implication

5.0 Introduction

In this chapter, a detail summary of statistical analyses from the chapter 4 will be provided. In addition, this study will discuss the major findings, implications of study for policy maker, limitations, and recommendations for future researchers.

5.1 Summary of Statistical Analysis

This research is mainly to discuss on the macroeconomic factors in Malaysia, Thailand and Indonesia effects in the emerging market respectively. The independent variables used are inflation (INF), net capital flow (NCF), net export (NEX), real exchange rate (RER), real interest rate (RINR) and financial crisis (FCRISIS). The balance of payment (BOP) of each developing country respectively will be determined based on the quarterly period from year 2000 to 2012.

The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) test are conducted to determine the stationary of the data. There are some of the data are non-stationary in level form and then become stationary after the first difference which the ADF and PP results less than the 10% significance level. The results of ADF and PP for the

entire dependent and independent variables in each three countries show are consistent where all variables are stationary and have no unit root in the first level respectively.

Table 5.1(a): Stationary Test

Variables for Malaysia, Thailand and Indonesia	Stationary	
	ADF Unit Root	PP Test
Balance of payment	✓	✓
Inflation	✓	✓
Net capital flow	✓	✓
Net export	✓	✓
Real exchange rate	✓	✓
Real interest rate	✓	✓
Financial crisis	✓	✓

Table 5.1(a): All the variables for three countries are stationary. Intercept and trend are included as every data has its own trend.

The results of the economic problem based on time series data of the three countries are summarized.

Table 5.1(b): Summarized of econometric problem

Econometric Problem	Country		
	Malaysia	Thailand	Indonesia
Multicollinearity	✘	✘	✘
Heteroscedasticity	✘	✘	✓
Autocorrelation	✘	✘	✓
Normality (Error term not normal)	✘	✓	✘
Model Specification	✓	✓	✘

✓ = Yes, there is an econometric problem.

✘ = No, there is no econometric problem.

Table 5.1 (b) shows the econometric problem after the diagnostic checking in the previous chapter. The first row which is Multicollinearity problem indicated that all the three developing countries have no serious multicollinearity problem. Heteroscedasticity problem and Autocorrelation problem only occurs in Indonesia's data. Normality which is the Jarque-Bera test shows that the error term in the model of Malaysia and Indonesia is normally distributed while the result from Thailand shows that the error term in the model is not normally distributed. Model Specification Error exists in data of Malaysia and Thailand which indicated that the regression model of Malaysia and Thailand are not correctly specified. However, Indonesia does not faced model specification error, where the model for Indonesia is correctly specified.

5.2 Discussions of Major Findings

Based on the result attained from chapter 4, the inflation is significant to influence the balance of payment for Malaysia, Thailand and Indonesia. The results for Malaysia and Indonesia show the coefficient of inflation is a positive sign which consistent with the results from Ali (2011) and Bobai (2013) which claimed that inflation is significant and positively related with balance of payment. The expected sign for inflation in Thailand is negative, indicated that there is a negative relationship between balance of payment and inflation which consistent with the studies of Boyd, Levine and Smith (2001) and Azeez, Kolapo and Ajayi (2012) where inflation is significant and negatively related with balance of payment. The movement of inflation will reducing the employment rate, capital and output which will cause the diminishing of balance of payment.

According to the research of Ding and Jinjarak (2012), there is a positive effect between net capital flow and balance of payment. It is supporting this research paper's result where the coefficients of net capital flow are positive signs for three countries. Based on the result obtained, the net capital flow is significant for Malaysia and Thailand which supported by the study of Pasricha (2012) by stated exchange rate will be adjusted to move upward if the country faces large capital inflow and this indicated that net capital flow is a significant component for balance of payment. This is mismatch with the study of Cardarelli, Elekdag and Kose (2010) which stated that net capital flow is insignificant to balance of payment and this study is supporting the result of Indonesia.

