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THE IMPACT OF FINANCIAL DEVELOPMENT AND MACROECONOMICS VARIABLES ON ECONOMIC GROWTH

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ABSTRACT

Financial development is an important element for an effective and efficient financial sector which assisted in encouraging the economic growth in ensuring the flows of capital are channelled towards the most productive use, minimizing market frictions and reducing transactions costs. The development of financial sectors as a main indicator for the country's economic growth is strongly recognized in the neo-classical views theory. The objective of the study is to determine the impact of financial development (domestic credit to private sector and gross domestic savings) and macroeconomics variables (inflation, real interest rate and trade) on economic growth for 47 of Asian countries. This study employs the unbalanced panel data in 47 of Asian countries for the period of 2000 and 2016. The dependent variable for this study is economic growth and the independent variables consist of domestic credit to private sector, gross domestic savings, inflation, real interest rate and trade. The study discovers the positive relationship between financial development and economic growth. In contrary, the study finds the negative relationship between two macroeconomics variables (inflation and real interest rate) and the economic growth. In addition, the results argue that trade is not the factor that influencing the economic growth. The findings of the study could assist the policy makers for the future policy making efforts.

Keywords: Financial Development, Economic Growth, Inflation, Real Interest Rate and Trade

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ABSTRAK

Pembangunan kewangan merupakan elemen penting bagi sektor kewangan yang berkesan dan cekap yang membantu dalam menggalakkan pertumbuhan ekonomi dalam memastikan aliran modal disalurkan ke arah penggunaan yang paling produktif, meminimumkan pergeseran pasaran dan mengurangkan kos transaksi. Perkembangan sektor kewangan sebagai petunjuk utama pertumbuhan ekonomi negara sangat diiktiraf dalam teori pandangan neo-klasik. Objektif kajian ini adalah untuk menentukan kesan pembangunan kewangan (kredit domestik kepada sektor swasta dan simpanan domestik kasar) dan pembolehubah makroekonomi (inflasi, kadar faedah sebenar dan perdagangan) terhadap pertumbuhan ekonomi untuk 47 negara Asia. Kajian ini menggunakan data panel yang tidak seimbang di 47 negara Asia untuk tempoh 2000 dan 2016. Pemboleh ubah yang bergantung kepada kajian ini adalah pertumbuhan ekonomi dan pembolehubah bebas terdiri daripada kredit domestik kepada sektor swasta, simpanan domestik kasar, inflasi, kadar faedah sebenar dan perdagangan. Kajian ini mendapati hubungan positif antara pembangunan kewangan dan pertumbuhan ekonomi. Sebaliknya, kajian ini mendapati hubungan negatif antara dua pembolehubah makroekonomi (inflasi dan kadar faedah sebenar) dan pertumbuhan ekonomi. Di samping itu, hasilnya berpendapat bahawa perdagangan bukanlah faktor yang mempengaruhi pertumbuhan ekonomi. Penemuan kajian ini dapat membantu para pembuat dasar untuk usaha membuat kebijakan masa depan.

Kata kunci: Pembangunan Kewangan, Pertumbuhan Ekonomi, Inflasi, Kadar Faedah Sebenar dan Perdagangan

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LIST OF ABBREVIATIONS

Abbreviation		Meaning
FD	=	Financial Development
GDP	=	Gross Domestic Product
ARDL	=	Autoregressive Distributed Lag
MENA	=	Middle East and North America
OLS	=	Ordinary Least Square
OECD	=	Organization for Economic Co-operation and Development.
TAR	=	Threshold Autoregressive
DCPS	=	Domestic Credit to Private Sector
GDS	=	Gross Domestic Savings
RIR	=	Real Interest Rate
USD	=	United State Dollar

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CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND OF STUDY

The relationship between financial development and economic growth has gained a great deal of attention and become an important topic of research debate for recent decades by a number of researchers (Bittencourt, 2012; Durusu-Ciftci, Ispir & Yetkiner, 2017; Kendall, 2012). Financial development can be defined as an effective and efficient financial sector which assisted in encouraging the economic growth in ensuring the flows of capital are handled towards the most productive use, minimizing market frictions as well as reducing transactions costs (Durusu-Ciftci et al, 2017). The financial development is conducted through establishing a legal framework, building on existing financial structures, harnessing the potential of bank and increasing the liquidity and depth of the capital market.

Adnan (2011) asserts that higher degree of financial development of a country contributes towards a wider availability of the financial services offered in the financial system. Financial systems are group into three categories which consist of markets, instruments and institutions that play a significant role in transmitting fund to deficit units in ensuring a stable economic growth (Hasan & Barua, 2015).

According to Demirguc-Kunt and Levine (2008), a well-developed financial systems assist in reducing the transactions and information costs which enhancing the

investment and economic activities that helps the economy to grow. The study highlights five importance of the financial development to the economic growth. Firstly, in encouraging the exchange of goods and services, financial systems help in providing services for payment, and hence decreasing the transaction costs. Therefore, by facilitating the business transaction through financial services, the productivity of the economy could be achieved. Secondly is the savings mobilization in which a huge amount of savings are collected from the surplus units and invested in the productive projects, thus, enhancing the growth of the economy. Thirdly is providing an accurate and timely information about capital allocation and investment. Therefore, in collecting, producing and processing quality information the financial institutions reduces the asymmetric information. Thus, higher investment in firms and industries are observed with better and reliable information.

In addition, according to Demirguc-Kunt and Levine (2008), an effective monitoring role could be achieved through a well-developed financial system. This will allow good corporate governance practices being imposed to monitor the activities of the manager in aligning the interests of the shareholders with the managers. Therefore, an effective monitoring leads to a better resources allocation in the economy. Lastly is the risk management. Risk diversification allows the investors to reduce the overall investment risk and at the same time securing an appropriate level of return and hence enhancing the capital productivity.

Besides the importance of financial development in promoting the economic growth, there are few macroeconomics variables that have a positive influence on the economic growth. Among the most cited macroeconomics variables are real interest rate (Chang & Huang, 2010) and trade (Hassan, Sanchez & Yu, 2010; Keho, 2017). According these studies the real interest rate and trade are playing a significant role in developing the economy. Moreover, the essential role of inflation in economy is also highlighted by the economies. In theory, higher inflation reduces the purchasing power which leads to a reduction in consumption and finally affects the economy negatively (Barro, 2013; Bittencourt, 2012). Therefore, due to the importance of financial development and macroeconomic variables (inflation, real interest rate and trade) on economic growth, this present study will investigate their impact on the economic growth in Asian countries.

1.1 ISSUES AND PROBLEM STATEMENT

In theory, financial development is important for the economic growth (Bayar, 2014; Bittencourt, 2012; Kendall, 2012). Financial development has brought few important benefits to the financial systems such as managing risks, encouraging the exchange of goods and services and savings mobilization (Demirguc-Kunt & Levine, 2008). However, previous studies have found negative influences of financial development, inflation, real interest rate and trade on the economic growth (Al-Malkawi, Marashdeh & Abdullah, 2012; Barro, 2013; Bittencourt, 2012; Hansen & Seshadri, 2013; Sandri, Alshyab & Ghazo, 2016).

Although financial development is a vital element for economic growth, however, there are several issues and arguments on the relationship between these variables. Firstly, over the past three decades, finance growth relationship has been both ambiguous and contentious (Marwa & Zhanje, 2015). According to them, the relationship between financial development and economic growth cannot be over-emphasized. This is due to the persistence of poverty in many parts of the world especially in the Asian countries such as Myanmar, Laos, Cambodia and Timor-Leste.

Moreover, there are some economists that raised their doubt regarding the importance of finance in boosting the economic growth. Chandavarkar (1992) states that finance is not considered as the key development factor by the development economics. This argument is also agreed by few recent studies (Mehrara & Ghamati, 2014; Samargandi, Firdmuc & Ghosh, 2014). These studies which have been conducted in various countries have found no relationship between the financial development and economic growth which indicates that for that specific countries financial development is not the factor for enhancing the economic development.

