FINANCIAL OPENNESS AND ECONOMIC GROWTH

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ABSTRACT

In last few decades, financial openness has been widely noted around the world. The process of financial openness such as banking liberalization, trade openness, capital account liberalization has closely brought together the financial market and institutions around the world. The objective of the study is to examine the effect of financial openness on economic growth for the five major economies in ASEAN (Thailand, Singapore, Indonesia, Malaysia and Philippines) between 2000 and 2014. The balanced panel data from 2000 to 2014 for these countries has been employed in this study. The variables used are independent variable (financial openness), dependent variable (GDP) and four control variables (inflation, official exchange rate, trade and government expense). Using the Panel OLS, this study discovers a positive relationship between financial openness and economic growth. In addition, the official exchange rate and government expense are also found to influence the economic growth positively. However, the level of trade and inflation do not significantly related to economic development. For the robustness model, the FDI net inflow is employed as the independent variable to measure the financial openness. Although, different measurement of financial openness (FDI net inflows) has been used to replace the KAOPEN index, these three variables (financial openness, official exchange rate and government expense) remain to be the factors that affect the level of economic growth. In addition, supporting the earlier conclusion, inflation and trade are not influencing the economic growth. Thus, the findings provided by this study would assist the policy makers in the five ASEAN countries in assessing and strengthening the strategies on the financial openness for the benefits of the countries.

Keywords: Financial Openness, Liberalization, Economic Growth, ASEAN, FDI net inflows, Inflation.

ABSTRAK

Dalam beberapa dekad yang lalu, keterbukaan kewangan telah banyak diperhatikan di seluruh dunia. Proses keterbukaan kewangan seperti liberalisasi perbankan, keterbukaan perdagangan, liberalisasi modal modal telah menyatukan pasaran kewangan dan institusi kewangan di seluruh dunia. Objektif kajian ini adalah untuk mengkaji kesan keterbukaan kewangan terhadap pertumbuhan ekonomi bagi lima ekonomi utama di ASEAN (Thailand, Singapura, Indonesia, Malaysia dan Filipina) antara 2000 dan 2014. Data panel seimbang dari tahun 2000 hingga 2014 untuk negara-negara ini telah digunakan dalam kajian ini. Pembolehubah yang digunakan adalah pembolehubah bebas (keterbukaan kewangan), pembolehubah bersandar (KDNK) dan empat pemboleh ubah kawalan (inflasi, kadar pertukaran rasmi, perbelanjaan perdagangan dan kerajaan). Menggunakan Panel OLS, kajian ini menemui hubungan positif antara keterbukaan kewangan dan pertumbuhan ekonomi. Di samping itu, kadar pertukaran rasmi dan perbelanjaan kerajaan juga didapati mempengaruhi pertumbuhan ekonomi secara positif. Bagaimanapun, tahap perdagangan dan inflasi tidak banyak berkaitan dengan pembangunan ekonomi. Bagi model ketahanan, aliran masuk bersih FDI digunakan sebagai pembolehubah bebas untuk mengukur keterbukaan kewangan. Walau bagaimanapun, ukuran keterbukaan kewangan (aliran masuk bersih FDI) telah digunakan untuk menggantikan indeks KAOPEN, ketiga pembolehubah ini (keterbukaan kewangan, kadar pertukaran rasmi dan perbelanjaan kerajaan) kekal sebagai faktor yang mempengaruhi tahap pertumbuhan ekonomi. Di samping itu, menyokong kesimpulan terdahulu, inflasi dan perdagangan tidak mempengaruhi pertumbuhan ekonomi. Oleh itu, penemuan yang disediakan oleh kajian ini akan membantu pembuat dasar di lima negara ASEAN dalam menilai dan mengukuhkan strategi mengenai keterbukaan kewangan untuk faedah negara-negara.

Kata kunci: Keterbukaan Kewangan, Liberalisasi, Pertumbuhan Ekonomi, ASEAN, aliran masuk bersih FDI, Inflasi.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURE

LIST OF ABBREVIATIONS

Abbreviation		**Meaning**
Terms	**=**	**Definition**
AEC	=	ASEAN Economic Blueprint
ASEAN	=	Association of Southeast Asian National
CPI	=	Inflation
FDI	=	Foreign Direct Investment
FO	=	Financial Openness
GDP	=	Gross Domestic Product
GOVEXP	=	Government Expense
IMF	=	International Monetary Funds
OER	=	Official Exchange Rate
OLS	=	Ordinary Least Square

CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND OF THE STUDY

In last few decades, financial openness has been widely noted around the world. Financial openness is defined as the free flows of cross-country investments which are derived from the liberalized government regulation. According to Baele, Ferrando and Hordahl (2004), Adam (2011) and Patnaik and Shah (2012), the process of financial openness has closely brought together the financial market and institutions around the world. Previous studies have identified few approaches in which the financial system is being opened to other countries. Among them are financial liberalization, capital account deregulation, relaxation in the cross-country savings and investment and deregulation in current account transactions (Bekaert, Harvey & Lundblad, 2005; Chinn & Ito, 2008; Lane & Milesi-Ferretti, 2007; Quinn, Schindler & Toyoda, 2011).

Benefits of financial openness to the financial system have been highlighted by the previous literature. According to Georgios (2013), Tekin (2012) and Ayanwale (2007), financial openness will increase the risk sharing and risk diversification activities that would reduce the overall investment risk of the investors. Next, the financial liberalization also increases the efficiency in capital allocation which could improve the functions of the financial market. As noted by McKinnon (1973) and Shaw (1973), financial liberalization enhances the investment and savings activities by reducing the government controls. As the financial constrains being eliminated by the process of

financial deregulation, the investors are being compensated with the level of returns that is appropriate with their investment risks.

Therefore, the liberalized financial system would the benefit the poor and rich countries by promoting venture opportunities and financial development. Thus, the economy gain benefits from the efficiency in capital allocation in the deregulated financial market. In addition, according to Ulsan (2012), Tekin (2012) and Ogunmuyiwa and Ekone (2010), financial openness has increased the investment activities which lead to improvement in the economic activities. According to these studies, the financial openness has increased the stock market productivity and liquidity which benefit the investors and companies in the long run.

On the other hand, financial openness also has few disadvantages. According to IMF (2007), higher capital account inflows would weaken the macroeconomic stability, depreciate the local currency and also deteriorate the capital account. According to Chang and Velasco (2000), Agénor (2001) and Bandt and Hartmann (2004), financial openness could also increase the risk of contingent and crisis. They argue that the international fund increases the volatility movement in capital account and also liquidity in the financial system. This has resulted in few unwanted consequences such as financial crisis, bank runs and credit crunch.

Despite the risk associated with financial openness, the role of financial openness in the economic development is still considered to be vital to the policy maker. Previous studies have proven the positive impact of financial openness on the economic growth in both developed countries (Andriesz, Asteriou & Pilbeam, 2005; Awojobi, 2013;

Gehringer, 2013) and developing countries (Hye & Wizarat, 2013; Naveed & Mahmod, 2017; Shuaib, 2016). They have highlighted few reasons on this positive relationship such as increment in productivity, spillover effect, risk sharing and reduction in asymmetric information.

1.1 OVERVIEW OF FINANCIAL OPPENNESS ACTIVITIES IN ASEAN

In brief, the Association of Southeast Asian National (ASEAN) is an entity that was established in August 1967 in Thailand, Bangkok. Currently, ASEAN consists of 10 countries which are Singapore, Malaysia, Indonesia, Thailand, Philippines, Brunei, Myanmar, Laos, Vietnam and Cambodia. Among them, Singapore, Malaysia, Indonesia, Thailand and Philippines are considered to be the largest economies in the region.

The significant efforts on financial openness in ASEAN countries have been noted since 1970's with the aims to improve the financial system and the economy as a whole. For example, on 15 December 1995, the ASEAN countries have signed the ASEAN Framework Agreement on Services (AFAS) to formally form a cooperation in trade services which include investment and financing. On 29 January 1999, ASEAN countries have further expanded the liberalization activities by signing the General Agreements on Trade in Services (GATS) to achieve higher freedom in trading the services. Moreover, ASEAN has adopted the Economic Blueprint to promote the integration in their capital market in 2007.

Furthermore, the ASEAN Financial Integration Framework (AFIF) was commenced in 2011 to establish the integrated financial market among the members by 2020. In addition, in April 2011, Governor of ASEAN Central Bank has endorsed the

programme of the Task Force on the ASEAN Banking Integration Framework (ABIF). This programme is aimed at achieving higher level of liberalization in ASEAN banking sector by 2020. Additionally, in 2012, the ASEAN countries have entered into the ASEAN Comprehensive Investment Agreement (ACIA) to further integrate their financial system.