Net export has positive sign and negative sign in three countries together with the result of significant and insignificant. Net export in Malaysia shows in positive sign and has significant effect to balance of payment which consistent with the study of

Gouvea and Lima (2010) and Sheth (2011). On the other hand, the result shows net export for Thailand is insignificant and positively related to balance of payment. The positive sign of net export is supported by the research of Loser (2013) whereas the insignificant effect of net export is supported by Kennedy (2013) that the net export has no significant effect to balance of payment. Kandil (2009) also stated the net export has indirectly insignificant effect on the balance of payment and this study can supports the result that the net export is insignificant to the balance of payment for Indonesia. The net export of Indonesia also showed in negative sign and it can be explained by the study of Paulino and Thirlwall (2004) as the balance of payment will become negative when the import more than export.

Furthermore, the real exchange rate is having the significant relationship with balance of payment for three countries and this result is supported by Gulzar and Shafi (2011) and Yusoff (2007). Boyd, Caporale and Smith (2001) also stated that real exchange rate has significant effect to influence the trade balance and enhance the balance of payment. According to Gulzar and Shafi (2011), their study mentioned that the real exchange rate can be in positive sign and negative sign by determined by the monetary policy in the country. This is supporting the result of real exchange rate in Malaysia which shown in negative sign where else it shown in positive sign for Thailand and Indonesia.

Based on the research of Aguiar and Gopinath (2006) and Eita and Gaomab II (2012), there is positive relationship between real interest rate and balance of payment and stated that real interest rate is significant component of balance of payment where the real interest rate is one of the main key to increase the investment hence reposition the balance of payment. This is supporting and consistent with the result obtained in chapter 4 for Malaysia and Indonesia. According to Imoisi, Olatunji and Ekpenyong (2013), real interest rate has the significant effect to the balance of payment with the negative coefficient sign. It is consistent with the result where the real interest rate for

Thailand is significant and negatively related and supported by Daly and Siddiki (2009).

The coefficient signs for financial crisis in Malaysia and Indonesia are negative sign and resulted insignificant effect to balance of payment. The insignificant effect is consistent with the past researchers where the study of Basri and Rahardja (2010) mentioned that the global financial crisis had lightly affected the emerging market of Indonesia due to the policies implemented by Bank Indonesia and Indonesia government. The good economy condition also help the country solved the crisis problem. The coefficient of financial crisis in Malaysia showed in negative sign can be proved by the study of Tosompark and Daly (2013) which stated the market in Malaysia was slightly hurt by financial crisis. However, Thailand shows the result of financial crisis in positive sign and significant effect to the balance of payment. This result is consistent with the study of Nidhiprabha (2010) that the global financial crisis has significant effect balance of payment in 2009. Tosompark and Daly (2013) also stated financial crisis has positively related toward balance of payment.

Table 5.2 (a): Summary of Major Findings for Inflation

Independent Variable	Countries	Results	Consistency
Inflation	Malaysia Indonesia	Significantly	Ali (2011) ; Bobai (2013)
		Positively	
	Thailand	Significantly	Boyd, Levine and Smith (2001) ; Azeez, Kolapo and Ajayi (2012)
		Negatively	

Table 5.2 (b): Summary of Major Findings for Net Capital Flow

Independent Variable	Countries	Results	Consistency
Net Capital Flow	Malaysia Thailand	Significantly	Pasricha (2012)
		Positively	Ding and Jinjarak (2012)
	Indonesia	Insignificantly	Cardarelli, Elekdag and Kose (2010)
		Positively	Ding and Jinjarak (2012)

Table 5.2 (c): Summary of Major Findings for Net Export

Independent Variable	Countries	Results	Consistency
Net Export	Malaysia	Significantly	Gouvea and Lima (2010)
		Positively	Sheth (2011)
	Thailand	Insignificantly	Kennedy (2013)
		Positively	Loser (2013)
	Indonesia	Insignificantly	Kandil (2013)
		Negatively	Paulino and Thirlwall (2004)

Table 5.2 (d): Summary of Major Findings for Real Exchange Rate

Independent Variable	Countries	Results	Consistency
Real Exchange Rate	Malaysia	Significantly	Gulzar and Shafi (2011) ; Yusoff (2007) ; Boyd, Caporale and Smith (2001)
		Negatively	
	Thailand Indonesia	Significantly	
		Positively	