According to Aizenman (2015), developing the financial systems by way of financial innovation that involved excessive risk taking could also have a negative impact on the financial system and the economy as a whole. This is because financial innovation activities divert the financing from the real and productive economic growth activities to the speculative financial transaction.

In addition, Al-Malkawi et al (2012) have also discovered a negative relationship between the financial development and economic growth. They argue that, the negative relation is because of the underdevelopment of financial system in the United Arab Emirates. Given the importance of finance to the economic growth, thus, the investigation on the impact of the financial development on economic growth will be conducted in the present studies.

Futhermore, few macroeconomic variables also have affected the economic growth negatively. As for the inflation few studies have discovered that inflation reduces the economic growth (Barro, 2013; Bittencourt, 2012; Fattahi, Tiatoraj & Moshtaghi, 2016). When inflation increases, the prices for goods and services also increase which leads to a decrease in purchasing power and finally the consumption. Consequently, this condition will result to a reduction in production and the economy growth will be affected negatively.

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In theory, higher real interest rate enhances the economic growth (Chang & Huang, 2010). However, according to the studies by Hansen and Seshadri (2013) and Liang and Jian-Zhou (2006), real interest rate is negatively related to economic growth. Negative real interest rate signifies that inflation rate is more than the nominal interest rate. Mutinda (2014) states that when the investors are not being compensated with the appropriate level of return, the level of investment in the country would reduce. Hence, this condition dampens the business activities and thus the economy growth reduces.

Although higher import and export activities are expected to have a positive impact on economy, however, few studies proved otherwise (Sandri et al, 2016). Inefficient scale of import and export, unsuccessful trade policy and absence of an appropriate diversification strategy could explain the negative association between trade and economic growth.

In conclusion, although the previous studies have investigated the relationship between financial development, inflation, real interest rate and trade on economic growth, however, no mutual agreement are achieved regarding the results. Therefore, this present studies will examine the relationship between these variables in 47 of Asian countries (Afghanistan, Bangladesh, Azerbaijan, Bahrain, Armenia, Cambodia, Brunei, Georgia, Bhutan, Cyprus, India, Israel, Japan, Indonesia, China, Korea, Laos, Kyrgyzstan, Jordan, Iraq, Kazakhstan, Lebanon, Kuwait, Mongolia, Malaysia, Iran, Myanmar, Russia, Qatar, Thailand, Maldives, Oman, Turkmenistan, Pakistan, Saudi Arabia, Sri Lanka, Timor-Leste, Uzbekistan, Philippines, Singapore, Tajikistan, United Arab Emirates, Yemen, Turkey, Syria, Nepal and Vietnam) between 2000 to 2016.

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1.2 RESEARCH QUESTION

In this study, two research questions are developed:

1. Does financial development influence the economic growth in Asian countries?
2. Do macroeconomics variables (inflation, real interest rate and trade) impact the economic growth in Asian countries?

1.3 RESEARCH OBJECTIVES

The objectives of the study are:

1. To examine the relationship between financial development on economic growth in Asian countries.
2. To investigate the impact of macroeconomics variables (inflation, real interest rate and trade) on economic growth in Asian countries.

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1.4 SIGNIFICANCE OF THE STUDY

This present study contributes to the theoretical and practical perspectives. As for theoretical perspective, this study will add into the existing literature on the factors that influencing the economic growth in Asian countries. Specifically, the impact of financial development, inflation, real interest rate and trade on economic growth is being investigated.

Practically, the results of this study also will assist policy makers in ensuring the level of financial development that will enhance the economic growth. Moreover, the information on macroeconomic factors (inflation, real interest rate and trade) that are important to the economic growth can be closely observed by the policy maker.

1.5 SCOPE OF THE STUDY

This study emphasizes on 47 Asian countries[1] from 2000 to 2016. Moreover, in measuring the financial development, two indicators are employed which are domestic credit to private sector and gross domestic savings. This study also examines the impact of macroeconomics variables (inflation, real interest rate and trade) on the economic growth.

[1] Afghanistan, Bangladesh, Azerbaijan, Bahrain, Armenia, Cambodia, Brunei, Georgia, Bhutan, Cyprus, India, Israel, Japan, Indonesia, China, Korea, Laos, Kyrgyzstan, Jordan, Iraq, Kazakhstan, Lebanon, Kuwait, Mongolia, Malaysia, Iran, Myanmar, Russia, Qatar, Thailand, Maldives, Oman, Turkmenistan, Pakistan, Saudi Arabia, Sri Lanka, Timor-Leste, Uzbekistan, Philippines, Singapore, Tajikistan, United Arab Emirates, Yemen, Turkey, Syria, Nepal and Vietnam

1.6 STRUCTURE OF THE STUDY

This study is structured into five chapters; Chapter One discusses the background, issues and problem statements and the research objectives. Chapter Two provides the elaboration on the literature review. Next, Chapter Three discusses the data, methodology and the variables used in the study. Chapter Four emphasizes on the findings and discussions. Lastly, Chapter Five concludes this study.

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CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

Chapter two discusses the theory and summarizes the past literature on this topic. The discussion consists of three sections. Section 2.1 focuses on the theoretical perspective. Section 2.2 and Section 2.3 are the summaries of previous empirical evidences on the impact of financial development and macroeconomics variables (inflation, real interest rate and trade) on economic growth. Finally, Section 2.4 concludes the overall discussion.

2.1 THEORY

Financial development is recognized as an important indicator for economic growth as stated by the neo-classical views theory. An effective and efficient financial sector helps in encouraging the economic growth in ensuring the flows of capital to the most productive uses, minimizing the market frictions as well as reducing transactions costs. Schumpeter (1911), Goldsmith (1969), McKinnon (1973) and Shaw (1973) agree that a well-functioning financial institution is essential in economic development in their seminal works more than decades ago. The development of financial sectors for the country's economic growth is strongly recognized in these classical views.

In finance, Schumpeter (1911) extended the views and claims that when dealing with the development of the economy, financial services are the most important element. In his study, a well-functioning financial system which provides several services such as managing risks, organizing savings, evaluating projects, monitoring manager and encouraging technological innovations would results in a growth of economy.

Besides, the importance of financial development towards the economic growth through capital accumulation is also highlighted by Goldsmith (1969). According to his study, to ease the accomplishment of the technology transfer and entrepreneurship, the capital flows are essential to the financial development in accelerating the economic growth. According to financial liberalization theory by McKinnon (1973) and Shaw (1973), the financial liberalization which is part of the financial development is an important element for the economic growth by eliminating the financial repression in the financial systems.

Solow (1956) argues the importance of technology change for the long run economic growth. In addition, Arrow (1962) also agrees the role of endogenized technology for the long term economic development. While past studies have emphasized the crucial role of technology in the economy, Romer (1994) in his study claimes that technology is a product of economic activity, in which he incorporated the element of technology in the model of market functionality called new growth theory. This theory explains that the increasing returns drive the process of economic growth and eventually designates the knowledge and technology.

2.2 THE IMPACT OF FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH

This part discusses the empirical findings on financial development and economic growth. On the positive side, few studies agree that financial development improves economic growth. A positive effect on the association between financial development and economic growth in Taiwan has been discovered by Chang and Caudill (2005) from the year 1962 to 1998. Therefore, an effective and well-functioning financial system boosts the growth of economy.

Similarly, Kendall (2012) has examined nine Indian states throughout the period of 1991 to 2001 and discovered that financial development enhances economic growth. A sample of 209 of Indian districts is used in investigating the relationship between development of banking sector and the economic growth via regression analysis. The study discovers that banking sector development is positively related towards the economic growth by utilizing the credit and deposit of commercial banks in measuring the development of the banking sector. From the study, he concludes that the slow growth in Indian districts is caused by the slow growth of the banking development.