In addition, in 2012, the Comprehensive Investment Agreement (ACIA) was signed to further liberalize the financial system among the ASEAN countries. Moreover, the introduction of ASEAN Economic Community (AEC) Blueprint in 2015 has shown a serious effort toward financial openness and integration by having higher level of economic and financial collaborations among the ASEAN countries until the year 2025. This Blueprint would enhance the competitiveness of ASEAN countries through the higher capital inflows from abroad.

In conclusion, in the recent years, the financial liberalization efforts have been significantly noted among the ASEAN countries. Due to the liberalization initiatives, the increasing numbers of trade transactions and capital flows are evident between the members with the aim to increase the efficiency in allocating the funds to the productive sectors and finally improving the economic performance.

1.2 ISSUES AND PROBLEM STATEMENT

In theory, financial openness is conducted to improve the economic growth by increasing the investments activities, capital flows transaction and enhancing the competition that lead to higher economic growth. According to Rajan and Zingales (2003), financial openness can also directly influence the productivity factor such as enhancing corporate governance, encouraging financial development and leading to higher economic growth. However, the previous studies that examine the relationship between financial openness and economic growth have produced mix findings (Gamra, 2009; Prasad, Rogoff Wei & Kose, 2009; Wyplosz, 2002).

There are few issues and problems related to the relationship between financial openness and economic growth. Although, financial openness is expected to have positive impacts, however it also reduces the economic growth through various channels. Firstly, the impact of international financial liberalization process increases the probability of financial crises that leads to the decrease in the economic growth (Kaminsky & Schmukler, 2001; Ranciere, Tornell & Westermann, 2006). The spill over effect of the financial crisis has been transferred to other countries from the liberalization process.

Secondly, higher competition introduced by the financial openness also negatively impacted the local market players. Although, Miller (2004) and Agénor (2003) agree that financial liberalization creates a contestable markets which bring higher competition and better efficiency performance in the banking industry, but the foreign players with better technology and skills are at the advantages because they are able to focus only on

profitable sectors and leave the risky projects to the domestic players (Detragiache, Gupta & Tressel, 2008).

Thirdly, financial openness also causes the asymmetric information problem that creates harms in the financial system (Stiglitz, 2000). This is due to the facts that the domestic financial institutions are competing to provide the best returns and the lowest cost of financing to the international investors and may sacrify the assessment process for their higher profit. According to Boot and Thakor (2000) and Ranciere *et al.* (2006), the raising of the asymmetric information damages the capital formation and decreases the economic growth.

In addition, the integrated financial system creates moral hazard problem due to the increase in the competitive pressure. According to Claessens (2009), lenders are reducing their screening and monitoring efforts in order to secure more profit in the liberalized system. This has increased the moral hazard problem and the overall risk in the financial sector.

Fourthly, the financial openness encourages risk-taking actions and leads to banking crises and finally drops the economic growth (Demirgűc-Kunt & Detragiache, 2000; Hellman, Murdock & Stiglitz, 2000; Stiglitz, 2010). According to Marcbowles (2009), liberalized system harms the bank through the risk-transfer activities. If the hedging opportunities are unsuccessful, the banks would have to take more risk that caused the instability in the banking system. Since, banking system is the "back bone" to the economy, the collapse in the banking operations creates the systemic risk and finally reduces the economic growth.

In conclusion, although financial openness brings risks to the financial system, but its vital role in economic development is still relevant. The continuous efforts in financial openness among ASEAN countries have been significantly noted which show that liberalizing the financial system is considered to be the main driver in the economic growth. Due to that, the policy makers have to continuously monitor and revise the current policies and regulations related to the financial openness. With that, the findings of the present study would help the regulators by providing information on the relationship between financial openness and economic growth in five ASEAN countries (Singapore, Malaysia, Indonesia, Thailand and Philippines).

1.3 RESEARCH QUESTIONS

Based on the previous discussion, the following research questions are developed:

1. Does the financial openness influence the economic growth in five ASEAN countries?
2. Is the relationship between financial openness and economic growth robust?

1.4 RESEARCH OBJECTIVES OF THE STUDY

The objectives of the study are:

1. To analyse the relationship between financial openness and economic growth in five ASEAN countries.
2. To examine the robustness of the relationship between financial openness and economic growth.

1.5 SIGNIFICANCE OF STUDY

From the practical side, this study provides an insight on the relationship between financial openness and economic growth in ASEAN countries. Thus, the information provided by this study helps the policy maker in formulating, reviewing and assessing the current policies and regulations related to financial openness. From the theoretical side, this study adds into the current findings that investigated the relationship between financial openness and economic growth. Beside, this study would enrich the current literature for developing countries especially studies on ASEAN countries.

1.6 SCOPE OF THE STUDY

This study focuses only on the relationship between financial openness and economic growth in five ASEAN countries (Singapore, Malaysia, Indonesia, Thailand and Philippines). Thus, the findings might not be applicable to others emerging markets. Furthermore, the period of this study is only for 15 years that covers from 2000 to 2014. Since the KAOPEN Index is only available up to 2014, hence the last period of this study is 2014.

1.7 STRUCTURE OF THE STUDY

This study is organized into five chapters. Chapter One discusses the definition and the importance of financial openness, overview of financial openness in ASEAN countries and issues and problem statement. Chapter Two reviews the related literatures on the relationship between financial openness and economic growth. Chapter Three describes the data, research methodology and the variables employed in this study. Chapter Four provides the discussion on the findings. Finally, Chapter Five concludes the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter reviews the related literature on the relationship between financial openness and economic growth. Section 2.1 discusses the theory related to the financial openness. Next, Section 2.2 elaborates the previous studies that have investigated the impact of financial openness on economic growth in both developed countries and developing countries. Finally, Section 2.3 summarizes this chapter.

2.1 THEORY ON FINANCIAL OPENNESS AND ECONOMIC GROWTH

The financial liberalization theory developed by McKinnon (1973) and Shaw (1973) highlights the importance of liberalizing the financial system to increase the economic growth. According to them, financial repression which includes lending to the government, lowering the interest rate and tightening the capital movement disturbs the process of the efficient flow of funds in the economy. Therefore, financial repression has led to the limitation of credit to the profitable project, reductions of return to the investor and finally reduces the economic growth.

According to Nzotta (2014), financial liberalization increases the credit efficiency by distributing the funds to the productive sector and enhances the financial saving due to the increase in the real interest rates. On the other hands, according to Hye and Wizarat (2013), the repressed financial system reduces the economic development because the funds are being misused by the government. The controlled of deposit and lending rates

by the government has resulted to the reductions in the level of saving and investment. Thus, the relaxation of the government control in the economic and financial system through interest rate liberalization, an increase in participation of the foreign financial institutions in domestic industry and reduction in capital control reduce the government intervention in the financial system and thereby improve the allocation of savings and investment to the profitable and productive industries. These would finally result in higher economic activities that could boost the economic development.

2.2 THE IMPACT OF FINANCIAL OPENNESS ON ECONOMIC GROWTH

The relationship between financial openness and economic growth has been tested by previous literature in both developed and developing countries. As for literature in developed countries, few studies conclude a positive relationship between financial openness and economic growth. A cross-country study has been conducted by Gehringer (2013) in 26 countries that comprise of Spain, United Kingdom, Sweden, Slovakia, Poland, Germany, Slovenia, Netherlands, Portugal, and Greece. Using GDP as the proxy for the economic growth, this study finds that financial openness creates positive impacts on economic growth, capital accumulation and efficiency growth for the period of 1990-2007. The author argues that the impact of financial openness on economic growth may be explained by the increase in productivity of the sectors in the economy following the process of financial liberalization.

Similarly, in Poland, a study by Andriesz *et al.* (2005) examines the link between financial openness and economic growth from the year 1990-2002 by using Engle-Granger Test (EGT), Granger Causality Test (GCT), and Augmented Dickey-Fuller Test

(ADF). The result indicates a positive relationship between financial liberalization and economic growth. In addition, Koo and Shin (2004) also discover that financial liberalization enhances the economic growth in Korea. This study has employed the financial liberalization index developed by Laeven (2000) which comprises of deregulation in financial market, interest rate, reserve requirement, entry barriers, strengthening the prudential guidelines and privatization in banking sectors. Thus, both studies agree that financial openness is an important element in the economic development.

On the other hand, Awojobi (2013) using a dataset for an extended period (1990-2009) and discovers an insignificant relationship between financial liberalization and economic growth in Greece. Therefore, this study argues that opening the country to the foreign participants does not provide the intended outcome that the government has set earlier.

The next discussion is based on the literature that has been conducted in developing countries. On the positive side, few studies agree that financial openness influences the economic growth positively. In Pakistan, Adekunle, Oluwaseyi and Olusoji (2013) have conducted a study on the relationship between financial openness and economic growth. Employing pre (1965-1986) and post (1987-2008) liberalization periods, this study finds that economic growth increases following the liberalization.