Table 5.2 (e): Summary of Major Findings for Real Interest Rate

Independent Variable	Countries	Results	Consistency
Real Interest Rate	Malaysia Indonesia	Significantly	Eita and Gaomab II (2012)
		Positively	Aguiar and Gopinath (2006)
	Thailand	Significantly	Imoisi, Olatunji and Ekpenyong (2013)
		Negatively	Daly and Siddiki (2009)

Table 5.2 (f): Summary of Major Findings for Financial Crisis

Independent Variable	Countries	Results	Consistency
Financial Crisis	Malaysia Indonesia	Insignificantly	Basri and Rahardja (2010)
		Negatively	Tosompark and Daly (2013)
	Thailand	Significantly	Nidhiprabha (2010)
		Positively	Tosompark and Daly (2013)

5.3 Implication of Study

This study is important to provide empirical evidence on the macroeconomic factors (INF, NCF, NEX, RER, RINR and FCRISIS) that will affect the balance of payment of emerging market. The results show that INF and RINR are negative relationship with BOP, NCF is positive relationship with BOP, and NEX, RER and FCRISIS can be positive or negative relationship with BOP based on the each variable criterion. Therefore, government can rely on the each variable attribution to make the decision to affect BOP. Government can through the economic policy such as fiscal policy and monetary policy to stimulate each variable in order to lead the BOP trend to surplus.

This study might benefit for future researchers who attempt to delve in the issue about the effect of macroeconomic factors in emerging market. In addition, the future researcher is encouraged to improve the data accuracy of this topic in future study and solve the limitation of this research such as data constraint.

Emerging market provide higher risk than other developed markets due to market trend is not constant and difficult to anticipate by investors. Thus, investors are encouraged to understand the country's economic environment to avoid loss in investment. This study can provide an instruction of market factors movement to investors as a reference for decision making.

5.3.1 Policy Implication

The objective of this research is to examine the effect of macroeconomic factors in emerging market from the perspective of Malaysia, Thailand and Indonesia that how the dependent variable, BOP effect by the independent variable which are inflation, net cash flow, net export, real interest rate, real exchange rate and financial crisis. In addition, this research has been identified that the direction of each independent variable to dependent variable and the relationship between dependent variable and independent.

Malaysia's policy maker should put more afford on the fiscal policy. According to the Hill, Yean and Zin (2012), Malaysia's government fiscal space and policy options are more and more constrained which are causing small structural reform of government finance. Therefore, policy maker should reduce the restriction in ordered to make the government have more authorized in financial decision. At the same time, the mentioned macroeconomic factor will be improved by the new policy. Policy maker also need to emphasis on solving the problem of "institutionalized leakages", which is United Malaysia National Organization (UMNO) control all the cost-padding in public works projects.

The issues of Thailand's politic are injured to the economic. Tosompark and Daly (2013) revealed that the only way to increase FDI with increasing investor's confidence by resolving its political issues, recover law and order to the country. If the country has stable politics, it will more attractive than others countries to attract foreign investment. In addition, net cash flow and net export will tend to positive.

Indonesia is weak on the application of fiscal policy and monetary policy. According to the Pambudi and Smyth (2008) state that Indonesia's investment rating has been downgrade by the investment ratings agencies due to weak application of the rule and regulation and uncertainty in the regulatory environment. Government can through the monetary policy and fiscal policy to adjust interest rate and level of money supply to relief inflation in the country. Thus, the real exchange rate will be more stable. When the risk premium was reduced, the country's investment rating will be increasing and enjoying in absorbed the foreign direct investment.

The policy implication will benefit the entire market participants such as government, bank institution, corporate, and investor. Government's policy maker is using suitable economic policy such as monetary policy or fiscal policy to affect the balance of payment. The large international bank often acts as market makers to earn the profit from the spread between bid prices and ask prices. If the government changes in restriction, corporate will possibility benefit when new opportunities arise from removal of government barriers. Investors typically prefer to invest in countries where the interest rate is high. High interest should normally stimulate an inflow of capital seeking higher interest rates in other country-currency.