In the same vein, according to Bittencourt (2012), in generating the economic growth in four Latin American countries which are Bolivia, Peru, Argentina and Brazil, the role of financial development is crucial. According to the study, the

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implementation of fiscal policy and central bank independence also help to strengthen the relationship between financial development and economic growth.

Durusu-Ciftci et al (2017) have conducted a study for 40 countries including Jordan, China, Malaysia, India, Saudi Arabia, Brazil, Singapore and Turkey to investigate the relationship between financial development and growth of economy. This study has employed domestic credit to private sector as a proxy for financial development. The period of study covers from 1989 to 2011 and panel data is utilized in conducting the study. As revealed by the panel data analyses, financial development is positively related to the economic growth. Therefore, the study concludes that an increase in the growth of economy can be achieved through promoting the development of a country's financial sector.

Bayar (2014) investigates the link between financial development and economic growth in seven emerging Asian countries which consist of Thailand, India, China, Korea, Malaysia, Philippines and Indonesia. Panel regression is employed in this study between the period of 1992 and 2011. The result indicates that stock market and banking sector developments have a significant and positive influence on economic growth in these countries. Therefore, the study claims that in order to sustain the growth of economy, improving and strengthening the financial sector are important in the Asian countries.

On the negative relationship, Al-Malkawi et al (2012) have conducted a study in United Arab Emirates between 1974 to 2008 and discovered a

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negative relationship between financial development and economic growth. This study employs the domestic credit to private sector and financial depth as the measures for financial development. The study asserts that the negative relationship is due to the undeveloped financial system in the United Arab Emirates.

Similarly a study by Aric (2014) also finds that financial development reduces economic growth in 27 of European Union countries from 2004 to 2012. The indicator employed in measuring the financial development is domestic credit to private sector. According to the study, the appropriate measures should be conducted in order to develop the financial development so that the economic growth is not be adversely impacted.

There are few studies that discover mixed results between financial development and economic growth. Samargandi, Fidrmuc and Ghosh (2014) have conducted a study in Saudi Arabia to investigate how financial development influences the economic growth. In this study, they differentiate the consequences of the financial development into the non-oil and oil sectors. Autoregressive Distributed Lag (ARDL) Bounds test technique is used by the study and period of study covers between 1968 and 2010. Credit to private sector, liquid liabilities and broad money are the variables employed as an indicator in measuring the financial development. A positive link between financial development and economic growth is found for non-oil sector of economy. However, the negative and insignificant relationship is found for oil sectors countries. This is due to the fact that the oil prices for this specific country are fully controlled by the government.

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In the same vein, Adu, Marbuah and Mensah (2013) have investigated the relationship between financial development and economic growth in Ghana between 1988 and 2010. Financial development indicators used for this study are total domestic credit and credit to the private sector. Both of financial development indicators have a positive and significant relationship with economic growth. In contrast, the result shows a significant and negative association when the broad money stock to GDP ratio is used for the measurement of financial development. Therefore, this study indicates that different financial development indicators have produced different findings.

A mixed conclusion is also found by Hassan et al (2010) between 1980 and 2007. This study has conducted an investigation in low and middle income countries based on six geographic regions (Latin America & Caribbean, East Asia & Pacific, South Asia, Europe & Central Asia, Middle East & North Africa and Sub-Saharan Africa) and two groups of high income countries (OECD and non-OECD countries). Gross domestic savings and domestic credit to private sector are among the proxies utilized in this study in measuring the level of financial development. Based on the result, gross domestic savings has a positive and significant relationship in both developing as well as high income countries. Besides, domestic credit to private sector also shows a positive influence except for high income countries of where a negative relationship is found between the financial development and economic growth.

Hasan and Barua (2015) have examined the relationship between financial development and economic growth in South Asian countries which consist of India,

Pakistan, Bangladesh, Nepal and Sri Lanka using the panel data regression from year 1974 to 2012. Several variables are employed in measuring the financial development such as domestic credit provided by the financial institutions, broad money and gross domestic savings. The result shows that gross domestic savings positively influenced the growth of economy in these countries. However, domestic credit and broad money have no relationship with the economic growth. There are several reasons assert by this study regarding the mixed results such as weaker financial infrastructure and governance.

Similarly, a study on the impact of financial development towards the economic growth by Mehrara and Ghamati (2014) and discover a mixed relationship of these variables. This study has been conducted in 1997 to 2007 in 10 countries which are Russia, Spain, Canada, Japan, England, America, Netherlands, Germany, Switzerland and Italy. Domestic credit to private sector is used as an indicator in measuring the financial development. Using panel data, a strong positive influence of financial development towards the economic growth at 1% significant level has been discovered in Netherlands, Italy, America, England and Spain. However, the effect of this indicator is positive but lesser impact which is at 5% significant level in Canada. Moreover, there is no relationship between the two variables in Germany, Russia, Switzerland and Japan. From the results above, the different effects are found based on economic condition and financial markets structure.

Lastly, Kar, Nazlioglu and Agir (2011) have examined the relationship between financial development and economic growth in 15 MENA countries consists

of Libya, Algeria, Israel, Bahrain, Jordan, Iran, Turkey, Syria, Egypt, Tunisia, Qatar, Sudan, Saudi Arabia, Kuwait, and Morocco from year 1980 to 2007. Six variables are used to measure the financial developments which are quasi money, narrow money, deposit money bank liabilities, broad money, domestic credit and private sector credit. In Sudan, Egypt, Iran and Algeria, there is an insignificant effect for all indicators used in this study towards the economic growth. Besides, in Tunisia, Bahrain, Jordan, Morocco and Israel, the finding indicates that financial development enhances the economic growth. While the results in Libya, Saudi Arabia, Kuwait, Turkey, Qatar and Syria do not constant where the different indicators used for financial development have different impact on the economic growth.

2.3 MACROECONOMICS DETERMINANTS OF ECONOMIC GROWTH

This part will elaborate the findings on the impact of macroeconomics determinants (inflation, real interest rate and trade) on the economic growth.

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2.3.1 The Impact of Inflation on Economic Growth

In this section, the discussion is made on the literatures that have investigated the relationship between inflation and economic growth. As predicted in theory, few studies conclude that inflation reduces the economic growth. Argentina, Peru, Brazil and Bolivia are four Latin American countries that have been examined by Bittencourt (2012) in determining the effect of inflation on economic growth. The period of study covers from 1980 to 2007. Based on the result, inflation has a negative and significant

effect towards the economic growth. Due to the inflation, the liquidity in the financial system has dropped and led to reduction in the economic development.

Similarly, Barro (2013) has discovered a negative influence of inflation on economic growth. The data used consists of 100 countries including India, Turkey, Thailand, China, Malaysia, Japan and Singapore from year 1960 to 1990. According to the study, thus it can be concluded that the inflation is the factor that needs to be controlled in order to have a better economic growth.

There are few studies that find mixed conclusions between inflation and economic growth. Lee and Wong (2005) have employed the threshold autoregressive (TAR) to examine the threshold effects for inflation in Japan (1970 to 2001) and Taiwan (1965 to 2002). The results show that in high inflation regime, inflation is negatively related to economic growth in Taiwan. Meanwhile in Japan, under moderate inflation regime, inflation encourages economic growth.

Similarly, Fattahi et al (2016) also find an inconclusive finding between inflation and economic growth in Iran between 1959 and 2004. For the low level of inflation, the results give a positive influence towards the economic growth. However, in the medium and high level of inflation, the relationship turns out to be negatively related.

Lastly, Ramlan and Suhaimi (2017) discover no relationship between inflation and economic growth in Malaysia from the year 2004 to 2013. The study argues that

the moderate and stable level of inflation during the study period could explain the finding further.