Likewise, Munir, Chaudhry and Akhtar (2013) examine the link between financial liberalization and economic growth in Pakistan from 1972 to 2010 using OLS (ordinary least squares regression) and ECM (error correction model). The results indicate a

positive link between financial liberalization and economic growth while a negative link is found between lending rate and economic growth which is in accordance with the financial liberalization theory by McKinnon (1973) and Shaw (1973). The latest study conducted by Naveed and Mahmood (2017) also agrees with the earlier conclusion made by Adekunle *et al.* (2013) and Munir *et al.* (2013). Although, the studies have been conducted in different time frames, Adekunle *et al.* (2013) from 1960 to 2008, Munir *et al.* (2013) from 1972 to 2010 and Naveed and Mahmood (2017) from 1972 to 2011, the positive influences of financial openness on economic growth is substantiated.

Few single-country studies also conclude a positive relationship between financial openness and economic growth. In Nigeria, Shuib (2016) shows a positive link between financial openness and economic growth for the period of 1960 to 2014. Besides, he also finds that trade openness and inflation have positive influences on economic growth. In Malaysia, Law and Azman-Saini (2013) investigates the impact of capital account liberalization on economic growth from 1970 to 2004 using OLS and vector error-correction model (VECM) regressions. The result shows a significant and positive association between financial openness (de factor) and economic growth.

Furthermore, a study in Ghana by Asamoah (2011) finds a positive relationship between financial liberalization and economic growth between 2000 and 2003. Using variables such as interest rate, monthly saving, GDP and dummy of financial liberalization (pre and post), the financial deregulation is found to enhance the economic growth positively. In addition, the positive relationship between economic growth and interest rate is established in this study. They argue that higher interest rate increases the level of savings and thereby accelerate the economic development.

In Turkey, InceYenilmez (2011) has performed a study between financial liberalization, financial development, financial crises and economic growth from 1980-2010 using co-integration and granger causality tests. This study discovers positive links between financial openness, financial development and economic growth. Thus, for this country, both financial openness and financial development are the important requirements for economic growth. A study by Banam (2010) in Iran has also proved that financial openness enhances economic growth. This study employs variables such as GDP, domestic credit, export of goods and service, reserve requirement ratio, financial liberalization index, research and development technology and human knowledge accumulation in the regression model.

The same conclusion is also reached by Paudel and Perera (2009) in Sri Lanka. For Paudel and Perera (2009), the autoregressive distributed lag (ARDL) approach has resulted in a long run relationship between financial openness and economic growth which indicates that financial openness would take longer time to be fruitful.

However, there are few studies that find a negative relationship between financial openness and economic growth. In MENA countries, Khazri and Djelassi (2011) have conducted a study from 1986 to 2010 using GDP, dummy variable for financial liberalization, foreign domestic credit, turnover of share, market capitalisation, trade openness, domestic credit and inflation rate. The results indicate a negative link between financial openness and economic growth while a positive relationship is found between FDI and economic growth.

Similarly, a study by Faria, Paula, Luiz, and Meyer (2009) in Brazil discovers a negative relationship between that capital account liberalization and economic growth from 1994 to 2007. Based on the result, in Brazil, the increased in financial liberalization activities dampens the economic growth. In addition, two studies conducted in Bangladesh also agree that financial openness decreases the economic development. Bashar and Khan (2007) examines the impact of financial liberalization and economy growth for the period of 1974-2002 using co-integration analysis and error correction analysis. The result shows a significant and negative relationship between financial openness and economic growth which shows the unsuccessful implementations of financial openness in Bangladesh. This finding is also consistent with Kabir and Hoque (2007). Despite using different set of variables and time periods, both studies by Bashar and Khan (2007) and Kabir and Hoque (2007) agree that financial openness has a detrimental impact on economic growth.

The last part of discussion on the literature in the developing countries is based on studies that do not find any relationship between financial openness and economic growth. In Pakistan, Hye and Wizarat (2013) perform a study from the year 1971 to 2007 using autoregressive distributed lag model (ADLM) to examine the short-run and long-run effects between financial liberalization and economic growth. However, for both short-run and long-run methods, these studies fail to find any significant impact of financial liberalization on economic growth. Similarly in China, Lui and Li (2001) discover that financial openness as measured by foreign investment is not associated with the economic growth.

Finally, the last group of literature review is conducted on the studies that employed both developed and developing countries as their samples to be investigated. On the positive side, a few studies conclude that financial openness brings the positive impact to the economy. Bussiere and Fratzscher (2008) have performed a study on 45 emerging countries including United Kingdom, Chile, Hong Kong, Poland, Korea, Malaysia, Singapore, Indonesia, Thailand and Philippines using generalized method of moments (GMM). They find that financial liberalization influences the economic growth positively. Similarly, Őzdemir and Erbril (2008) perform a study in 10 new European Union countries that consist of Czech Republic, Hungary, Lithuania, Latvia, Malta, Poland, Turkey, Slovenia, Estonia and Slovakia between the periods of 1995-2007. This study has used different types of variables such as de jure and de facto financial openness, FDI, real human capital, GDP per capita and trade openness. The authors argue that financial openness is the driver for the economic growth for the countries included in the study.

Likewise, Arteta, Eichengreen and Wyplosz (2001) also find a positive link between financial openness and economic growth for 61 countries including United Kingdom, France, Argentina, Germany, Australia, Greece, Singapore, Malaysia, Philippines and Thailand for the period of 1973-1992.

In addition, cross-country studies conducted by Gamra (2009) and Wyplosz (2002) have produced mixed conclusions between financial openness and economic growth. Gamra (2009) employs six emerging countries which are Korea, Singapore, Malaysia, Indonesia, Thailand and Philippines. This study examines the relationship between financial liberalization and economic growth from 1980 to 2002 using

generalized method of moments (GMM), least squares method (LS) and two stages least squares (TSLS). The results show a positive relationship between financial liberalization and economic growth for developed countries while a negative relationship is found for developing countries.

Furthermore, a study by Wyplosz (2002) also find a mixed conclusion between financial openness and economic growth for 27 emerging countries including Belgium, Australia, France, Austria, Japan, Italy, Thailand, Indonesia, Malaysia and Philippines between 1977 to 1999. Contradict to Gamra (2009), the result shows a positive relationship between financial openness and economic growths in developing countries while a negative relationship is evident in developed countries.

2.3 SUMMARY OF CHAPTER

As a conclusion, this chapter provides the theoretical perspective of underlying theory that explains the relationship between financial openness and economic growth. It also discusses the empirical studies of the impact of financial openness on economic growth in both developed countries and developing countries.

CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTION

Chapter Three discusses the data and research methodology employed in the study. Section 3.1 presents the data description. Section 3.2 defines all the variables used in the study. Section 3.3 provides the discussions on the research framework. Section 3.4 discusses the methods employed to test the relationship between financial openness, economic growth and control variables. Section 3.5 concludes this chapter.

3.1 DATA DESCRIPTION

The balanced panel data of five selected ASEAN countries (Philippines, Malaysia, Singapore, Thailand and Indonesia) is employed in this study. Based on the World Bank (2017), these countries are the major economies in the ASEAN region and therefore selected as the samples to be included in the study. The data for independent variable (financial openness) and control variables (trade and government expense) are extracted from the World Development Indicators (WDI) developed by the World Bank. On the other hand, data for dependent variable (GDP) and the other two control variables (inflation and official exchange rate) are gathered from IMF. Finally, the 15-year balanced panel data is constructed from the year 2000 to 2014 which resulted into 75 observations.

3.2 DEFINITION OF VARIABLES

This section discusses the definition of the independent variable (financial openness), dependent variable (GDP) and control variables (inflation, official exchange rate, trade and government expense) employed in the regression model based on the suggestions made by previous literature.

3.2.1 Dependent Variable: Economic Growth

The dependent variable is the economic growth which is represented by the log transformation of GDP in USD Dollar (USD). GDP is the most common measurement of the economic size and has been recognised as one of good indicator to measuring the economic growth (Blanchard & Johnson, 2013; Callen, 2012; Hassan, 2004). Thus, an increase in GDP is associated with higher level of economic growth.

3.2.2 Independent Variables and Control Variables

This section explains the main independent variable (financial openness) and four controls variables (inflation, trade, government expense and exchange rate) used in this study.