5.4 Limitation of Study

Along the conduction of this research, there are few limitations faced. The major limitation faced is data constraint. This research is mainly on determine the relationship between balance of payment and six independent variables which are inflation, real interest rate, real exchange rate, net export, net capital flow and financial crisis. The major limitation faced is data constraint problem. This study cannot be conducted under yearly data because of sample size not large enough. Therefore, it is conducted under quarterly data. However, there are missing data for the independent variables which are net export and net capital for Indonesia for year start from 1990. At last, this research need to start from year 2000 until year 2012 which also faced the problem of sample size not large enough.

Besides, due to country constraint problem, this research only focuses on three Asian countries which are Malaysia, Thailand and Indonesia. There might be other Asian countries that would show different result of the relationship between the independent variables and dependent variable. Due to the different countries might have different policy and culture, this might also affect the result of this research.

Furthermore, this study is conducted under time series data. After diagnostic checking, there are still many econometric problems faced in this research. According to Fu (2011), time series data is hard to manipulate in its original structure and that there are difficulties due to the high dimensionality of time series data. There might be possibility to try different kind of data to try to achieve a better result such as panel data. However, there is limited econometric knowledge faced when conducting this study.

Lastly, the data of this study is mainly run by Eviews. There are still econometric problems remain insolvent in this research. However, there is limited knowledge on other program such as Stata where it is normally use to run panel data.

5.5 Recommendation

In this research, future researcher can add more relevant variables to investigate the study. This is because this research faced problem of data constraint such as missing data and sample size for yearly data not large enough for these countries. Therefore, future researchers are suggested to use proxy variable as good substitute to replace the variable that have missing data but must make sure that data can obtain completely from data streams and the variable fulfill all condition.

In addition, future researchers are suggested to increase sample size in model. The large number of sample size in data able to cause the distribution for balance of payment and other relevant variables become approximately normal. The error term also will be nearly normal distributed due to the Centre Limit Theorem. This will help to minimize heteroscedasticity and autocorrelation problem. Hence, the result will become BLUE (best, linear, unbiased and estimated).

Due to country constraint problem, this research only use Malaysia, Thailand and Indonesia to investigate the relationship of balance of payment and other variables such as inflation, real exchange rate, net export, real interest rate, net capital flow and financial crisis in emerging market. Therefore, future researchers are recommended to include more developing country and have similar culture and policy taken in the study. This will help foreign and local investors to get more information such as the position balance of payment is deficit or surplus in these countries.

In addition, there is model specification error happen in this research. This may due to causal relationship between one of independent variable and dependent variable. Therefore, future researcher are suggested to solve the causal relationship by apply Granger Causality Test to test causality relationship among each variables. Thus, this problem will capture by error term and make model become reliable.

The research still faced many econometric problems because of time series data is hard to manipulate in its original structure. This study suggests future researchers use panel data instead of times series data to do the research. Lastly, future researcher are suggested to gain more knowledge due to the limited knowledge problem especially knowledge in econometric. According to Stokes (2004) suggested that can use more econometric software system to solve econometric problem such as try using Stata to run the data. However, the problem of multicollinearity must solve first, and then just can make sure obtain better result in the study.

5.6 Conclusion

In conclusion, this research is to investigate about the relationship between balance of payment and the macroeconomic factors which are inflation, net capital flow, net export, real exchange rate, real interest rate and financial crisis of the three developing Asian countries (Malaysia, Thailand and Indonesia) in the emerging market. In this chapter, the major findings of the research and policy implications had been discussed.

Throughout this research, there are some limitations encountered such as data constraint, time constraint and limited knowledge of econometric. There are some econometric problems faced in this study such as heteroscedasticity and autocorrelation problems. Therefore, future researchers are suggested to find solution to solve these problems. Furthermore, few recommendations are suggested for future researchers to delve in this relevant topic.

