INTRUDING THE FORBIDDEN SEA OF MONEY LAUNDERING

KENDRA CHEN JING WEN

PENG LI TING

TAN TECK LIM

TOH WAN JIN

WONG MEI QUAN

BACHELOR OF FINANCE (HONS)

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE

DEPARTMENT OF FINANCE

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DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

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Name of Student:	Student ID:	Signature:
1. KENDRA CHEN JING WEN	14ABB05335	_____
2. PENG LI TING	13ABB06746	_____
3. TAN TECK LIM	14ABB03081	_____
4. TOH WAN JIN	14ABB03505	_____
5. WONG MEI QUAN	14ABB04757	_____

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LIST OF ABBREVIATIONS

LNIFF Illicit Financial Flows

LRI Lerner Index

SMC Stock Market Capitalisation

RIF Remittance Inflows

FNF Financial Freedom

INF Investment Freedom

COR Corruption

POS Political Stability

ROL Rule of Law

GOE Government Effectiveness

TAB Trade Barriers

MYS Money Supply

GDP Gross Domestic Product

CPI Consumer Price Index

FATF Financial Action Task Force

AML Anti-Money Laundering

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ABSTRACT

The negative effects of money laundering on economy could not be measured and put into numbers. However, it is clear that money laundering hurts and damages not only the financial institutions of a country, but also country's productivity in its various economic factors, such as real sector, international trade sector and capital flows. Moreover, developing countries are hurt more by such activities than developed countries, because the originality of economic growth in developing countries moving at a slower pace would go into a worsen direction. Undeniably, it is very important to investigate and examine on the factors that contributing to the increased volume of money laundering within developing countries. Hence, this paper explores the factors that drive money laundering in 19 developing countries from the year 2004 to 2013. Firstly, this paper focuses on investigating the impact of money laundering in developing countries. In this paper, we will compare and contrast the differences on how factors will impact money laundering in ASEAN, BRICS, and other developing countries respectively. Afterwards, this paper looks into detailed on each of the six chosen big categories: Financial market development, Liberalisation, Political Factors, Governance, Government Policy, and Macroeconomic Factors. Lastly, we test on the significance between factors that impact money laundering in developing countries. As a result high level of bank competition, high financial freedom, low investment freedom, weak government effectiveness, high money supply, high GDP rate and high inflation rate are likely to promote money laundering in developing countries. Lastly, the results of our findings show that the level of money laundering in different country regions, ASEAN, BRICS, and other developing countries is drove by different factors.

CHAPTER 1: INTRODUCTION

1.0 Introduction

The Research Background is discussed in this chapter describing Money Laundering, its history, its process and stages, its current phenomena as well as our concerns to this research which could develop a better understanding of Money laundering to have a better quality of research for future researchers. It then proceeds to the problem statement which is the motive for this research. General and Specific objectives are then formed as our guidelines to archive this research aims while the significance of study will describe the importance. This chapter is divided into few parts in the order of research background, problem statements, objective and question of the study, the significance of the study, chapter layout and then following by the summary of the chapter.

1.1 Research Background

1.1.1 History of Money Laundering

The originality of the term of "Money Laundering" is actually from the United States and it came during America's prohibition era from the activities of gangsters. According to Robinson (1998), the term of "Money Laundering" is referring to the so-called illegal, dirty money that has been washed off through a cycle of transactions and eventually turns out to be legal or clean money at the end of the process. On the other hand, the source of funds is obtained illegally so that those same funds can eventually be made to appear as

legitimate income. Money launderers accumulate the enormous profits obtained from the illegal activities such as international frauds, drug trafficking, insider dealer and any others illegal or underground activities and the funds which are illegally obtained are also called as illicit funds (Kar & Freitas, 2011). There are some studies which mentioned that money laundering is also known as a predicate offence because money laundering is dependent on another crime, it is not an independent crime in itself.

Money laundering is a vital part in the illegal activities of a drug trafficker, criminal, insider dealer, and the numerous people who need to conceal their illegal exercises and their sources of income from the authorities. According to the Crime and Misconduct Commission (2005), criminals would like to put the returns of "laundering" process past the compass of any asset forfeiture laws. Furthermore, as mentioned by Mei, Ye and Gao (2014), there is an independent inter-governmental body which is founded by G-7 summit in Paris in 1989 which called as Financial Action Task Force (FATF). The objective of establishing Financial Action Task Force (FATF) is to protect the global financial system by resisting the issue of money laundering by enforcing policies. The international standards have been created and accepted in numerous nations' national policy framework under the direction of Financial Action Task Force (FATF, 2004).