3.2.2.1 Financial Openness

In this study, the financial openness is measured using the Chinn-Ito (2008) Index that is known as the KAOPEN Index. This index is used to assess the level of financial openness of a country. Four components are being included in this index which are the existence of multiple exchange rate, limitations on current account transaction, constraints on capital account movements and regulations to deliver goods in international market. Thus,

higher index value indicates higher level of the financial openness. Based on findings from previous studies (Adekunle *et al.* 2013*;* Banam, 2010; Munir *et al.* 2013; Naveed & Mahmood, 2017; Shuaib, 2016) financial openness is found to influence the economic growth positively. The financial openness benefits the economy through various channels such as risk sharing and risk diversification (Ayanwale, 2007; Georgios, 2003; Tekin, 2012) and increases the efficiency in capital allocation (McKinnon, 1973; Shaw, 1973) and improves the investment activities (Ogunmuyiwa & Ekone, 2010; Tekin, 2012; Ulsan, 2012).

For the robustness test, the FDI net inflow is employed. The main reason of choosing the FDI as the proxy for the financial openness is because this variable is measuring the level of external capital funds inflows by international investors to the domestic economy. In addition, Gray (2002) highlights the important of FDI as a source for the economic development. This variable is used by previous studies such as Andraz and Rodrigues (2010) and Chakraborty and Mukherjee (2012). Previous studies have investigated the relationship between FDI net inflows and economic growth and found a positive link between these two variables (Khazri & Djelassi, 2011; Őzdemir & Erbril, 2008). The FDI assists the economic growth by infusing the technology and skills spill over, assisting the human resources development, contributing to the international trade activities and helping to create a competitive businesses environment.

Thus, based on the previous studies, the expected relationship between financial openness (as measured by KAOPEN Index and FDI net inflows) and economic growth is positive.

3.2.2.2 Inflation

The first control variable included in the regression is the inflation. According to Azzez, Kalopa and Ajayi (2012), inflation is defined as the continuous increased in the prices of general product and services for a certain period of time. In this study, the inflation is measured by consumer price index (CPI). Few studies have concluded that higher inflation reduces economic growth (Ahmed, 2010; Khazri & Djelassi, 2011; Naveed & Mahmood, 2017). Higher inflation increases the cost of living, productions and borrowing. These conditions would reduce the consumption and economic activities and thereby decrease the overall economic development. Therefore, based on previous studies, the relationship between inflation and economic growth is expected to be negative.

3.2.2.3 Official Exchange Rate

The movements of the exchange rate are crucial for every county since it would affect the prices of products, raw materials and productions. Official exchange rate is included as the second control variable. This variable is measured using the official exchange rate in local currency unit. It means that the value of local currency is calculated using 1 unit of USD. The increased in this variable indicates depreciation in the value of local currency against 1 unit of USD.

According to the economic theory, an appreciation of local currency would have a positive impact on the economic growth. This relationship has been tested and proved to be positively significant in few studies (Eichengreen, 2007; Glüzmann, Levy-Yeyati & Sturzenegger, 2012; Hausmann, Pritchett & Rodrik, 2005; Jacob, 2015; Rodrik, 2008).

Among the possible justifications on this positive link are cheaper cost of import which include the prices of foreign products and raw materials. Thus, this study expected that the relationship between official exchange rate and economic growth to be negative because the increase in official exchange rate signifies depreciation in the value of local currency.

3.2.2.4 Trade

The third control variable is trade. This variable is quantified using the total of a country exports and imports in goods and services as the percentage of GDP. Supporting the notion that higher trade resulted in an increased in economic development, few studies confirm that trade influences the economic growth positively (Busse & Königer, 2012; Dollar & Kraay, 2004; Julia, Jouni & Timo, 2015; Makki & Somwaru, 2004; Wacziarg & Welch, 2008). Export and import activities are beneficial to the countries since it would support the local business, expand the productions, increase the national income and expand the job opportunities that finally contributed directly to the economic growth. Thus, the expected relationship between trade and economic growth is positive.

3.2.2.5 Government Expense

The last control variable is government expense. The government expenses include the expenditure on health, education, infrastructure and defence. Previous studies argue that government expenditure is an important element for the economic growth (Chude & Chude, 2013; Gemmell & Kneller, 2001; Olorunfemi, 2008). The increased in government expenses lead to the economic prosperity because, for example, the expenditure on education enhances the productivity of the workers and this would

contribute positively to the higher national income and output. Therefore, the link between government expense and economic growth is expected to be positive.

Based on the previous discussions, Table 3.1 summarizes the variables, definitions of the selected variables, sources for the data collections and the expected findings.

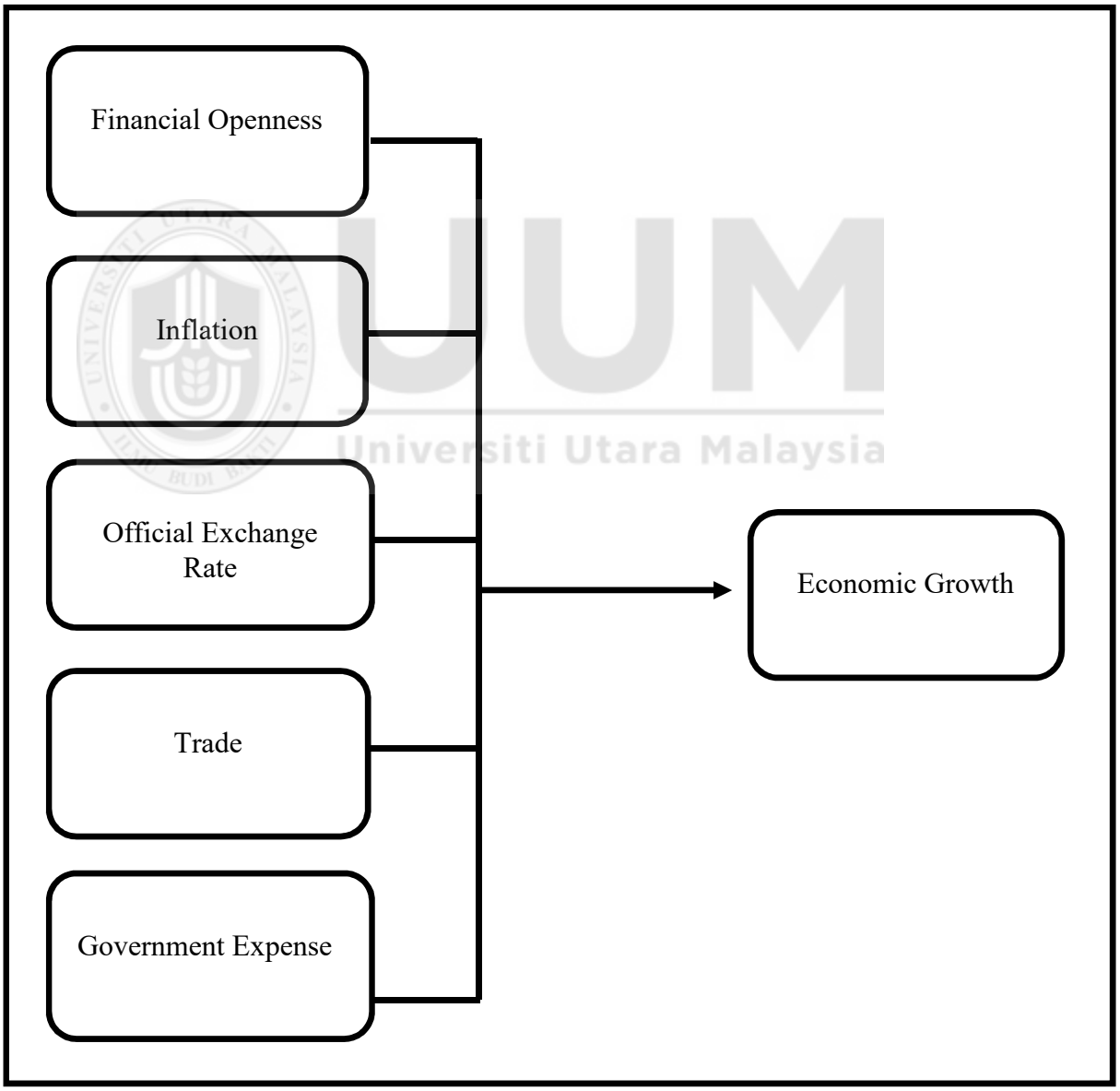
Table 3.1 Variables, Definition, Data Sources and Expected Findings

NO	VARIABLES	DEFINITION	SOURCES	EXPECTED FINDINGS
1	Economic Growth (GDP)	Log transformation of GDP	World Bank	
2	Financial Openness	i) KAOPEN Index ii) FDI net inflows (% of GDP)	IMF	Positive
3	Inflation	Consumer Price Index (CPI)	IMF	Negative
4	Official Exchange Rate	Official Exchange Rate- in Local Currency Unit (LCU) (in natural Logarithm Ln)	IMF	Negative
5	Trade	Trade is the sum of exports and imports of goods and services (% of GDP)	World Bank	Positive
6	Government Expense	General government final consumption expenditure (current US$) (in natural Logarithm Ln)	World Bank	Positive

3.3 RESEARCH FRAMEWORK

Figure 3.1 presents the research framework of this study. This framework displays the relationship between the dependent variable (economic growth), the independent variable (financial openness) and four control variables (inflation, official exchange rate, trade and government expense).