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Appendix

Appendix A: Malaysia

Time Series Data Diagnostic Checking

Multicollinearity

	INF	NCF	NEX	RER	RINR	FCRISIS
INF	1.000000	-0.135594	0.486491	0.294207	-0.609511	0.424804
NCF	-0.135594	1.000000	-0.397506	-0.463006	0.396235	-0.219909
NEX	0.486491	-0.397506	1.000000	0.695612	-0.693788	0.463018
RER	0.294207	-0.463006	0.695612	1.000000	-0.582740	0.274590
RINR	-0.609511	0.396235	-0.693788	-0.582740	1.000000	-0.235733
FCRISIS	0.424804	-0.219909	0.463018	0.274590	-0.235733	1.000000

Dependent Variable: NEX
 Method: Least Squares
 Date: 06/09/14 Time: 22:26
 Sample: 1 52
 Included observations: 52

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-15266.63	6405.491	-2.383367	0.0210
RER	432.4553	63.16353	6.846599	0.0000

R-squared	0.483876	Mean dependent var	28129.23
Adjusted R-squared	0.473553	S.D. dependent var	9195.946
S.E. of regression	6672.270	Akaike info criterion	20.48701
Sum squared resid	2.23E+09	Schwarz criterion	20.56206
Log likelihood	-530.6623	Hannan-Quinn criter.	20.51578
F-statistic	46.87592	Durbin-Watson stat	0.486971
Prob(F-statistic)	0.000000		

Heteroscedasticity

Heteroskedasticity Test: ARCH

F-statistic	0.260623	Prob. F(2,47)	0.7717
Obs*R-squared	0.548435	Prob. Chi-Square(2)	0.7602

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

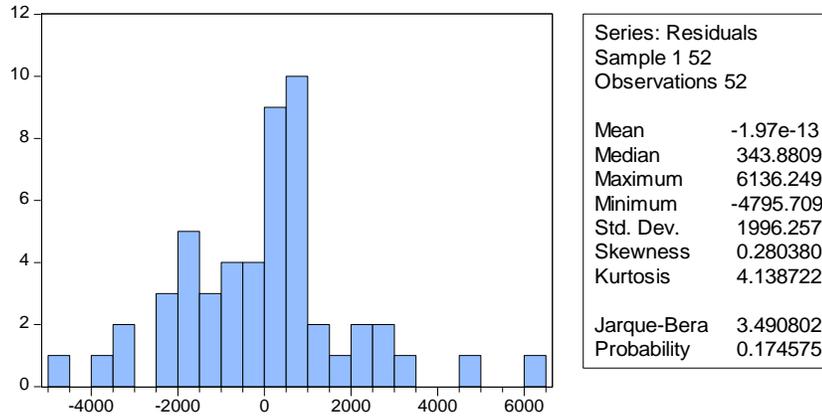
F-statistic	0.070259	Prob. F(2,43)	0.9323
Obs*R-squared	0.169375	Prob. Chi-Square(2)	0.9188

Model Specification

Ramsey RESET Test:

F-statistic	4.449430	Prob. F(2,43)	0.0175
Log likelihood ratio	9.781030	Prob. Chi-Square(2)	0.0075

Normality Test



Time Series Data Result

Dependent Variable: BOP
 Method: Least Squares
 Date: 06/09/14 Time: 22:16
 Sample: 1 52
 Included observations: 52

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-361.6193	3315.375	-0.109073	0.9136
INF	591.1107	269.0656	2.196902	0.0332
NCF	0.447177	0.204918	2.182221	0.0344
NEX	0.098163	0.056551	1.735830	0.0894
RER	-64.66155	29.82068	-2.168346	0.0355
RINR	417.2546	243.3653	1.714519	0.0933
FCRISIS	-979.6492	1004.308	-0.975447	0.3346
R-squared	0.371514	Mean dependent var	-1617.412	
Adjusted R-squared	0.287716	S.D. dependent var	2518.074	
S.E. of regression	2125.177	Akaike info criterion	18.28575	
Sum squared resid	2.03E+08	Schwarz criterion	18.54842	
Log likelihood	-468.4294	Hannan-Quinn criter.	18.38645	
F-statistic	4.433439	Durbin-Watson stat	2.072570	
Prob(F-statistic)	0.001327			

Appendix B: Thailand

Time Series Data Diagnostic Checking

Multicollinearity

	INF	NCF	NEX	RER	RINR	FCRISIS
INF	1.000000	0.283166	-0.490926	0.241209	-0.930903	0.261070
NCF	0.283166	1.000000	-0.283435	0.242027	-0.291589	0.256226
NEX	-0.490926	-0.283435	1.000000	-0.871045	0.474407	-0.190601
RER	0.241209	0.242027	-0.871045	1.000000	-0.217437	0.199117
RINR	-0.930903	-0.291589	0.474407	-0.217437	1.000000	-0.169578
FCRISIS	0.261070	0.256226	-0.190601	0.199117	-0.169578	1.000000