2.3.2 The Impact of Real Interest Rate on Economic Growth

In this part, the literatures that have investigated the relationship between real interest rate and economic growth will be discussed. Chang and Huang (2010) have examined the association between real interest rate and economic growth in Japan between 1981 and 2008. In obtaining the empirical robustness, a number of econometric models are employed. The finding shows that high real interest rate is positively related towards economic growth. Increasing in the real interest rate will attract more investor to invest, thus, it will increase the savings as well as promote the economic growth. However, this study also discovers that in the lower real interest rates environment, the relationship turns out to be negatively related.

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On the negative side, Hansen and Seshadri (2013) find a negative relationship between real interest rate and economic growth in United States from 1901 to 2001. The results show that real interest rate has a negative relationship with economic growth. Thus, the government should increase the real interest rate in order to have a well-developed economy.

In the same vein, Liang and Jian-Zhou (2006) discover a negative relationship between real interest rate and economic growth in China from year 1952 to 2001. Since, real interest rate is defined as the real income provided to the investors, reduction in the real interest rate signifies lower return from the investment and loan

activities. Therefore, lower level of investment and loan activities could have a negative impact on the economy.

2.3.3 The Impact of Trade On Economic Growth

This section discusses the past studies on the relationship between trade and economic growth. On the positive side, Keho (2017) find a positive relationship between trade and economic growth in Cote d'Ivoire from 1965 to 2014. He claims that the reasons of this positive relationship is due to the fact that 47% of total exports in Cote d'Ivoire is mostly rely on the agricultural products such as coffee, cashews and cocoa. Besides, this country also imports machines, raw materials and technology for the usage in production of goods which helps in developing the economy in this country.

Likewise, Hassan et al (2010) also discover that trade enhances economic growth in six geographic regions (Sub-Saharan Africa, East Asia & Pacific, Europe & Central Asia, South Asia, Latin America & Caribbean and Middle East & North Africa) and high income countries (OECD and non-OECD countries) from 1980 to 2007. Countries that involved in trade will have an access to bigger markets and also promote competition in the country. Therefore, this will encourage development and innovation in R&D which accelerates more investment, hence, enhances economic growth.

On the mixed finding, Sandri et al (2016) have investigated the relationship between trade in goods and services and economic growth in Jordan from year 1980 to 2014. This study finds a negative effect of trade in goods on economic

growth. However, trade in services is positively related to the growth of economy in Jordan.

Similarly, Were (2015) has discovered mixed conclusions between trade and economic growth in 85 countries including Malaysia, Korea, Pakistan, Japan, China, Philippines, Sri Lanka, Bangladesh and Brunei from 1991 to 2011. In developing and developed countries, trade is found to have a positive and significant relationship with economic growth. However, in the least developed countries, the relationship is found to be insignificant. Poor infrastructure and poor quality of the institutions in the least developed countries' export are among the factors that contribute to the low competition in the world markets which limit their capability to gain advantage on the trade.

Lastly, Tekin (2012) discovers no association between trade and economic growth in least developed countries including Tanzania, Malawi, Niger, Senegal, Somalia and Sierra Leone between 1970 and 2010. Thus, this study concludes that trade is not one of the factors of economic growth.

2.4 CONCLUSION

In summary, this section discusses the empirical findings on the relationships between financial development, macroeconomics variables (inflation, real interest rate and trade) and economic growth. From the literature review, the relationships between economic growth and its determinants are found to be mixed.

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CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTION

The methodology is presented in this chapter. Section 3.1 discusses on the data description. Section 3.2 explains the variables used in the study. Section 3.3 provides the research framework developed in this study. Section 3.4 elaborates on the methods of estimation. Lastly, Section 3.5 summarizes the conclusion for this chapter.

3.1 DATA DESCRIPTION

The unbalanced panel data consists of 47 Asian countries which are Afghanistan, Bangladesh, Azerbaijan, Bahrain, Armenia, Cambodia, Brunei, Georgia, Bhutan, Cyprus, India, Israel, Japan, Indonesia, China, Korea, Laos, Kyrgyzstan, Jordan, Iraq, Kazakhstan, Lebanon, Kuwait, Mongolia, Malaysia, Iran, Myanmar, Russia, Qatar, Thailand, Maldives, Oman, Turkmenistan, Pakistan, Saudi Arabia, Sri Lanka, Timor-Leste, Uzbekistan, Philippines, Singapore, Tajikistan, United Arab Emirates, Yemen, Turkey, Syria, Nepal and Vietnam. The data covers for seventeen years from year 2000 to 2016 and a total of 565 observations are included in the regression model of the study. The information on dependent (economic growth) and independent variables (domestic credit to private sector, gross domestic savings, inflation, real interest rate and trade) are collected from the World Bank Database (2017).

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3.2 DEFINITION OF VARIABLES

The selection and explanation of the dependent variable (economic growth) and independent variables (domestic credit to private sector, gross domestic savings, inflation, real interest rate and trade) are discussed in this part.

3.2.1 Dependent Variable (Economic Growth)

For this study, GDP per capita is transformed into natural logarithm to measure the economic growth. According to Stiglingh (2015), this variable which is in current U.S. dollars is defined as the total output of a country divided by the total population. Most of the previous studies that examined the effects of financial development towards economic growth employed GDP per capita as the proxy in measuring the level of economic growth (Bittencourt, 2012; Hassan et al, 2010; Mehrara & Ghamati, 2014). Stiglingh (2015) argues that when comparing with different countries, per capita GDP is preferred as it shows the relative performance of the countries. Therefore, an increase in per capita GDP signals a growth in economy.

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3.2.2 Independent Variables

This part discusses on the independent variables which are domestic credit to private sector, gross domestic savings, inflation, real interest rate and trade.

a) Financial Development

In this study, financial development is measured by two variables which are domestic credit to private sector and gross domestic savings. Two variables are employed

because domestic credit to private sector measures financial development from the supply side in which credit are being infused into the financial system to develop the economy (Adu et al, 2013; Durusu-Ciftci et al, 2017). On the other hand, gross domestic savings measures the financial development from the demand side as savings shows a high potential growth for a country as capital investment funds are available in order to stimulate the economy (Sothan, 2014).

i) Domestic Credit to Private Sector

This study employed domestic credit to private sector over GDP to measure the impact of the financial development on economic growth. Financial resources such loans, financing and trade credits are offered by the financial intermediaries. According to previous studies, this variable has been commonly used and has a positive influenced towards the economic growth (Adu et al, 2013; Durusu-Ciftci et al, 2017; Hassan et al, 2010; Mehrara & Ghamati, 2014; Samargandi et al, 2014). Hasan and Barua (2015) claim that higher level of funds offered by banks or financial institution to the private sector contributes to the economic growth. Therefore, the relationship is expected to be positive between domestic credit to private sector and economic growth.

ii) Gross Domestic Savings

Gross domestic savings are defined as the differences between GDP and final consumption expenditure (Rasmidatta, 2011). This variable is used to measure the financial development on the demand side. For this study, this variable is measured in

percentage of GDP. According to previous studies, gross domestic savings is positively related to economic growth (Hasan & Barua, 2015; Hassan et al, 2011). A well-developed financial system will attract people in making saving as it is easier and convenient which then helps in developing the economic growth of the country. Moreover, higher gross domestic savings rate signifies high potential growth for a country to invest as more capital investment funds are available (Sothan, 2014). Thus, the relationship between both variables is expected to be positive.

b) Inflation

Inflation is one of the independent variables included in the regression model. Inflation is known as increases in the general price levels of goods as well as services for a certain period of time in a country (Azzez, Kalopa & Ajayi, 2012). This variable is measured by GDP deflator in annual percentage. The findings from previous literatures indicate a negative influence of inflation on the economic growth (Barro, 2013; Bittencourt, 2012; Fattahi et al, 2016; Lee & Wong, 2005). An increase in inflation leads to a rise in the prices of goods and services thus, weaken the purchasing power of money as people are not willing to spend more in this situation. A decrease in consumption contributes to reduction in the economic growth. Therefore, the relationship is expected to be negative between inflation and economic growth.

c) Real Interest Rate

The adjusted lending interest rate over GDP is used to measure the real interest rate. According to Chang and Huang (2010), real interest rates contribute a positive influence on the economic growth. Higher real interest rate attracts the investors in making savings and investment. Thus, this would help to enhance the economic growth. McKinnon (1973) and Shaw (1973) state that in determining the level of savings and also investment activities, real interest rate plays as an important factor. In contrast, real interest rate has found to influence the economic growth negatively (Hansen & Seshardi, 2013; Liang & Jian-Zhou, 2006). They argue that investors are not being compensated with the appropriate level of return that could reduce the level of investment in the country. Therefore, the situation would discourage the business activities, hence, reduce the economic growth. Therefore, higher real interest rate is expected to influence the economic growth positively and negatively.