As mentioned by Muriithi (2013), money launderers have incredibly expanded their operations over the financial services sectors as well as the non-financial services sectors. In the study by Schneider and Windischbauer (2008), there is an estimation that claimed that two to five percent of the world's GDP is obtained from illegal sources. The illicit funds can damage the country's financial sector and the economy, especially in developing countries. Measuring the impact of money laundering is very difficult since it happens within the shadows and it said to be a victimless crime in appearance.

Therefore, "Anti-Money Laundering (AML)" is an activity with the aims to combat and manage the global issue of money laundering and the prevention of money laundering (Yeandle, 2005).

According to Akyay (2001), there are several aftermaths of money laundering especially in the maintenance of law and order, and it is hurtful to the integrity, reliability as well as the stability of government, economic and financial sectors. As a result of the development of technology, the liberalisation of financial sectors such as financial freedom as well as globalisation leads to the threat of money laundering.

1.1.2 How Launderers "Wash-off" the Illicit Funds in the Three Stages of Money Laundering?

A multiplex series of transactions ordinarily cannot be done alone in money laundering process. Thus, the phases of money laundering process generally can be categorised into three phases such as Placement, Layering and Integration. According to Molander, Mussington and Wilson (1998), the meaning of the terms of the phases of the money laundering process, Placement, Layering and Integration are used by the enforcement of law and order to portray the phases through which criminal proceeds are laundered. Three phases of money laundering as follows:

I. First Stage: Placement

In the money laundering process, placement is the first stage. It refers to the physical disposal of a massive amount of cash to another monetary form which will be easier to manage when the money flows into financial system

(Zeldin, 1998). The illicit money in the placement stage is the least difficult to detect.

II. Second Stage: Layering

Layering is the second stage of money laundering process. Layering refers to the movement embraced by the launderers to remove the money from their unlawful or illicit sources to acquire the money. This is in connection with a progression of complex transformations or movements of the funds to conceal the audit trails and the ownership of money (Zeldin, 1998).

III. Third stages: Integration

Integration is the final step in the three phases of money laundering process. It alludes to supply the apparent authenticity to illegal wealth through the re-entry of the money into the economy in what gives off an impression of being ordinary business or as personal exchanges. In the end, the illicit fund will show up as lawfully obtained or earned financial income (Force, 1999). In this stage, the funds are most strenuous to spot unlike in the first stage of money laundering process. It can be almost impossible unless there are some inconsistencies between a person's or organisation's legal employment, business or investment ventures and a person's wealth or an organisation's pay or resources (Shanmugam, Nair & Suganthi 2003).

Figure 1.1 Summary of the three stages of money laundering:

Funds obtained by illegal
activities – illicit funds

- ❖ Drug trafficking
- ❖ Insider dealer
- ❖ Tax crimes
- ❖ Frauds
- ❖ Theft

First stage: Placement

Disposal of Bulk Cash

- ❖ Smuggling Bulk Currency
- ❖ Mix illicit proceeds with legitimate deposits
- ❖ Deposit amount in small denomination

Low risk transfer

High risk transfer

Third stage: Integration

Create an apparent legal
origin to purchase assets:

- ❖ Money assets (bond or stock)
- ❖ Fixed assets (land, jewellery)
- ❖ Businesses

Second stage: Layering

Disguise Origin of Initial
Deposit Through:

- ❖ Multiple Transfers
- ❖ Multiple Transactions

Source: Hong Kong Monetary Authority (http://www.hkma.gov.hk/eng/key-information/guidelines-and-circulars/guidelines/20001222.shtml)

On the other hand, the studies of Van Duyne, Groenhuijsen and Schudelaro (2005) said that not all money laundering transactions must include each of the three particular stages of money laundering process, some may without a doubt include in more advanced or more complicated steps. In any case, the three-stage classification is an exceptionally helpful decomposition of what can in some cases is an unpredictable or complicated process of the money laundering.

According to Kar and Spanjers (2014), illicit financial flows are illicit developments of money or capital starting with one country then onto the next. Global Financial Integrity (GFI) said such flows are unlawful if the funds crossing borders are illegitimate earned, exchanged and used, if the flow infringes upon a law anytime, it is considered illicit or illegal. It also additionally mentioned that the vast majority of the developing countries they have their distinct type of capital controls even there is a degree of such controls changed in intensity. Along these lines, the funds are under the movement of capital which has been recorded and in full consistency of local laws and foreign exchange barriers. For example, the capital export is not cover in the illicit flows.