Figure 3.1 Research Framework



Based on the earlier discussion, the relationships between economic growth and financial openness, trade and government expense are expected to be positive. On the other hand, the inflation and official exchange rate are expected to have a negative influence on economic growth.

3.4 ECONOMETRICAL METHODOLOGY

This section presents the discussion on the methodology used in the study. The methods employed are (1) descriptive analysis, (2) correlation analysis, (3) panel data OLS and (4) diagnostic tests.

3.4.1 Descriptive Analysis

This method is used to describe the data utilised in this present study. The statistical tools used are minimum value, maximum value, mean and standard deviation. In addition, Rohatgi, Vijay and Ehsanes (2015) explain that the descriptive statistics analysis is conducted to describe the basic characteristic of the data used in the regression model.

3.4.2 Correlation Analysis

Correlation analysis is a statistical method to measure the linear relationship between two variables. The value is within the range of -1 to +1. A positive correlation shows that the two variables are moving in upwards or downwards in parallel. On the other hand, a negative correlation indicates that the two variables are moving in the opposite directions.

3.4.3 Panel Data OLS

Regression analysis is applied to test the relationship between dependent variable (economic growth), the independent variable (financial openness) and four control variables (inflation, official exchange rate, trade and government expense). The panel data OLS is regressed using the Stata Version 8. Thus, the regression model of this study is presented as below:

$$GDP_{it} = \alpha + \beta_1 FO_{it} + \beta_2 CPI_{it} + \beta_3 OER_{it} + \beta_4 Trade_{it} + \beta_5 Govexp_{it} + \varepsilon$$

Where:

GDP	=	Level of economy growth over the period of the study for country i
FO	=	Financial openness is measured using KAOPEN Index and FDI net inflows over the period of study for country i
CPI	=	Inflation rate is represented by CPI over the period of the study for country i
OER	=	Official exchange rate over the period of the study for country i
Trade	=	Trade over the period of the study for country i
Govexp	=	Government Expense over the period of the study for country i
ε	=	Error term

3.4.4 Diagnostic Tests

Diagnostic Tests are conducted to check the existence of the problems (multiollinearity, heteroscedasticity and auto-correlation) in the regression model. The corrections must be conducted using the appropriate techniques before further analysis is made. The diagnostic tests used in this study are (1) multicollinearity test, (2) heteroscedasticity test and (3) auto-correlation test.

3.4.4.1 Multicollinearity Test

The multocollinearity test is used to check the presence of high correlation between the independent variables which might lead to the decreasing in the predictive power of the regression model. The VIF of less than 10 indicates that the multicollinearity problem does not exits (Greene, 2017).

3.4.4.2 Heteroscedasticity Test

Heteroscedasticity is a condition of which the error term is not constant. In this study, Modified Wald Test is employed to detect the existence of heteroscedasticity problem in the regression model. The p-value should be above 0.05 levels to indicate that the heteroscedasticity problem is not exist (Greene, 2017).

3.4.4.3 Auto-correlation Test

Auto-correlation test is the final diagnostic test utilised for the data analysis. Auto-correlation is a condition of which a variable has an impact on its future level. It means that a relationship exists between a variable and itself for various time periods. In this study, the Wooldridge test is employed to test the auto-correlation problem. Hence, the auto-correlation is not present if the p-value is more than 0.05.

3.5 CONCLUSION

As a conclusion, this chapter discusses the data, variables, research framework and the methodology used in this study. The variables descriptions and selections are discussed in detail in this chapter. In addition, the sources of the data collection are also highlighted. Finally, the panel OLS and diagnostic tests are also being elaborated in detail.

CHAPTER FOUR

RESULTS AND ANALYSIS

4.0 INTRODUCTION

This chapter presents the findings of the study. It begins with the discussions of the descriptive statistics in Section 4.1. Next, the results on the correlation analysis and multicollinearity test are presented in Section 4.2. Then, Section 4.3 provides the findings on the regression analysis. Subsequently, the discussion on the robustness test is presented in Section 4.4 while Section 4.5 provides the diagnostic tests. Finally, Section 4.6 summarizes this chapter.

4.1 DESCRIPTIVE ANALYSIS

The purpose of this chapter is to describe the characteristics of all variables used in this study. The techniques employ are minimum values, maximum values, mean and standard deviation. Table 4.1 presents the results for dependent variable (GDP), independent variable (financial openness) and control variables (inflation, official exchange rate, trade and government expense) for five ASEAN countries (Thailand, Singapore, Indonesia, Malaysia and Philippines) from 2000 to 2014.

Table 4.1 Descriptive statistics of all variables for all countries over 2000-2014

	Obs	Minimum	Maximum	Mean	Standard Deviation
GDP(USD billion)	75	7630	91800	26000	19700
Financial Openness (KAOPEN Index)	75	-1.89	2.39	0.55	1.22
Inflation (%)	75	-0.85	13.11	3.74	2.82
Official Exchange Rate (LCU / USD)	75	1.25	11865.21	1926.91	3854.63
Trade (%)	75	45.51	441.60	166.71	119.25
Government Expense (USD billion)	75	845	8690	2870	2050

Based on Table 4.1, the results show that the mean for the GDP is USD26,000 billion and the maximum value is USD91,800 billion. In addition, for financial openness, the mean value is 0.55 and the maximum and minimum values are 2.39 and -1.89, respectively. As for inflation, the mean is 3.74% while the minimum value is -0.85%. Besides, the official exchange rate has the highest value of 11865.21 and the lowest value of 1.25. The trade takes the average value of 166.71%. Finally, for the government expense, the mean and standard deviation are USD2,870 billion and USD2,050 billion, respectively.

Table 4.2 Mean value for variables for all countries over 2000-2014

Variable	Singapore	Malaysia	Indonesia	Thailand	Philippine
GDP(USD billion)	18300	19900	50100	25900	15700
Financial Openness (KAOPEN Index)	2.39	-0.33	0.77	-0.62	0.56
Inflation (%)	2.05	2.25	7.47	2.58	4.35
Official Exchange Rate (LCU / USD)	1.52	3.50	9545.18	36.39	47.94
Trade (%)	384.60	180.51	55.76	128.87	83.84
Government Expense (USD billion)	18600	25200	44400	39300	15800

The results from Table 4.2 show the mean value of each variable for every country included in the study. As for Singapore, the average value for GDP is USD18,300 billion. In addition, Singapore has the highest level of financial openness among other countries which is 2.39. Furthermore, the inflation rate of Singapore is the lowest which is 2.05% while the official exchange rate is 1.52 for 1 unit of USD. The trade and government expense are 384.60% and USD18,600 billion, respectively. For Malaysia, the economic size from 2000 to 2014 is averaged at USD19,900 billion. However, the financial openness for Malaysia is -0.33 which indicates that Malaysia is not well integrated with respect to the components in the KAOPEN index. In addition, the inflation rate is manageable which is at 2.25%. The official exchange rate is 3.5 for 1 USD. Moreover, the trade is 180.51% and the government expense is USD25,200 billion. As for

Indonesia, the GDP is USD50,100 billion. The level of financial openness for Indonesia is 0.77 while the inflation rate is the worst among the countries that is 7.47%. Consequently, the value of rupiah is the lowest as indicated by the official exchange rate which is 9545.18 (per 1 USD). In addition, Indonesia has the lowest level of trade which is 55.76% while this country has the highest government spending which is USD44,400 billion. The GDP for Thailand is the second highest which is USD25,900 billion. Additionally, Thailand has the lowest level financial openness which is -0.62. The inflation rate is at the acceptable level which is 2.58% while the exchange rate is 36.39 for 1 unit of USD. The trade and government expense is 128.87% and USD39,300 billion, respectively. As for Philippines, the GDP level is the lowest which is USD15,700 billion. The level of financial openness is 0.56 while the inflation rate is the second highest that is 4.35%. In addition, the official exchange rate, trade and government expense are 47.94 for 1 unit of USD, 83.84% and USD15,800 billion, respectively.

4.2 CORRELATION ANALYSIS

This section discusses the results for Pearson correlation which are presented in Table 4.3. According to Rohatgi *et al*. (2015), Pearson correlation is used to identify the relationship between two variables. Before the linear regression is conducted, a correlation matrix is developed in order to establish the association between the dependent and independent variables.