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d) Trade

Trade is measured by total of import and export of goods and services over GDP (Busse & Koniger, 2012). The variable is measured in percentage of GDP. The earlier studies indicate that trade enhances the economic growth (Hassan et al, 2011; Keho, 2017; Sandri et al, 2016; Were, 2015). Sandri et al (2016) claim that trade boosts the economic growth through exploiting the economies of scale and encouraging the capital accumulation. Involving in the global markets as well as exports would increase the competition helps in increasing the productivity and finally the economy. Thus, trade is expected to have a positive relationship with economic growth.

Table 3.1 summarizes the variables, definitions of the variables, the sources of the data and the expected findings towards the economic growth.

Table 3.1: Details of Variables, Definition, Data Sources and Expected Results

NO	VARIABLES	DEFINITION	SOURCES	EXPECTED RESULTS
1	Economic Growth (GDP per capita)	Annual increase in the per capita GDP for each country (in current U.S. Dollar). Data is change into natural logarithm (LnGDP).	World Bank	-
2	Domestic Credit to Private Sector	Financial resources offered by the banks or financial corporation to the private sector. For example, trade credits, loans, other accounts receivable, and purchases of non-equity securities. (% of GDP)	World Bank	Positive
3	Gross Domestic Savings	The difference between GDP and final consumption expenditure or total consumption. (% of GDP)	World Bank	Positive
4	Inflation	The change in the economy rate of price as a whole known as inflation which is determined by the annual growth rate of the GDP deflator. (Annual %)	World Bank	Negative
5	Real Interest Rate (RIR)	Adjusted lending interest rate for inflation as determined by the GDP deflator. (%)	World Bank	Positive/ Negative
6	Trade	Trade is known as the total of both import and export of goods and services where it is determined by a share of gross domestic product. (% of GDP)	World Bank	Positive

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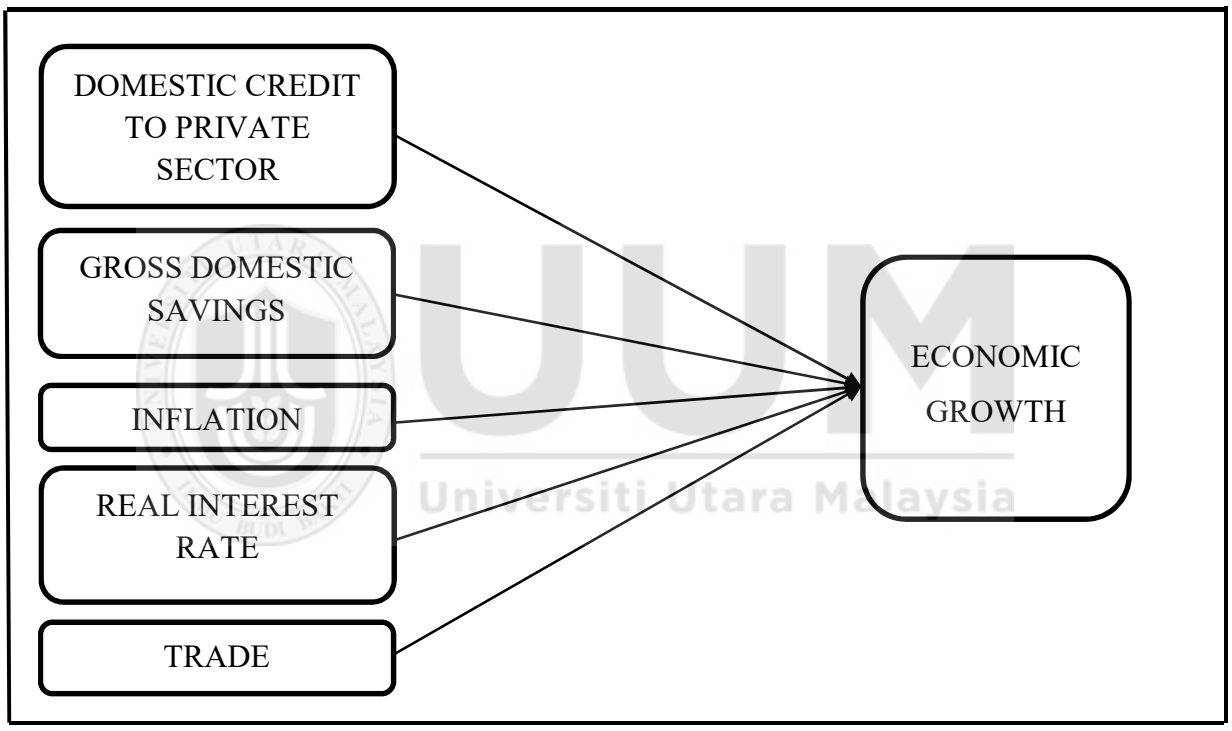
3.3 RESEARCH FRAMEWORK

Figure 3.1 shows the research framework used in this study. The relationship among dependent variable (economic growth) and independent variables (domestic credit to private sector, gross domestic savings, inflation, real interest rate and trade) are presented in this framework.

Figure 3.1: Research Framework



Based on the previous discussions above, positive relationships are expected between economic growth, domestic credit to private sector, gross domestic savings and trade. Besides, inflation is expected to have a negative relationship on the economic growth. In addition, real interest rate is expected to have both positive (return) and negative (cost) relationship on economic growth.

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3.4 ECONOMETRICAL METHODOLOGY

The following methods are used in analysing data which are (i) descriptive analysis, (ii) correlation analysis, (iii) diagnostic tests and (iv) panel regression analysis.

3.4.1 Descriptive Analysis

The minimum, maximum, mean and standard deviation value are used as a measurement to describe the variables and samples used in this study. Newbold, Carlson and Thorne (2012) indicate that descriptive analysis summarizes the characteristics of a given set of data which are used in the regression model.

3.4.2 Correlation Analysis

Correlation analysis is utilized to measure the linear relationship between two variables (Newbold et al, 2012). The coefficient range is between -1 to +1. Zero coefficients indicate that there is no relationship between the two variables.

3.4.3 Diagnostic Test

Diagnostic tests employed are multicollinearity test, heteroscedasticity test and auto-correlation test. In order to examine the existence of problems which could lead to the misspecification of the regression model, diagnostic tests are conducted.

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3.4.3.1 Multicollinearity Test

Multicollinearity test is conducted to check the occurrence of high correlation between the independent variables that may reduce the predictive power of the regression model. If the VIF is less than 10, muticollinearity problem does not occur in the regression model (Wooldridge & Jeffrey, 2015).