1.1.3 What Are the Channels of Money Laundering?

Money laundering regularly includes in the international exchanges which likewise might confine to the local financial community in the developing countries. A striking component of money laundering is the number of various ways or strategies used to complete the process. In the three phases of money laundering process, placement, layering and integration, there are some of the major channels that are only involved in one out of the three money laundering stages.

I. Electronic payment system

According to the Schneider and Windischbauer (2008), the advancement and the innovation of technology especially the payment services through electronic payment system is one of the channels of the money laundering process. The new payment instruments enable the launderers to do

transactions with no law and lawful restriction by the controls of government. For instance, the new payment instruments are web-based internet banking, online banking and electronic purse. Money launderers utilise legitimised accounts to transfer the illicit funds in and out by using online banking. Not only that, numerous studies demonstrated that the essential reasons behind the increased usage of electronic payment are because of its adaptability and comfort. Nevertheless, the critical reasons for those who deny using the electronic payment system are to prevent the money launderers to utilise such systems to take advantage of themselves (Krzysztof, 2006).

III. Casinos

As indicated by Richards (1998), it is a useful and powerful method to "wash off" the "dirty money" through casinos because of the high volume of its business, and every transaction is in cash. For instance, there was a declaration amid the 1985 Senate Hearings that in the 1970s a composed crime figure entered an Atlantic City casino with nearly $1.2million in the little bills. All of that, The casino's chips are purchased with cash, and after that, the customers of the casino will trade in the chips to money back regardless whether gambling may or may not take place during the time. Thus, the casino is one of the perfect places for money launderers to "wash off" the funds obtained illegally end up transform to a legal income (Schneider & Windischbauer, 2008).

IV. Cash Smuggling

Cash smuggling is considered as the oldest strategies in the first stage of money laundering, placement. It is usually the smuggling of currency. As

mentioned by Farah (2010), the cash is transfer in huge amount in bulk to another states or countries by hiding it in the cargo, for example, hidden it in luggage, TV sets or antiperspirant jars and now there is numerous new ways that money launderers think off shroud the unlawful subsidizes in the freight. Despite the fact that there is illicitly to moved out more than $10,000 from the US without any record of International Transportation of Currency or Other Monetary Instruments (CMIR).

V. Insurance Policies

Most of the insurance policies that are sold through intermediaries have no direct contact with the beneficiary causing the insurance policies to be one of the channels in money laundering process. Launderers or their clients buy insurance by paying the premium in single amount rather than portions, they would rather pay in a lump sum and after that reclaim them at a rebate or a discount, paying the required charges and penalties and receiving the payment in cheque form from the insurance agency.

Zeldin (1998) mentioned that there are still many others channels or mechanisms in money laundering. For example, launderers buy a legal business; invest in bond and stock markets; purchase and sell real estate cash trade authorities and so on.

1.1.4 Are There Any Hidden Benefits of Money Laundering in Developing Countries?

Evidence from the study of Aluko and Bagheri (2012) proved that the money laundering adversely affects the economic and socio-political conditions of a nation. However, there are critics that debate that money laundering leads to short-term economic benefits to the developing countries. The International Monetary Fund suggested that the extensive scale of money launderers for a short time is advantageous for developing countries since it will result in rapid growth in financial activities. In this unique circumstance, money laundering funds flow from the developed countries to the developing countries. Hence, there will be cash inflows into developing countries. At the end of the day, money transfers can be a valuable channel for investment in developing countries.

However, it is without a doubt that the negative impacts of money laundering far exceed the advantage obtained from the money laundering process. In reality, these so-called "hidden benefits" are only applicable in the short run and are accompanied with long-term devastating effect. A sharp decrease will occur after a short period of rapid movement in the financial uprising and wealth creation. This scenario will disrupt the balance of the macroeconomics condition of a country (Aluko & Bagheri, 2012).

1.1.5 How Does Money Laundering Able to Grab The Attention from Researchers or Economists?

Figure 1.2 Estimates of Illicit Financial Outflows, 2005-2013 (Millions of US dollars)

Source: Global Financial Integrity

Recently, the studies of underground economy as in money laundering in either developed or developing countries are starting to bring more and more attention towards the economists and the researchers. According to Parashar (2012), the phenomena of money laundering is recognised as a wide-ranging problem practised by different parties involving the individuals, the businesses as well as the governments and officials all around the world. Money launderers would need to perform multi-specialized deals in their money laundering process to transform the illegal funds into legal funds. This way, money launderers could disguise the illicit funds and these illicit funds can be used as ordinary funds in our life with the source of legal business operations (Agarawal & Agarawal, 2008). The phenomena of money laundering in a

country are damaging the country's economy because the funds involved in the process of money laundering is a consequence of illegitimate or unlawful activities, the crimes, which could harm the country.