Table 4.3 Pearson Correlation Matrix

	GDP	Financial Openness	Inflation	Official Exchange Rate	Trade	Government Expense
GDP	1					
Financial Openness	-0.1432	1				
Inflation	0.3236	0.0947	1			
Official Exchange Rate	0.4905	-0.1378	0.6929	1		
Trade	-0.3336	0.5673	-0.4674	-0.7531	1	
Government Expense	0.9464	-0.3260	0.1159	0.3047	-0.2830	1

Based on the results, financial openness and trade have negative correlation with the economic growth. Among them, trade and economic growth have the strongest negative association. On the other hand, inflation, official exchange rate and government expense have positive correlation with the economic growth. The strongest positive relationship is found between government expense and GDP with the correlation value of 0.9464 followed by 0.4905 for the association between official exchange rate and GDP. Besides, the results show a positive and highest correlation value of 0.6929 between official exchange rate and inflation.

4.2.1 Multicollinearity Test

According to Park (2003), multicollinearity problem is a condition in which the independent variables are highly correlated. Variance Inflation Factor (VIF) is the most common method used to detect multicollinearity problem. The accepted value of VIF should be in range of 1 to 10.

Table 4.4 Results for Multicolinearity Test

Variables	VIF
Financial Openness	2.48
Inflation	2.10
Official Exchange Rate	4.39
Trade	4.90
Government Expense	1.26
Mean VIF	3.03

Table 4.4 indicates that the mean VIF for the variables is 3.03. All the variables used in the study have the VIFs of less than 5 which show no multicollinearity problem in the model.

4.3 REGRESSION ANALYSIS

The results for the pooled OLS and corrected-panel OLS are presented in Table 4.5. The OLS regressions are used to examine the relationship between dependent variable (GDP), independent variable (financial openness) and control variables (inflation, official exchange rate, trade and government expense).

Table 4.5 Results for Pooled OLS and Corrected-Panel OLS

Variables	Pooled OLS	Corrected-Panel OLS
Financial Openness	0.0956732 (6.53)*	0.0956732 (3.54)**
Inflation	0.016568 (2.84)*	0.016568 (1.52)
Official Exchange Rate	0. 0344904 (4.47)*	0.0344904 (2.29)***
Trade	-0.0000488 (-0.23)	-0.0000488 (-0.34)
Government Expense	0.9057597 (46.44)*	0.9057597 (28.96)*
Constant	4.228388 (9.25)*	4.228388 (5.79)*
R-squared	0.9774	0.9774
Adjusted R-squared	0.9757	NA
F- statistics	596.39	NA
Prob (F-statistics)	0.0000	NA
N	75	75

Note: * significant at 1% level, ** significant at 5% level, *** significant at 10% level. NA denotes that the value is not provided by the Stata. The dependent variable is the GDP.

Table 4.5 summarizes the regression analysis results from pooled OLS and corrected-panel OLS models. Due to the existence of auto-correlation problem, the discussion is only focuses on the findings from the corrected-panel OLS models. This is because the results provided this model is more robust due to the elimination of auto-correlation

problem. The findings show that the R-squared is 0.9774 which implies that 97.74% of the variation in the dependent variable (economic growth) is explained by the independent variable (financial openness) and control variables (inflation, official exchange rate, trade and government expense).

In addition, the findings show that financial openness, official exchange rate and government expense have the positive and significant relationships with the economic growth while inflation and trade are not the factors that influence the economic growth.

4.3.1 Financial Openness

Table 4.5 shows that financial openness has a positive and significant relationship with GDP. The finding indicates that higher financial openness enhances the economic growth. This result is also consistent with the previous literatures (Arteta *et al.* 2001; Bussiere & Fratzscher, 2008; Gehringer, 2013; Law & Azman-Saini, 2013; Naveed & Mahmood, 2017; Shuaib, 2016). Financial openness creates higher efficiency in capital allocation which brings the improvement in the financial market and thereby increases the economic growth (McKinnon, 1973 & Shaw, 1973). Moreover, liberalized financial system would also benefits the countries by promoting venture opportunities, financial development, risk sharing, risk diversification and improves the investment activities (Georgios, 2003; Ogunmuyiwa & Ekone, 2010; Tekin, 2012; Ulsan, 2012).

4.3.2 Inflation

The result indicates a positive but insignificant relationship between inflation and economic growth. It shows that inflation is not the factor for the economic growth in five ASEAN countries (Thailand, Singapore, Indonesia, Malaysia and Philippines) between the period of 2000 and 2014. This finding is in line with the previous studies by Iqbal and Nawaz (2009) and Sweidan (2004). One of the possible reasons for this situation is when the increased in inflation can be predicted earlier, the financial sector and the economic players are able to adjust their financial strategies in advance and therefore the new level of inflation does not impact their performance negatively. In addition, when the inflation is expected to rise, the government would provide the necessary assistance to reduce the negative impact of the inflation in the economy. Thus, the higher inflation does not bring any negative impact to the economy when it can be predicted and prepared earlier.

4.3.3 Official Exchange Rate

The result in Table 4.5 indicates a positive and significant effect of official exchange rate on economic growth. Since this variable is measured using the official exchange rate in local currency unit, the increased in this variable indicates a depreciation in the value of local currency against 1 unit of USD. Consequently, this finding shows that a depreciation in the local currency improves the economy which is contradict with the expected finding made earlier. However, this finding is consistent with the previous studies (Aghion, Bacchetta, Ranciere & Rogoff, 2009; Doyle, 200; Habib, Meliva & Stracca, 2017; Hausmann, Panizza & Rigobon, 2006; Kasman & Kasman, 2005). According to the studies, a depreciation in the value of the local currency would attract

more foreign capital to the country and increase the investment activities. In addition, export may also increase due to the reduction in the prices of the local product abroad. These situations bring the positive impacts to the production activities and economic growth.

4.3.4 Trade

The result indicates that the trade has a negative and insignificant relationship with economic growth. Therefore, this study is unable to find any relationship between these two variables. This finding is also agreed by the previous studies (Afzal & Ali, 2008; Afzal & Hussain, 2010; Musila & Yiheyis, 2015; Rodrik, Subramaniam & Trebbi, 2004). They argue that the lacking in the structure and pattern of the trade as the factor that explains this result. For example, less scale of manufacturing activities, decline in the diversified products and also small percentage in export activities which lead to limited worldwide market access. Moreover, unsuccessful trade policy set by the government on the export and import activities could be one of the factors that lead to inconclusive relationship between trade and economic growth (Musila & Yiheyis, 2015).

4.3.5 Government Expense

The last control variable is the government expense. The regression result shows a positive and significant link between these variables which indicates that higher government expense enhances the economic development. This finding is also consistent with Koman and Bratimasrene (2007), Modebe, Okafor, Onwumere and Ibe (2012) Owoye and Onafowora (2007) Cooray (2009) and Danladi, Akomolafe, Olarinde and Anya (2015). An increased in the government expenses would help the economy to grow

because the expenditure in education, health and public infrastructure improve the productivity and efficiency of the workers and the business production.

4.4 ROBUSTNESS CHECK

In this part, robustness check is conducted on the relationship between financial openness and economic growth controlling for the effects of inflation, official exchange rate, trade and government expense. As for the robustness model, the FDI net inflow is employed as the proxy for the financial openness. The selection of the FDI net inflows is made based on the suggestion made by previous studies (Andraz & Rodrigues, 2010; Asghar & Hussain, 2014; Dreher, 2006; Dreher, Gaston & Martens, 2008; Xuan & Xing, 2008). The FDI net inflows measure the level of external capital funds flowing to the domestic economy and therefore, can be an alternative measurement for financial openness. According to Gray (2002), FDI is considered to be one of the important sources for the economic development. Thus, the findings for the robustness check are presented in Table 4.6.

Table 4.6 Result for Robustness Check

Variables	Robustness-OLS model
Financial Openness	0.01138 (2.80)**
Inflation	0.02587 (1.63)
Official Exchange Rate	0.49976 (2.40)***
Trade	0.00023 (0.51)
Government Expense	0.85057 (18.20)*
Constant	5.39832 (5.18)*
R-squared	0.9669
Adjusted R-squared	0.9645
F-statistics	402.97
Prob (F-statistics)	0.0000
N	75

Note: * significant at 1% level, ** significant at 5% level, *** significant at 10% level, and **** significant at %. The financial openness is measured using the FDI net inflows.

Table 4.6 presents the results for the robustness check. Consistent with the results in Table 4.5, financial openness, official exchange rate and government expense influence the economic growth positively. Although, different measurement of financial openness (FDI net inflows) has been used to replace the KAOPEN index, these three variables remain to be the factors that affect the level of economic growth. On the other hand, supporting the earlier conclusions, inflation and trade are not influencing the economic growth. In conclusion, the analysis of findings for this section strengthens the findings presented in Table 4.5.

4.5 DIAGNOSTIC TEST

In this section, the results for diagnostic tests (heteroscedasticity test and autocorrelation test) are presented in Table 4.7 and Table 4.8. Before the estimates for the regression models can be accepted, the specifications of the models must go through the diagnostic testing to examine the viability and reliability of the estimates.