3.4.3.2 Heteroscedasticity Test

Heteroscedasticity problem occurs due to the existance of non-constant variance for the errors terms (Wooldridge & Jeffrey, 2015). In order to identify the existence of heteroscedasticity problem, Modified Wald Test is employed. The heteroscedasticity problem does not occur if the p-value is more than 0.05.

3.4.3.3 Auto-Correlation Test

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Auto-correlation problem is a condition of which the association between the values of the variable exists in the regression model (Wooldridge & Jeffrey, 2015). Therefore, to detect the problem of auto-correlation in the OLS model, Wooldridge test is conducted. P-value of more than 0.05 indicates that the auto-correlation does not exist in the regression model.

3.4.4 Panel Regression Analysis

In this study, panel OLS is employed to examine the relationship between dependent variable (economic growth) and the independent variables (domestic credit to private sector, gross domestic savings, inflation, real interest rate and trade). Stata Version 8 is used to regress the panel OLS.

The regression model for this study is presented as follows:

$$\mathbf{LNGDP_{it}} = \alpha + \beta_1 \mathrm{Inf}_{it} + \beta_2 \mathrm{RIR}_{it} + \beta_3 \mathrm{Trade}_{it} + \beta_4 \mathrm{DCPS}_{it} + \beta_5 \mathrm{GDS}_{it} + \varepsilon_t$$

Where,

$\mathbf{LNGDP_{it}}$ = Logarithm of gross domestic product per capita over the period of study for country i

$\mathbf{Inf_{it}}$ = Inflation rate which is determined by the annual growth rate of the GDP implicit deflator over the period of study for country i

$\mathbf{RIR_{it}}$ = Real interest rate over the period of study for country i

$\mathbf{Trade_{it}}$ = Trade consist of import and export over the period of the study for country i

$\mathbf{DCPS_{it}}$ = Gross domestic credit to private sector over the period of study for country i

$\mathbf{GDS_{it}}$ = Gross domestic savings over the period of study for country i

ε_{it} = Error Term

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3.5 CONCLUSION

This chapter discusses on the description of the data used in the study, research framework, variables selection and techniques employed in analysing the data. Besides, the sources of data collection for 47 of Asian countries are also included. In addition, the panel OLS and diagnostic tests are also being highlighted in this chapter.

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CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 INTRODUCTION

The findings of the study are presented in this chapter. The discussion on descriptive statistics is in Section 4.1. Section 4.2 explains the correlation analysis. Regression analysis is discussed in Section 4.3. In addition, Section 4.4 provides the results for diagnostic tests. Finally, Section 4.5 summarizes this chapter.

4.1 DESCRIPTIVE ANALYSIS

This section provides the discussion on the descriptive statistics for all variables used in this study. The summary of descriptive statistics consists of values for minimum, maximum, mean and standard deviation. Table 4.1 provides statistics for dependent variable (economic growth) and independent variables (domestic credit to private sector, gross domestic savings, inflation, real interest rate and trade) for 47 Asian countries from year 2000 to 2016.

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Table 4.1 Descriptive Statistics for year 2000-2016

	Obs	Minimum	Maximum	Mean	Standard Deviation
GDP (USD billion)	565	138.437	88564.820	10952.810	15860.460
Domestic credit to private sector (%)	565	1.267	253.574	57.879	49.840
Inflation (%)	565	-27.206	39.178	6.395	8.537
Real interest rate (%)	565	-19.927	53.543	5.588	8.918
Trade (%)	565	19.798	441.604	96.789	61.440
Gross domestic savings (%)	565	-102.428	75.550	24.251	23.640

According to Table 4.1, the statistics for economic growth are USD10,952.810 billion (mean), USD15,860.460 billion (standard deviation), USD138.437 billion (minimum) and USD88,564.820 billion (maximum). Moreover, the mean value for domestic credit to private sector variable is 57.879%, while the standard deviation is 49.840%. The inflation has the highest value of 39.178% whereas the lowest value is -27.206%. Furthermore, the real interest rate has the mean of 5.588% and the maximum value of 53.543%. Trade shows the values of 96.789% for mean and 61.440% for standard deviation. Finally, the last variable which is the gross domestic savings has the mean and standard deviation of 24.251% and 23.640% respectively.

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4.2 CORRELATION ANALYSIS

The Pearson correlation matrix is presented in Table 4.2. In measuring the linear relationship between the two variables, Pearson correlation is employed (Kallen, 2016). A correlation matrix is developed before the linear regression is conducted to establish the relationship between both dependent and independent variables.

Table 4.2 Pearson Correlation Matrix

	GDP per capita	Domestic credit to private sector	Inflation	Real interest rate	Trade	Gross domestic savings
GDP per capita	1.000000					
Domestic credit to private sector	0.416437	1.000000				
Inflation	-0.211135	-0.338516	1.000000			
Real interest rate	-0.152685	-0.147316	-0.711563	1.000000		
Trade	0.265480	0.219325	-0.075008	-0.043836	1.000000	
Gross domestic savings	0.497262	0.226197	-0.009748	-0.249171	0.157309	1.000000

*GDP per capita (in current US$) = [(GDP/ Total Population)]

Based on Table 4.2, inflation and real interest rate are negatively related towards GDP per capita (economic growth). From that, inflation and economic growth has the strongest negative association. In contrast, domestic credit to private sector, trade and gross domestic savings have positive relationships with economic growth. In addition,

gross domestic savings has the strongest positive relationship with economic growth followed by domestic credit to private sector and trade.

4.3 DIAGNOSTIC TEST

In order to check the presence of problems that could lead to misspecification of the regression model, diagnostic tests are being conducted. Diagnostic tests are consisted of multicollinearity test, autocorrelation test and heteroskedasticity test.

4.3.1 Multicollinearity Test

Multicollinearity problem exists when two or more variables are highly correlated. Variance Inflation Factor (VIF) is the most common technique employed to detect the multicollinearity problem. The range between 1 until 10 should be the optimum value for VIF of which it indicates no multicollinearity problem exists in the model.

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Table 4.3 Results for Multicollinearity Test

Variables	VIF
Domestic credit to private sector	1.77
Inflation	3.55
Real interest rate	3.37
Trade	1.06
Gross domestic savings	1.17
Mean VIF	2.18

Based on Table 4.3, there is no multicollinearity problems occur as the results reveal that all variables have the values of lower than 10.

4.3.2 Heteroskedasticity Test

In determining the presence of heteroskedasticity problem, Modified Wald Test is employed. There is no heteroskedasticity problem if the p-value exceeds 0.05 (Wooldridge & Jeffrey, 2015). The results presented in Table 4.4 are based on the Modified Wald Test.

Table 4.4 Results for Modified Wald Test

Chi-sq	Prob
1307.09	0.0000

The results show that the p-value is below than 0.05 levels. Therefore, heteroskedasticity problem exists in this model.

4.3.3 Auto-Correlation Test

Table 4.5 shows the Woolridge test results. In order to identify the autocorrelation problem, Woolridge test is conducted. The model is free from autocorrelation problem if the p-value is more than 0.05 levels.

Table 4.5 Results for Woolridge Test

Chi-sq	Prob
1124.35	0.0000

Based on Table 4.5, the result reveals that p-value is less than 0.05 levels. Thus, the autocorrelation problem presents in this model.

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The presences of heteroskedasticity and auto-correlation problems are identified through the analysis of Modified Wald Test and Woolridge Test. Therefore, a panel-corrected model is conducted in order to correct these problems.

4.4 REGRESSION ANALYSIS

Table 4.6 reveals the result for pooled OLS and corrected-panel OLS.