Based on the studies, Mackrell (1996) argued that money laundering is the procedure that makes the crime advantageous. It has its capacity to give authenticity and respectability to people, who do not genuinely have these characteristics all the time. It is unfair, and it unreasonably transfers the economic power from law-abiding taxpayers to criminals. Other than that, Quickstad (1996) mentioned that the form of the money could change as quickly as water swings to ice. It can likewise be changed over to assets or real estate, moved abroad, washed off.

In reality, the main reasons for crimes that originated from the intention of money due to the phenomena of the discrimination in the society which relies on economic power or monetary influence. Money has slowly transformed into a symbol of power in the modern age. The impact of money has entered each part of human life. The present money laundering approaches and methodology or stages have been structure as being wide based and far-reaching. However, despite everything it couldn't address the problems of money laundering legitimately yet (Bassiouni & Gualtieri, 1997). According to Blum, Levi, Naylor and William (1998), it is sadly to say that it is difficult to instil an understanding in the general population mind outside law enforcement that money laundering has vast impacts which damage the world.

According to Kar and Spanjers (2014), understanding the factors of illicit financial funds flows is very imperative because of the policies that are taken or reserve such outflows must be able to address the variables that drive them. Thus, it is crucial to identify the reaction in different developing countries' region towards money laundering. It is also vital to identify the types of

problems that emerge while countering money laundering, starting with the phases of money laundering cycle, channels, effects as well as its complexities.

1.1.6 What Are the Aims or Concerns of the Research?

Given that our research paper is primarily concerned with estimating factors generating the overall volume of illicit financial funds flows from the selected 19 developing countries from the year 2004 to 2013. The developing nations can be differentiated into three groups which are BRICS, ASEAN and other developing countries. We aim to study the relationship of the six pillars of variables and the phenomenon of money laundering. The six pillars are namely Financial Market Developments, Liberalisation, Political factors, Governance, Government policy and Macroeconomics condition.

1.2 Problem Statements

Money laundering can be said as to a great extent undercover phenomenon in the country. There is an unknown number for the exact number of launders that "wash off" their money consistently in a yearly basis, how much money they launder in which nations and areas, and which money laundering procedures or techniques they utilise in the money laundering process. John Walker was the first person that investigated and measured the level money laundering and its initial output. In his studies, his model proposes that there is around $2.85 trillion of illegitimate funds that are "washed off" all around the world (Parashar, 2012).

Based on the past research, researchers intend to classify factors in developing countries that have a significant effect on money laundering, while the factors can be in internal or external factors of the country. In order to investigate the factors

influencing the money laundering across 19 developing countries from the year 2004 to 2013, we also identify the significance of the results towards three different group into BRICS, ASEAN as well as other developing countries to study the relationship of money laundering and financial market developments, liberalisation, political, governance, government policy and macroeconomic factors.

Figure 1.3 Illicit Financial Outflows, All Developing Countries, 2004-2013 (in billions of nominal U.S. dollars)
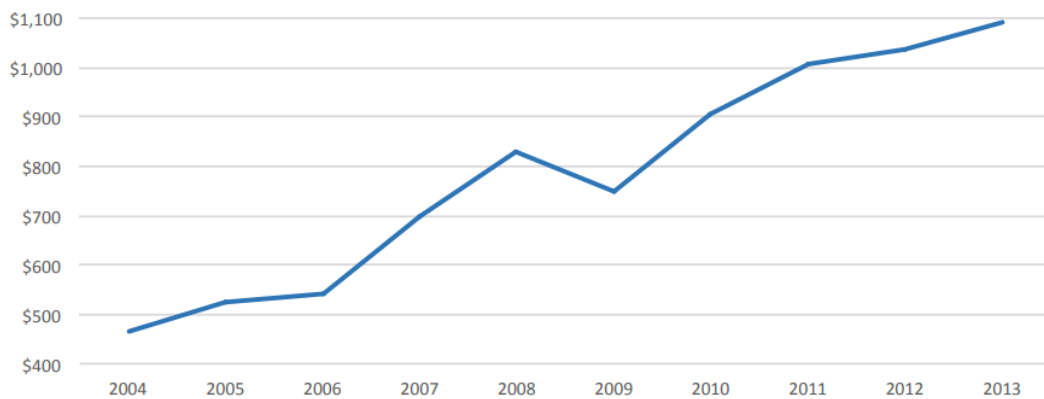
Source: Global Financial Integrity