Dependent Variable: NEX
 Method: Least Squares
 Date: 06/09/14 Time: 22:39
 Sample: 1 52
 Included observations: 52

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-906690.4	83003.89	-10.92347	0.0000
RINR	70733.51	18561.91	3.810680	0.0004
R-squared	0.225062	Mean dependent var		-624545.3
Adjusted R-squared	0.209563	S.D. dependent var		304307.7
S.E. of regression	270549.3	Akaike info criterion		27.89200
Sum squared resid	3.66E+12	Schwarz criterion		27.96705
Log likelihood	-723.1920	Hannan-Quinn criter.		27.92077
F-statistic	14.52128	Durbin-Watson stat		0.147774
Prob(F-statistic)	0.000381			

Heteroscedasticity

Heteroskedasticity Test: ARCH

F-statistic	1.719769	Prob. F(2,47)	0.1902
Obs*R-squared	3.409565	Prob. Chi-Square(2)	0.1818

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

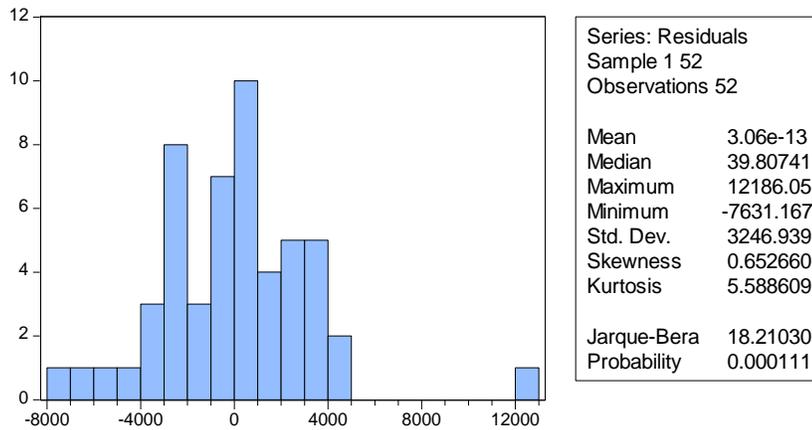
F-statistic	0.688998	Prob. F(2,43)	0.5075
Obs*R-squared	1.614669	Prob. Chi-Square(2)	0.4460

Model Specification

Ramsey RESET Test:

F-statistic	4.350867	Prob. F(2,43)	0.0190
Log likelihood ratio	9.583143	Prob. Chi-Square(2)	0.0083

Normality Test



Time Series Data Result

Dependent Variable: BOP
 Method: Least Squares
 Date: 06/09/14 Time: 22:36
 Sample: 1 52
 Included observations: 52

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1675.507	6150.642	0.272412	0.7866
INF	-1637.449	713.3603	-2.295402	0.0264
NCF	0.705602	0.387403	1.821363	0.0752
NEX	0.004203	0.004077	1.030753	0.3082
RER	138.7520	75.39375	1.840364	0.0723
RINR	-1456.760	675.3202	-2.157140	0.0364
FCRISIS	2958.107	1457.119	2.030106	0.0483

R-squared	0.321649	Mean dependent var	2518.818
Adjusted R-squared	0.231203	S.D. dependent var	3942.277
S.E. of regression	3456.631	Akaike info criterion	19.25863
Sum squared resid	5.38E+08	Schwarz criterion	19.52129
Log likelihood	-493.7243	Hannan-Quinn criter.	19.35933
F-statistic	3.556231	Durbin-Watson stat	1.909706
Prob(F-statistic)	0.005742		