4.5.1 Heteroscedasticity Test

For this study, the Modified Wald Test is used to detect the heteroscedasticity problem. The p-value should be above 0.05 levels to indicate that the heteroscedasticity problem is not exist (Greene, 2017). The results are presented in Table 4.7.

Table 4.7 Results for Modified Wald Test

Chi-sq	Prob
7.73	0.1719

The results show that p-value is more than 0.05 levels. Therefore, the heteroscedasticity problem does not exist in this model.

4.5.2 Auto-Correlation Test

Table 4.8 presents the Woolridge Test to detect the auto-correlation problem. In order to have a regression model that is free from the auto-correlation problem, the p-value should be more than 0.05 levels.

Table 4.8 Results for Woolridge Test

Chi-sq	Prob
50.800	0.0020

The results in Table 4.8 show that the p-value is below than the 0.05 level. Therefore, the auto-correlation problem exists in the regression model. Hence, to correct this problem a panel-corrected OLS is conducted.

4.6 CONCLUSION

As a conclusion, this study examines the link between financial openness and economic growth controlling for inflation, official exchange rate, trade and government expense for five ASEAN countries (Thailand, Singapore, Indonesia, Malaysia and Philippines) from 2000 to 2014. The results indicate that financial openness, official exchange rate and government expense boost the economic growth. Moreover, economic growth is not affected by the trade and inflation.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.0 INTRODUCTION

In the last few decades, financial openness activities are widely noted around the world. Financial openness is defined as the free flows of cross-country investments which are derived from the liberalized government regulations. According to Georgios (2003), Tekin (2012) and Ayanwale (2007), financial openness increases the risk sharing and risk diversification activities that would reduce the overall investment risk of the investors. In addition, the financial liberalization also enhances the efficiency in capital allocation which could improve the functions of the financial market. As noted by McKinnon (1973) and Shaw (1973), financial liberalization enhances the investment and savings activities by reducing the government controls on the investment and financing activities. Previous studies have identified few approaches in which the financial system is being opened to other countries. Among them are financial liberalization, capital account deregulation, relaxation in the cross-country savings and investment and deregulation in current account transactions (Bekaert, Harvey & Lundblad, 2005; Chinn & Ito, 2008; Lane & Milesi-Ferretti, 2007; Quinn, Schindler & Toyoda, 2011). In addition, according to Ulsan (2012), Tekin (2012) and Ogunmuyiwa and Ekone (2010), financial openness has increased the investment activities which lead to improvement in the economic activities.

This study has tested two research objectives that are to test the relationship between financial openness and economic growth in five ASEAN countries (Thailand,

Singapore, Indonesia, Malaysia and Philippines) from year 2000 to 2014 while the second objective is to analyse the robustness of the relationship between financial openness and economic growth using FDI net inflows as the measurement for financial openness.

The balanced panel data from 2000 to 2014 for five ASEAN countries (Thailand, Singapore, Indonesia, Malaysia and Philippines) has been employed in order to answer both research objectives in this study. In addition, the descriptive analysis is presented to discuss the characteristic of variables used in the regression models. The panel OLS is utilized to test the relationship between financial openness, economic growth and control variables (inflation, official exchange rate, trade and government expense). The first regression model is developed by using the KAOPEN index as the indicator for financial openness. On the other hand, for the robustness check, the FDI net inflows are employed to measure the level of the financial openness.

This chapter is organized as follows. Section 5.1 provides a summary of the findings. Next, Section 5.2 discusses the implications of this study. Section 5.3 and section 5.4 present the contributions, limitations and directions for the future research, respectively. Finally, the conclusion of this study is summarized in Section 5.5.

5.1 SUMMARY OF THE FINDINGS

The first objective of this study is to examine the effect of the financial openness and economic growth for five ASEAN countries (Thailand, Singapore, Indonesia, Malaysia and Philippines) from from 2000 to 2014. The finding shows that financial openness as measured by KAOPEN index enhances the economic growth. The study in line with Summers (2000), Naveed and Mahmood (2017) and Shuaib (2016). Higher level of financial openness improves the capital allocation, reduces the investment risk and increases the investment and financing activities which lead to higher economic development.

Next, the second objective is to test the robustness of the relationship between financial openness and economic growth that has been tested earlier by using the FDI net inflows as the indicator for financial openness. From the results, the relationship between the financial openness and economic growth is substantiated when this model concludes a positive and significant relationship between FDI net inflows and economic growth.

In addition, this study also finds that two control variables which are official exchange rate and government expense improve the economic growth. This study argues that the depreciation of local currency and the government expenditure on the public developments enhance the economic growth. On the other hand, trade and inflation are not the factors for economic development with respect to five ASEAN countries (Thailand, Singapore, Indonesia, Malaysia and Philippines) between 2000 and 2014.

In summary, this study concludes that financial openness, official exchange rate and government expenditure improve the economic growth. However, the level of trade and inflation do not significantly related to the economic development.

5.2 POLICY IMPLICATIONS

The findings of this study have few implications. The policy makers for the selected five ASEAN countries (Thailand, Singapore, Indonesia, Malaysia and Philippines) could utilize the information provided by this study by strengthening the strategies on developing the financial openness activities to the benefit of the economy. Furthermore, the countries could also benefit in the depreciation of the local currency by focusing on exploiting this condition for the advantage of the country. In addition, the government should focus more on public expenditure such as health, education and infrastructures because it helps the economy to grow.

5.3 CONTRIBUTION OF STUDY

This study has two main contributions. Firstly is the theoretical contribution. The findings add into the existing literature on the relationship between financial openness and economic growth in ASEAN countries. Secondly is the practical contribution. The policy makers and the governments could use the information provided by this study to formulate and assess the current policies for the benefit of economy.

5.4 LIMITATIONS AND DIRECTIONS FOR THE FUTURE RESEARCH

There are several limitations of this study. Firstly, this study only focuses on five ASEAN countries (Thailand, Singapore, Indonesia, Malaysia and Philippines). Thus, the results are only applicable for the selected countries. Furthermore, it is recommended that the future research include a wide range of countries that consist of both developed and developing countries in order to study the relationship between the financial openness and economic growth in more detail.

Secondly, this study only employs two types of financial openness measurements that are KAOPEN index and FDI net inflows. Therefore, for the future studies, comprehensive indicators of financial openness could also be utilized. Thirdly, the future research could expand the period of the study to 20 to 30 years to capture more economic events such as financial crises in the regression models.

Finally, this study only uses panel OLS regression model. Future studies could extend this study by employing more sophisticated statistical methods to test the relationship between financial openness and economic growth. In addition, the short-run and long-run effects may also be employed in the study. The bidirectional relationship between financial openness and economic growth can also be investigated by the future studies.

5.5 CONCLUSION

In summary, this study concludes that financial openness increases the economic growth for five ASEAN countries (Thailand, Singapore, Indonesia, Malaysia and Philippines) from 2000 to 2014. Furthermore, official exchange rate and government expense are also found to have a positive influence on the economic activities. This study fails to find any significant relationships between trade, inflation and economic growth. Although this study has few limitations, both research questions are being answered using the selected methods.

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APPENDIX A

Construction of *KAOPEN*

KAOPEN is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). Up to 1996, we assign dummy variables for the four major categories on the restrictions on external accounts.

These variables are:

• variable indicating the presence of multiple exchange rates (*k1*);

• variable indicating restrictions on current account transactions(*k2*);

• variable indicating restrictions on capital account transactions (*k3*); and

• variable indicating the requirement of the surrender of export proceeds (*k4*).

In 1996, the classification method in the *AREAER* changed and these four categories were disaggregated further, in an effort to better reflect the complexity of capital controls policies.7 For the extension of the four binary classifications after 1996, we followed Mody and Murshid (2005).

In order to focus on the effect of *financial openness* – rather than *controls* – we reverse the values of these binary variables, such that the variables are equal to one when the capital account restrictions are non-existent. Moreover, for controls on capital transitions

(*k3*), we use the share of a five-year window (encompassing year *t* and the preceding four years) that capital controls were not in effect (*SHAREk3*).

$$SHAREk_{3,t} = \left(\frac{k_{3,t} + k_{3,t-1} + k_{3,t-2} + k_{3,t-3} + k_{3,t-4}}{5} \right)$$

Then we construct an index for capital "openness" (*KAOPENt*), which is the first standardized principal component of *k1t*, *k2t SHAREk3, k4t*. This index takes on higher values the more open the country is to cross-border capital transactions. By construction, the series has a mean of zero. The first eigenvector for *KAOPEN* was found to be (*SHAREk3, k1, k2, k4*)' = (0.57, 0.25, 0.52, 0.58)', indicating that the variability of *KAOPEN* is not merely driven by the *SHAREk3* series.