Figure 1.4 Components of Nominal Illicit Financial Flows & Illicit Financial Flows to GDP by Region, 2004-2013
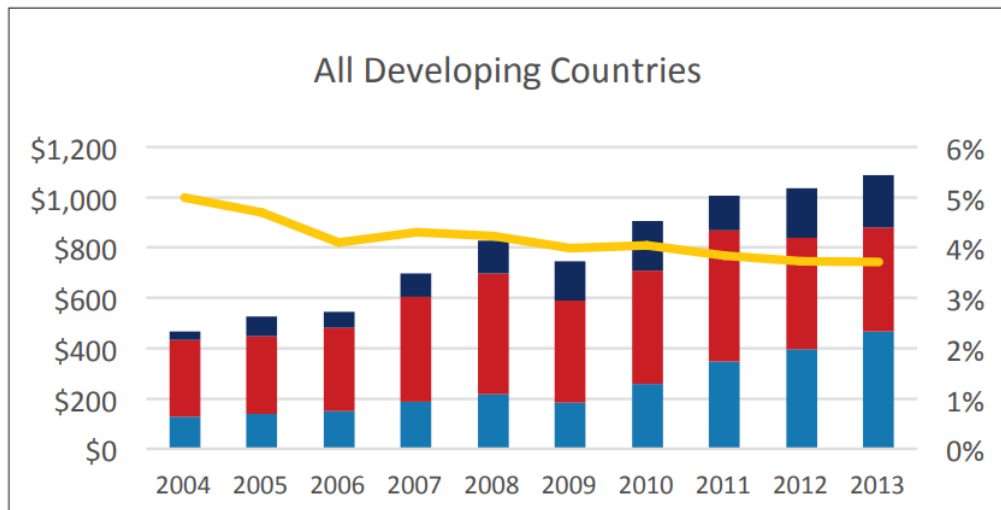
Source: Global Financial Integrity

As mentioned by Parashar (2012), the impacts of money laundering influence the establishments in the developing countries. The problem of money laundering arises during the instability of the financial market. Financial market developments of a nation can be identified by using several indices, we study the indices of Lerner index, stock market capitalisation and remittance inflows that contributed to the development of financial markets which could affect the level of money laundering. As mentioned by the authors, Beck, Demirgue-Kunt and Levine (2006), market power and bank competitiveness could improve the financial stability. Money launderers will tend to invest their funds in countries with a secure financial market.

Besides that, the degree of liberalisation of a country is crucial to control the number of money laundering. There are several indicators of liberalisation proposed by World Bank, European Bank for Reconstruction and Development (EBRD) and the Heritage Foundation such as financial freedom and investment freedom (National Research Council, 1998). The indexes indicate the lifts on individual activities' restrictions which may affect the money laundering. High financial freedom could develop an unregulated framework which will result in an increase in the money laundering level in a country whereas a high degree of investment freedom may impede the occurrence of money laundering activities.

On the other hand, in the study of National Research Council (1998), the researchers mentioned that the underground economy appeared to grow when there is a weak political structure such as high corruption rate and political instability. In the studies of Dreher and Schneider (2010), the authors stated that high corruption rate could increase the size of the underground sector. The problem will arise when a country has weak governance as well. Numerous studies mentioned that weak governance would reduce the credibility of the institutional regime and will subsequently lead to the increase in money laundering. The enforcement of government in the rule of laws and government effectiveness will help to strengthen the governance of a nation. The government policy is slightly different with the governance of a country as it refers to

the economic policies that are implemented by the government. When the government policies are not implemented well in the country, the regular economy of a country will deteriorate, thus facilitating the growth of underground economy. Money laundering activities arise when the underground economy is performing better than the regular economy.

The study of the relationship of economic growth and the underground activities cannot be ignored since there is a direct relationship between a nation's macroeconomic conditions and the level of underground activities (Masciandaro, 2017). Macroeconomic indicators such as GDP and CPI could reflect the number of underground activities in money laundering. If a country is experiencing an economy boom, the cost of living will be higher, facilitating the level of underground activities.