Appendix C: Indonesia

Time Series Data Diagnostic Checking

Multicollinearity

	INF	NCF	NEX	RER	RINR	FCRISIS
INF	1.000000	-0.258495	-0.406301	-0.392143	-0.757397	0.080979
NCF	-0.258495	1.000000	0.707842	0.825525	-0.206846	-0.032653
NEX	-0.406301	0.707842	1.000000	0.848606	0.012234	0.041677
RER	-0.392143	0.825525	0.848606	1.000000	-0.110675	0.119620
RINR	-0.757397	-0.206846	0.012234	-0.110675	1.000000	-0.211293
FCRISIS	0.080979	-0.032653	0.041677	0.119620	-0.211293	1.000000

Dependent Variable: NEX
 Method: Least Squares
 Date: 06/09/14 Time: 22:34
 Sample: 1 52
 Included observations: 52

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9921.441	3386.862	2.929390	0.0051
RER	348.2361	30.70142	11.34267	0.0000

R-squared	0.720133	Mean dependent var	46695.21
Adjusted R-squared	0.714536	S.D. dependent var	13222.61
S.E. of regression	7064.691	Akaike info criterion	20.60131
Sum squared resid	2.50E+09	Schwarz criterion	20.67636
Log likelihood	-533.6340	Hannan-Quinn criter.	20.63008
F-statistic	128.6562	Durbin-Watson stat	1.651829
Prob(F-statistic)	0.000000		

Heteroscedasticity

Heteroskedasticity Test: ARCH

F-statistic	15.70157	Prob. F(2,47)	0.0000
Obs*R-squared	20.02671	Prob. Chi-Square(2)	0.0000

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

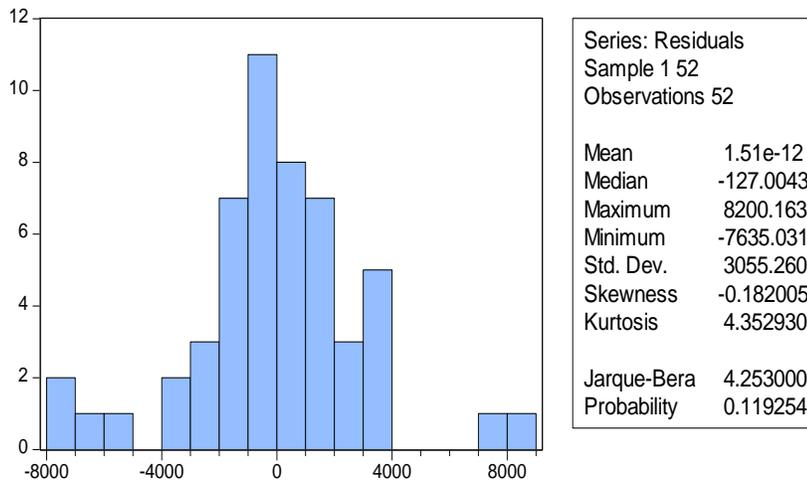
F-statistic	4.271865	Prob. F(2,43)	0.0203
Obs*R-squared	8.619360	Prob. Chi-Square(2)	0.0134

Model Specification

Ramsey RESET Test:

F-statistic	0.302953	Prob. F(2,43)	0.7402
Log likelihood ratio	0.727608	Prob. Chi-Square(2)	0.6950

Normality Test



Time Series Data Result

Dependent Variable: BOP
 Method: Least Squares
 Date: 06/09/14 Time: 22:29
 Sample: 1 52
 Included observations: 52

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-16152.08	5824.491	-2.773132	0.0081
INF	744.3270	289.8241	2.568202	0.0136
NCF	0.243480	0.569261	0.427713	0.6709
NEX	-0.053343	0.066863	-0.797799	0.4292
RER	85.55873	37.25358	2.296658	0.0263
RINR	733.5518	270.2936	2.713908	0.0094
FCRISIS	-75.73344	1352.866	-0.055980	0.9556
R-squared	0.237745	Mean dependent var	1577.192	
Adjusted R-squared	0.136111	S.D. dependent var	3499.437	
S.E. of regression	3252.573	Akaike info criterion	19.13693	
Sum squared resid	4.76E+08	Schwarz criterion	19.39960	
Log likelihood	-490.5602	Hannan-Quinn criter.	19.23763	
F-statistic	2.339230	Durbin-Watson stat	1.216942	
Prob(F-statistic)	0.047367			