Table 4.6 Results for Pooled OLS and Corrected-Panel OLS

Variables	Pooled OLS (t-stat)/ (p-value)	Corrected-Panel OLS (t-stat)/ (p-value)
Domestic credit to private sector	0.0088109*** (7.83)/(0.000)	0.0088109*** (2.92)/(0.006)
Inflation	-0.0682821*** (-7.33)/(0.000)	-0.0682821*** (-3.42)/(0.002)
Real interest rate	-0.0550839*** (-6.34)/(0.000)	-0.0550839*** (-2.88)/(0.007)
Trade	0.0025665*** (3.62)/(0.000)	0.0025665 (1.40)/(0.171)
Gross domestic savings	0.0259104*** (13.42)/(0.000)	0.0259104*** (3.85)/(0.000)
Constant	7.607703*** (42.56)/(0.000)	7.607703*** (14.07)/(0.000)
R-squared	0.5779	0.5779
Adjusted R-squared	0.5741	NA
F-statistics	153.05	29.18
Prob (F-statistics)	0.0000	0.0000
N	565	565

Note: ***significant at 1% level, ** significant at 5% level. NA signifies that Stata do not provided the value. The dependent variable is economic growth which is measured using GDP per capita.

Based on the Table 4.6, only corrected-panel OLS findings will be discussed for this analysis. This is because, heteroscedasticity and auto-correlation problems have been corrected using this model. Hence, more robust findings are produced by this model. The adjusted R-squared presented is 0.5741 which indicates that 57.41% of the dependent variable (economic growth) is influenced by the independent variable (domestic credit to private sector, gross domestic savings, inflation, real interest rate and trade).

Furthermore, except for trade, all independent variables employed are significantly related with economic growth. The result reveals that inflation and real interest rate have a negative influence whereas domestic credit to private sector and gross domestic savings is positively related towards the economic growth. In addition, trade is not the factor that influencing the economic growth.

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4.4.1 Financial Development

4.4.1.1 Domestic Credit to Private Sector

Based on Table 4.6, the regression result shows that domestic credit to private sector has a positive and significant influence with GDP per capita. Since, higher GDP per capita signals higher economic growth, hence, the findings state that the domestic credit to private sector enhances the economic growth. This result is also in line with prior studies: (Adu et al, 2013; Durusu-Ciftci et al, 2017; Hassan et al, 2010; Mehrara & Ghamati, 2014; Samargandi et al, 2014). In emerging economies, domestic credit is recognized as the main indicator in determining the domestic private investment.

The higher the domestic credit, the higher the level of financial resources offered by bank and financial corporation to the private sector (Hasan and Barua, 2015). So, higher financing would allow the private sector to expand their business activities. Thus, this will have a positive influence on the economic development.

4.4.1.2 Gross Domestic Savings

The result indicates a positive and significant effect of gross domestic savings on economic growth. Therefore, higher level of gross domestic savings increases the economic growth. The result is also supported by previous literatures (Hasan & Barua, 2015; Hassan et al, 2011). This is due to the fact that, higher gross domestic savings would provide more financing and investment to the productive projects and finally to the growth in the economy (Sothan, 2014).

4.4.2 Macroeconomics Variables

4.4.2.1 Inflation

Table 4.6 shows a negative and significant influence of inflation on economic growth. Therefore, higher level of inflation discourages the economic development. This result is also consistent with previous studies that discover a negative relationship between inflation and economic growth: (Barro, 2013; Bittencourt, 2012; Fattahi et al, 2016; Lee & Wong, 2005). An increase in the price of goods and services signals that the country is experiencing inflationary period. Thus, the situation would lead to weakening in purchasing power of money and decrease consumption and

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finally the economic growth will be effected negatively (Barro, 2013; Bittencourt, 2012).

4.4.2.2 Real interest rate

Table 4.6 indicates a negative and significant relationship between real interest rate and economic growth. Hence, real interest rate is found to decrease the level of economic growth. The finding is in line and supported by the previous studies (Hansen & Seshadri, 2013; Liang & Jian-Zhou, 2006). Negative real interest rate signifies that inflation rate is more than the nominal interest rate. This condition shows that the investors are not being compensated with the appropriate level of return which could reduce the level of investment in the country (Mutinda, 2014). Thus, this situation discourages the business activities and therefore the economy growth dampens.

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4.4.2.3 Trade

According to Table 4.6, the result indicates that trade has a positive but insignificant relationship with economic growth. Thus, trade is not one of the factors influencing the level of economic growth. This result is consistent with the prior literatures (Tekin, 2012; Were, 2015). According to the previous studies, there are few reasons that could explain this finding such as lacking in structure of foreign trading and inefficient scale of export activities (Afzal & Hussain, 2010; Musila & Yiheyis, 2015).

4.5 CONCLUSION

In summary, this study reveals that financial development (domestic credit to private sector and gross domestic savings) increases the economic growth in 47 Asian countries). In addition, inflation and real interest rate are found to influence the economic growth negatively. Meanwhile, trade is not one of the determinants of the economic growth.

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CHAPTER FIVE

CONCLUSION AND POLICY IMPLICATION

5.0 INTRODUCTION

Financial development is an important element for an effective and efficient financial sector which assisted in encouraging the economic growth in ensuring the flows of capital are channeled towards the most productive use, minimizing market frictions and reducing transactions costs (Durusu-Ciftci et al, 2017). An effective and efficient capital allocation and risk diversification are also the advantages provided by a well-developed financial system.

Schumpeter (1911), Goldsmith (1969), McKinnon (1973) and Shaw (1973) agree that a well-functioning financial institution is essential in economic development in their seminal works more than decades ago. In the early studies by Goldsmith (1969), McKinnon (1973) and Shaw (1973), the positive effects of financial development on economic growth are proven.

Given the importance of financial development, inflation, real interest rate and trade as suggested by previous studies (Adu et al, 2013; Aric, 2014; Durusu-Ciftci et al, 2017; Hassan et al, 2010; Mehrara & Ghamati, 2014; Samargandi et al, 2014), this present study has developed two research objectives in investigating the

association between the variables in 47 Asian countries[2]. Hence, the first objective of this study is to examine the impact of financial development towards the economic growth while the second objective is to investigate the effects of macroeconomic variables (inflation, real interest rate and trade) on the economic growth.

This study employs the unbalanced panel data on 47 Asian countries which covers from year 2000 to 2016 in answering the research objectives. In addition, the descriptive analysis is conducted to describe the characteristic of variables employed in the regression model. The panel OLS is used to examine the relationship between financial development, macroeconomics variables (inflation, real interest rate and trade) and economic growth.

This chapter is organized in the following manners. Section 5.1 summarizes the findings. Section 5.2 provides the policy implications. Next, Section 5.3 presents the contribution of the study while the limitation and the area for future research are highlighted in Section 5.4. Lastly, conclusion for this chapter is discussed in Section 5.5.

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5.1 SUMMARY OF THE FINDINGS

The first objective of this study is to examine the impact of financial development on economic growth for 47 of Asian countries (Afghanistan, Bangladesh, Azerbaijan,

[2] Afghanistan, Bangladesh, Azerbaijan, Bahrain, Armenia, Cambodia, Brunei, Georgia, Bhutan, Cyprus, India, Israel, Japan, Indonesia, China, Korea, Laos, Kyrgyzstan, Jordan, Iraq, Kazakhstan, Lebanon, Kuwait, Mongolia, Malaysia, Iran, Myanmar, Russia, Qatar, Thailand, Maldives, Oman, Turkmenistan, Pakistan, Saudi Arabia, Sri Lanka, Timor-Leste, Uzbekistan, Philippines, Singapore, Tajikistan, United Arab Emirates, Yemen, Turkey, Syria, Nepal and Vietnam.