The aftermath of money laundering includes the losses to victims and society due to the impact of money laundering related crimes, distortion on consumption, reserve funds (savings). Money laundering will also impose a vast impact on a country's output such as the country's GDP and employment rate as well. In this sense, it leaves a question whereby we are curious about how financial market developments, liberalisation, political factors, governance, government policy and macroeconomics factors in developing countries will stimulate the money laundering level in developing countries. Lastly, these problem statements have motivated us to intrude the forbidden sea of money laundering and contribute to this existing gap of the research.

1.3 Research Objectives

1.3.1 General Objectives

The primary purpose of this study is to examine and understand the factors that contribute to the pervasiveness of money laundering among the developing countries. In this study, we will also review the results among ASEAN, BRICS and other developing countries respectively to show the significance of those factors towards the different group of nations.

### 1.3.2 Specific Objectives

i.   To investigate the factors influencing the money laundering across 19 developing countries from the year 2004 to 2013.

ii. To identify the significance of the results towards three different group of countries: developing, BRICS and ASEAN countries.

iii. To recognise the proxies under financial market developments, liberalisation, political factors, governance, government policy and macroeconomics factors that contributed to money laundering.

1.4 Research Questions

i.   What are the factors that influence the level of money laundering across 19 developing countries from year 2004 to 2013?

ii. Which has the most significant results among ASEAN, BRICS and other developing countries?

iii. What are the proxies under financial market developments, liberalisation, political factors, governance, government policy and macroeconomics factors that contributed to money laundering?

1.5 Significance of the Study

Money laundering is recognised as an illegal act that constituted a significant economy inefficient to all the countries. The level of money laundering is increasing from years to years among the developing countries. The International Monetary Fund has estimated the aggregate volume of money laundering at about US$1.5 trillion in the world, which is between two to five percent of the world's gross domestic product (Asian Development Bank, 2003). Although the issue of money laundering is getting dangerous, the numbers of empirical studies on factors that contribute to the money laundering is somewhat scarce. So, we decided to conduct a study on the factors that will affect money laundering on 19 selected developing countries for the sample period of the year 2004 to 2013 by using panel data analysis.

We will separate our factors into six pillars as following: financial market developments, liberalisation, political factors, governance, government policy and macroeconomic factors. Firstly, financial market developments consist of Lerner index, stock market capitalisation and remittance inflows. Besides, the second pillar which is liberalisation is made up by the financial freedom and investment freedom. Also, political factor is the third pillar and we study the political factors such as corruption and political stability with money laundering. Furthermore, governance is also one of our pillars in this research paper, governance reviews on the impacts on the rule of law and government effectiveness. Government policy shows how trade barriers and money supply can affect the money laundering. Lastly, macroeconomic factor includes gross domestic product (GDP) and consumer price index (CPI) of the selected countries. Other than discussing and interpreting the results for the selected

19 countries, we will compare the results in three regional models, which are ASEAN, BRICS and other developing countries. For instance, we will separate the results by countries in Chapter 4. Through this, we can have more precise comparison in an overall view.

This research is essential to identify the factors that affect money laundering which can depress the economic growth. Money laundering will increase the threat of monetary instability that leads to volatility of international capital flows, interest and exchange rates. At the end of our research, we will suggest ways to combat money laundering if our results are proven significant towards the factors.

1.6 Chapter Layout

Our paper comprises of five chapters as below:

Chapter 1: Introduction

This chapter covers the overview of our research, including the research background, problem statement, research objectives, research questions and significance of the study. It gives a rough idea of what is the main content of our research.

Chapter 2: Literature Review

This chapter highlighted the comprehensive reviews of the previous study conducted by other researches on this topic. It will show the previous researchers' finding between the relationship of the dependent variable and independent variables.

Chapter 3: Methodology

This chapter explains the theoretical framework and research design used in our research. It also covers the data description and econometric model. We will discuss the method of collecting data, types of data, sources of data and method of data analysis.

Chapter 4: Data Analysis

This chapter analyses and interprets the empirical results using the data collected in the previous chapter 3.

Chapter 5: Conclusion

This chapter files the summary of our findings according to chapter 4. The limitations of the study will be discussed in this chapter. We will also propose the policy implications and recommendations on this topic using the result of the analysis.