APPENDIX B

. (9 vars, 75 obs pasted into editor)

. tsset code year
panel variable : code, 1 to 5
time variable : year, 2000 to 2014

. regress lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp

Source	SS	df	MS		
Model	28.284879	5	5.65697581	Number of obs	= 75
Residual	.654492234	69	.009485395	F(5, 69)	= 596.39
				Prob > F	= 0.0000
				R-squared	= 0.9774
				Adj R-squared	= 0.9757
Total	28.9393713	74	.391072585	Root MSE	= .09739

Lngdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
x1fo	.0956732	.0146442	6.53	0.000	.0664589	.1248876
x2cpi	.016568	.005824	2.84	0.006	.0049494	.0281865
x3lnoer	.0344904	.0077103	4.47	0.000	.0191088	.049872
x4trade	-.0000488	.0002102	-0.23	0.817	-.0004682	.0003706
x5lngovexp	.9057597	0195045	46.44	0.000	.8668493	.9446702
_cons	4.228388	.4571826	9.25	0.000	3.316334	5.140442

. vif

Variable	VIF	1/VIF
x4trade	4.90	0.203929
x3lnoer	4.39	0.227594
x1fo	2.48	0.403848
x2cpi	2.10	0.476257
x5lngovexp	1.26	0.793040
Mean VIF	3.03	

. xtreg lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp,fe

Fixed-effects (within) regression
Group variable (i): code

Number of obs	=	75
Number of groups	=	5
Obs per group: min	=	15
avg	=	15.0
max	=	15
F(5,65)	=	912.99
Prob > F	=	0.0000

R-sq: within = 0.9860
between = 0.2755
overall = 0.0617

corr(u_i, Xb) = -0.7189

Lngdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
x1fo	.0629764	.0133059	4.73	0.000	.0364026	.0895501
x2cpi	.0067367	.0040983	1.64	0.105	-.0014482	.0149215
x3lnoer	-.2267257	.0854198	-2.65	0.010	-.3973208	-.0561306

x4trade	.0004592	.000436	1.05	0.296	-.0004115	.0013299
x5lngovexp	.9058611	.0186705	48.52	0.000	.8685735	.9431487
_cons	5.15058	.6895455	7.47	0.000	3.773462	6.527697
sigma_u	.96321649					
sigma_e	.06262532					
rho	.9957906	(fraction of variance due to u_i)				

F test that all u_i= 0: F(4, 65) = 25.47 Prob > F = 0.0000

. ssc install xtserial
ssc install: "xtserial" not found at SSC, type -findit xtserial-
(To find all packages at SSC that start with x, type -ssc describe x-)
r(601);

. findit xtserial

. xttest3

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (5) = 7.73
Prob>chi2 = 0.1719

. xtserial lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 4) = 50.800
Prob > F = 0.0020

. regress lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp, robust cluster (code)

Regression with robust standard errors — Number of obs = 75
F(3, 4) = .
Prob > F = .
R-squared = 0.9774
Number of clusters (code) = 5 — Root MSE = .09739

lngdp	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
x1fo	.0956732	.0270526	3.54	0.024	.0205633	.1707832
x2cpi	.016568	.0108889	1.52	0.203	-.0136644	.0468004
x3lnoer	.0344904	.0150597	2.29	0.084	-.007322	.0763028
x4trade	-.0000488	.0001434	-0.34	0.751	-.000447	.0003495
x5lngovexp	.9057597	.0312753	28.96	0.000	.8189255	.9925939
_cons	4.228388	.7309021	5.79	0.004	2.199078	6.257698

APPENDIX C

. (9 vars, 75 obs pasted into editor)

. tsset code year
panel variable : code, 1 to 5
time variable : year, 2000 to 2014

. regress lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp

Source	SS	df	MS		
Model	27.9811414	5	5.59622829	Number of obs	= 75
Residual	.958229816	69	.013887389	F(5, 69)	= 402.97
				Prob > F	= 0.0000
				R-squared	= 0.9669
				Adj R-squared	= 0.9645
Total	28.9393713	74	.391072585	Root MSE	= .11784

Lngdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
x1fdinetin~s	.0113785	.0042167	2.70	0.009	.0029665	.0197905
x2cpi	.0258658	.0068487	3.78	0.000	.0122031	.0395286
x3lnoer	.0499759	.008722	5.73	0.000	.032576	.0673759
x4trade	.000236	.0003154	0.75	0.457	-.0003932	.0008652
x5lngovexp	.8505671	.0229374	37.08	0.000	.8048082	.896326
_cons	5.398322	.5561256	9.71	0.000	4.288882	6.507762

. vif

Variable	VIF	1/VIF
x4trade	7.54	0.132656
x1fdinetin~s	4.74	0.211049
x3lnoer	3.84	0.260396
x2cpi	1.98	0.504238
x5lngovexp	1.19	0.839540
Mean VIF	3.86	

. xtreg lngdp x1fdinetinflows x2cpi x3lnoer x4trade x5lngovexp, fe

Fixed-effects (within) regression — Number of obs = 75
Group variable (i): code — Number of groups = 5

R-sq: within = 0.9825 — Obs per group: min = 15
between = 0.2452 — avg = 15.0
overall = 0.0909 — max = 15

F(5,65) = 731.73
corr(u_i, Xb) = -0.6766 — Prob > F = 0.0000

Lngdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
x1fdinetin~s	.0066394	.0028862	2.30	0.025	.0008753	.0124035
x2cpi	.0116489	.0044237	2.63	0.011	.0028141	.0204836

x3lnoer	-.2160056	.0952038	-2.27	0.027	-.4061406	-.0258705
x4trade	-.0000465	.0004749	-0.10	0.922	0009948	.0009019
x5lngovexp	.8758505	.020564	42.59	0.000	.8347814	.9169196
_cons	5.892604	.7635076	7.72	0.000	4.367774	7.417434
sigma_u	.89388548					
sigma_e	.06983212					
rho	.99393397 (fraction of variance due to u_i)					

F test that all u_i= 0: F(4, 65) = 32.87 Prob > F = 0.0000

. ssc install xtserial
ssc install: "xtserial" not found at SSC, type -findit xtserial-
(To find all packages at SSC that start with x, type -ssc describe x-)
r(601);

. findit xtserial

. xttest3

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (5) = 4.80
Prob>chi2 = 0.4404

. xtserial lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 4) = 14.581
Prob > F = 0.0188

. regress lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp, robust cluster (code)

Regression with robust standard errors

Number of obs = 75
F(3, 4) = .
Prob > F = .
R-squared = 0.9669
Root MSE = .11784

Number of clusters (code) = 5

lngdp	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
x1fdinetin~s	.0113785	.0040602	2.80	0.049	.0001055	.0226514
x2cpi	.0258658	.0158425	1.63	0.178	-.0181201	.0698518
x3lnoer	.0499759	.0208621	2.40	0.075	-.0079466	.1078985
x4trade	.000236	.0004612	0.51	0.636	-.0010446	.00151655
x5lngovexp	.8505671	.0467468	18.20	0.000	.7207773	.9803569
_cons	5.398322	1.042492	5.18	0.007	2.503901	8.292743

APPENDIX D

Descriptive Statistics

	N	Minimum	Maximum	Mean	Standard Deviation
GDP (USD billion)	75	7630	91800	26000	19700
FO (KAOPEN Index)	75	-1.89	2.39	0.55	1.22
CPI (%)	75	-0.85	13.11	3.74	2.82
OER (LCU/USD)	75	1.25	11865.21	1926.91	3854.63
Trade (%)	75	45.51	441.60	166.71	119.25
Govexp (USD billion)	75	845	8690	2870	2050
Valid N (list wise)	75				

APPENDIX E

Variable	Singapore	Malaysia	Indonesia	Thailand	Philippine
GDP(USD billion)	18300	19900	50100	25900	15700
FO (KAOPEN Index)	2.39	-0.33	0.77	-0.62	0.56
CPI (%)	2.05	2.25	7.47	2.58	4.35
OER (LCU / USD)	1.52	3.50	9545.18	36.39	47.94
Trade (%)	384.60	180.51	55.76	128.87	83.84
Govexp (USD billion)	18600	25200	44400	39300	15800

APPENDIX F

	Y= LNGDP	X1 = FO	X2 = CPI	X3 = LNOER	X4 = Trade	X5 = LNGovexp
Y=LNGDP	1					
X1 = FO	-0.1432	1				
X2 = CPI	0.3236	0.0947	1			
X3 = LNOER	0.4905	-0.1378	0.6929	1		
X4 = Trade	-0.3336	0.5673	-0.4674	-0.7531	1	
X5 = LNGovexp	0.9464	-0.3260	0.1159	0.3047	-0.2830	1