Bahrain, Armenia, Cambodia, Brunei, Georgia, Bhutan, Cyprus, India, Israel, Japan, Indonesia, China, Korea, Laos, Kyrgyzstan, Jordan, Iraq, Kazakhstan, Lebanon, Kuwait, Mongolia, Malaysia, Iran, Myanmar, Russia, Qatar, Thailand, Maldives, Oman, Turkmenistan, Pakistan, Saudi Arabia, Sri Lanka, Timor-Leste, Uzbekistan, Philippines, Singapore, Tajikistan, United Arab Emirates, Yemen, Turkey, Syria, Nepal and Vietnam) from 2000 to 2016. This study employed two indicators in measuring the financial development which are domestic credit to private sector and gross domestic savings. The findings show that the two proxies are positively related towards the economic growth. Hence, financial development enhances the economic growth of the 47 Asian countries. According to Stiglingh (2015), higher financial development leads to higher level of savings allocated for productive projects and finally the economy will grow.

Next, the second objective of this study is to investigate the impact of macroeconomic variables which consist of inflation, real interest rate and trade on the economic growth. The findings reveal that inflation and real interest rate have a negative influence on the economic growth while trade is not one of the determinants of the economic growth.

As a conclusion, this study summarizes that a well-developed financial system encourages the economic growth as a wider availability of the financial services are offered for the productive usage. In addition, inflation and real interest rate dampen the economic growth. On the other hand, trade is not influencing the economic growth as indicated by the insignificant relationship between the two variables.

5.2 POLICY IMPLICATIONS

This study has two policy implications. Firstly is on the importance of financial development to the economic growth. The policy maker need to properly developed and revised policies on the financial development in order to improve the financial structures and increasing the liquidity and depth of the financial markets and institutions.

Secondly, stabilization of macroeconomic should be in the main interest of the policy makers in order to gain confidence from the investors. Since inflation and real interest rate are found to influence the economic growth negatively, thus, the policy makers should address this issue by constructing and implementing appropriate policies on these two macroeconomics variables. These include controlling the level of inflation so that it will not harm the return provided to the investors.

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5.3 CONTRIBUTION OF STUDY

There are several contributions of this study. Firstly, this study will add into the current literature on the relationship between financial development, inflation, real interest rate, trade and economic growth. To be specific, this study will also add into the existing literature in this field for the Asian countries.

Secondly, the policy makers could benefit by addressing the factors that influencing the economic growth. As for this study, three factors are found to

influence the economic growth which are financial development, real interest rate and inflation. Thus, in order to develop the economy, these factors need to be address appropriately by the policy makers.

5.4 LIMITATIONS AND DIRECTIONS FOR FUTURE RESEACRH

There are several limitations of this study. Firstly, this study only employed OLS method. Therefore, the future study can utilize another method such as Bayesian Averaging of Classical Estimates (BACE) and Blundell and Bond's Generalised Method of Moments (GMM).

Secondly, this study only used two measurements of financial development which are domestic credit to private sector and gross domestic savings. Future study could also employed other financial development indicators such as measurements for financial depth, excess, efficiency, stability, number of bank branches, the number of Automatic Teller Machines (ATMs) and credits and debit cards usage.

Lastly, future research could also compare the impact of financial development and macroeconomic variables on economic growth by comparing between developed and developing countries.

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5.5 CONCLUSION

In summary, this study concludes that financial development stimulates the economic growth in 47 Asian countries between 2000 and 2016. Furthermore, inflation and real interest rate are found to have a negative relationship with the economic growth. Additionally, trade is not a factor that influencing the economic growth. Lastly, this chapter also highlights policy implication, contribution of the study and limitation of the future research.

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APPENDIX A

```
. (9 vars, 799 obs pasted into editor)

. tsset code year
       panel variable:  code, 1 to 47
        time variable:  year, 2000 to 2016

. regress lngdp   x1domesticcredittoprivatesectoro    x2inflationgdpdeflatorannual x3
> realinterestrate x4tradeofgdp x5grossdomesticsavingsofgdp


      Source |       SS       df       MS                    Number of obs =     565
-------------+------------------------------                 F(  5,   559) =  153.05
       Model |   768.890944     5   153.778189                Prob > F      =  0.0000
    Residual |   561.674584   559   1.00478459               R-squared     =  0.5779
-------------+------------------------------                 Adj R-squared =  0.5741
       Total |   1330.56553    564  2.35915874               Root MSE      =  1.0024


------------------------------------------------------------------------------
       Lngdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
x1domestic~o |   .0088109   .0011258     7.83   0.000     .0065996    .0110221
x2inflatio~1 |  -.0682821   .0093202    -7.33   0.000    -.0865889   -.0499753
x3realinte~e |  -.0550839   .0086863    -6.34   0.000    -.0721456   -.0380222
x4tradeofgdp |   .0025665   .0007088     3.62   0.000     .0011743    .0039587
x5grossdom~p |   .0259104   .0019306    13.42   0.000     .0221184    .0297024
       _cons |   7.607703   .1787372    42.56   0.000     7.256625    7.958782
------------------------------------------------------------------------------

. vif

    Variable |       VIF       1/VIF
-------------+----------------------
x2inflatio~1 |      3.55    0.281403
x3realinte~e |      3.37    0.296866
x1domestic~o |      1.77    0.565917
x5grossdom~p |      1.17    0.855355
x4tradeofgdp |      1.06    0.939476
-------------+----------------------
    Mean VIF |      2.18

. ssc install xttest3
checking xttest3 consistency and verifying not already installed...
all files already exist and are up-to-date.


. 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 (37)  =      1307.09


Prob>chi2 =       0.0000
```

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```
. xtserial lngdp x1domesticcredittoprivatesectorox2inflationgdpdeflatorannual    x
>   3realinterestrate    x4tradeofgdp      x5grossdomesticsavingsofgdp


Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation

    F(  1,       36) =    1124.350
           Prob > F =      0.0000

. regress lngdp x1domesticcredittoprivatesectoro  x2inflationgdpdeflatorannual      x3
> realinterestrate     x4tradeofgdp    x5grossdomesticsavingsofgdp, robust
cluster (code)

Regression with robust standard errors                Number of obs =     565
                                                      F(  5,    36) =   29.18
                                                      Prob > F      =  0.0000
                                                      R-squared     =  0.5779
Number of clusters (code) = 37                        Root MSE      =  1.0024

------------------------------------------------------------------------------
             |               Robust
      Lngdp  |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
x1domestic~o |   .0088109   .0030138     2.92   0.006     .0026987    .014923
x2inflatio~1 |  -.0682821   .0199891    -3.42   0.002    -.1088218   -.0277424
x3realinte~e |  -.0550839   .0191153    -2.88   0.007    -.0938515   -.0163164
x4tradeofgdp |   .0025665   .0018395     1.40   0.171    -.0011641    .0062971
x5grossdom~p |   .0259104   .0067283     3.85   0.000     .0122648     .039556
       _cons |   7.607703   .5407875    14.07   0.000     6.510936    8.704471
------------------------------------------------------------------------------
```

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APPENDIX B

Descriptive Statistics

	Obs	Minimum	Maximum	Mean	Standard Deviation
GDP (USD billion)	565	138.437	88564.820	10952.810	15860.460
Domestic credit to private sector (%)	565	1.267	253.574	57.879	49.840
Inflation (%)	565	-27.206	39.178	6.395	8.537
Real interest rate (%)	565	-19.927	53.543	5.588	8.918
Trade (%)	565	19.798	441.604	96.789	61.440
Gross domestic savings (%)	565	-102.428	75.550	24.251	23.640

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APPENDIX C

	Y= LNGDP	X1= DCPS	X2= Inf	X3= RIR	X4= Trade	X5= GDS
Y=LNGDP	1.000000					
X1=DCPS	0.416437	1.000000				
X2= Inf	-0.211135	-0.338516	1.000000			
X3= RIR	-0.152685	-0.147316	-0.711563	1.000000		
X4=Trade	0.265480	0.219325	-0.075008	-0.043836	1.000000	
X5=GDS	0.497262	0.226197	-0.009748	-0.249171	0.157309	1.000000