1.7 Chapter Summary

In Chapter 1, we started with the overview of our research with an explanation of the term of money laundering. Next, we introduced the background of our research topic, explaining the three crucial stages of money laundering: placement, layering and integration. Then, we discussed the problem statements of our topic. We found out that the empirical results of the past studies are somewhat scarce and money laundering is a serious issue that had great influence the country's economic growth. These problem statements lead to our research objectives where we want to examine

and understand the factors contributing to the pervasiveness of money laundering. Our study focuses on reviewing the results of 19 selected countries with the sample size of 10 years period. We separated our factors into six pillars, which are financial market development, liberalisation, political factors, governance, government policy and macroeconomic factors. Furthermore, we will also discuss further our results among all, ASEAN, BRICS and other developing countries to see the differences of the factors in influencing money laundering. Before summarising chapter 1, we outlined the chapter layout for the whole study of our research.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

In this chapter, we will be providing a comprehensive review of the previous studies that are relevant to our study topic which is the determinants of money laundering. This chapter will offer us insights in creating an appropriate theoretical model or framework to enhance the credibility and reliability of our research topic. Firstly, we would review the impacts of money laundering on ASEAN, BRICS and other developing countries respectively. Next, we would classify our reviews into six segments according to the intrinsic nature of our independent variables used. The six segments in this chapter included reviews of previous research about financial market development, liberalisation, political factors, governance, government policy and macroeconomic factors on money laundering activities. This chapter aims to provide an in-depth grasp of money laundering, and it fundamentally analyses the information assembled by recognising the literature gap in the current studies of money laundering. We would look further into each of the segments and review those proxies under them. By reviewing previous works of literature on money laundering, our group will be able to identify the limitation of our study by evaluating the constraints and gap in the past research. Hence, it will help us in rectifying any errors or limitations more efficiently throughout our entire research project.

2.1 Relationship between ASEAN, BRICS and Other developing countries and Money Laundering

2.1.1 ASEAN

In the study of Nguyen (2012), money laundering usually occurred in countries and regions that lack expertise, resources, capacity and legal framework. It is because they are not competent to combat money laundering. ASEAN countries are considered as the top destinations for money launderers as the association is made up from countries with diverse geographical, economic, cultural, political and legal background that established some unique factors in favour of money laundering development (Croissant & Barlow, 2007). A multiple of transnational crimes, such as illicit drug trafficking, trafficking in persons, smuggling and small arms trade has generated large illicit funds which laundered into ASEAN countries (Pushpanathan, 1999). These money laundering activities had constituted a significant threat to the economic stability among all countries. Vietnam and Myanmar wish to undergo new economy reform by welcoming foreign investment to push up its economic status. However, it opens a gate for money launderers to invest their illegal funds into this friendly attractive business environment and destinations of foreign investment (He, 2010). Besides that, some ASEAN countries are recognised as the world top recipients of remittances. For example, Philippines and Vietnam were ranked on the board among developing countries with $21.3 billion and $7.2 billion respectively in 2010 (World Bank, 2011). According to Carroll (2005), these countries used the excellent underground remittance system to undergo money laundering. This factor has contributed significantly to money laundering in the ASEAN region. The ASEAN member states have tried their best by implementing their legal frameworks concerning Anti Money Laundering (AML) policy.

However, many of them cannot adopt entirely following the international standards due to lack of human and financial resources such as the scarcity of qualified personnel and cohesive structures in AML. Moreover, the adoption of AML policies among several developing countries is said to be more coercive-based rather than voluntary because of the strong demand from developed countries (Sharman, 2008). This showed that developing countries are adopting the AML policies instead of enforcing the AML policies which known as the phenomena of selective adoption (Tang & Ai, 2010). Despite the enormous commitment to combat money laundering, there is still a significant gap between political will and the practice of regional cooperation as both practices are still very limited in the ASEAN region. Of all the ASEAN regions, only Singapore, Philippines, Thailand, Malaysia and Indonesia have a few prosecutions and convictions of money laundering offences (Brownfield, 2012). The Financial Action Task Force (FATF) has black-listed 17 countries for highly money laundering (FATF, 2012). Among the ASEAN countries, Indonesia, Myanmar and Thailand were black-listed.

2.1.2 BRICS

BRICS is an acronym for Brazil, Russia, India, China, and South Africa. They are known as the fastest growing market economies from the emerging economies. The foreign investors of BRICS group receive many benefits which are concerning cheap labour force. Some researchers concluded saying that foreign direct investment has a positive towards the emerging economies. Cheap labour in China, India's young population, the natural resources in Russia and Brazil attracts the increasing amount of foreign direct investment in economies of BRICS (Nistor, 2015).

According to the researcher, Du, Li and Wang (2016), China has been expanding their money laundering in the banking system in recent years. They took the third place in 2014 and fifth place in 2012. This makes the country's GDP to increase nearly twice that credit. The significant sources of money laundering are from agencies of asset management, entrusted loans, and lenders and loans. Based on the researchers, the financial development in the economies is a trail behind the goal of inclusive finance.

Based on the study of Acharya, Khandwala and Sabri Öncü (2013), money laundering has existed since 1947 in India. The researchers stated that money laundering may create a potential systematic risk in which they figure out the expected losses that cause the risk. This leads to reducing the availability of credit which affects the real economy in the country. Money laundering is highly levered where their assets are riskier and illiquid compared to the normal ones. Out of the five nations of BRICS, China has the highest amount on participating in money laundering. Therefore, China has implemented the anti-money laundering and fight against the financing of terrorism system in the year 2007. They control the activities in the banking system, securities, insurance and non-banking payment institution.

Recently, BRICS grouping has agreed to intensify the collaboration to fight against the money laundering. They have decided to strengthen the financial regulations to reduce any illegal activities and to boost the integration of financial markets among the BRICS countries. The coordination will include the currency swaps, direct investment and settlement in local currency and tax cooperation. The BRICS Contingent Reserve Arrangement will be improved to protect the liquidity pressures.

2.1.3 Other Developing Countries

In this part, we will review and include the study on our selected countries other than ASEAN and BRICS. Those countries included Azerbaijan, Oman, Sri Lanka, Turkey, Mexico, Nigeria, Qatar and Kazakhstan. It is proven in many studies that the lax and informal economic environment of the developing countries causes the developing countries to be more exposed to money laundering compare to the developed countries.

According to Aluko (2011), money laundering had given impacts in the economic and financial stability of Nigeria. During the mid-1980s to 1999, there is an estimated amount of $100 billion was corruptly exported from Nigeria through its financial system. This contributed to a negative impact towards the economic and financial system. Most of the foreign investors were not willing to extend their commercial ventures to Nigeria. Moreover, the financial institutions were overwhelming with the illicit fund that flows from corrupt political office holders. This resulted in the instability of financial system and not investment-friendly in Nigeria. Money laundering harms financial institution that played an essential role in the economic growth. It limits the productivity of the economy by deflecting resources and encouraging financial crime.

Mexico experienced a vast increase in the volume of drug trafficking over the past few decades. It is also an important transit point as the route of drug trafficking along the years (Brouwer, Case, Ramos, Magis-Rodriguez, Bucardo, Patterson, & Strathdee, 2006). For instance, over two-thirds of cocaine originated from South American enters into the United States through Mexico. When there is a high volume of drug trafficking, there will be a high chance of money laundering (United Nations Office on Drugs and Crime, n.d.). It is because criminals surely need to transform the proceeds of drug

trafficking into money with an apparently legal source, and this is known as money laundering (Ehlers, 1998). Moreover, drug trafficking frequently happened within borders and countries. This had given the advantage to the criminals by using the globalisation of the world to transfer the illicit funds easier and quicker across international borders.

According to Financial Action Task Force, Turkey is on the grey list for money laundering. The Turkish Financial Crimes Investigation Board reported that the illegal proceeds involved in money laundering were more than $1.7 billion between 1997 and 2006 (FATF, 2007). Also, the average size of the shadow economy of Turkey in 2002 is 32.1 percent, which is over the limit of 18 percent set by OECD (Schneider, 2002). In the study of Turksen, Misirlioglu and Yukselturk (2011), money laundering has become a common problem in Turkey. It is because of the weak financial laws and incapability in combating money laundering in Turkey. Moreover, the political landscape of Turkey is still being dominated by commercial crimes due to the presences of the graft scandal and corruption charges towards Turkey's prime minister.

2.2 Relationship between Financial Market Developments and Money Laundering

We would first investigate the relationship between financial market developments and money laundering. We would review on the Lerner index, stock market capitalisation and remittance inflows in the financial industry. According to Beck, Demirgue-Kunt and Levine (2006), the increase in Lerner index which measures the market power or bank competitiveness improve the financial stability. Next, the stock market is commonly used as a conduit for money laundering as money launderers can go into the market without using the real identity. Lastly, remittance inflows that are

not controlled or bound by any authorities had vastly increased the volume of money laundering.

2.2.1 Lerner Index

Lerner index is the measurement of market power in the banking industry based on the assumption that the bank's profitability can reflect market power. Higher profits contributed by the banks or high values of Lerner index are an indication of a lower level of bank competition. It is proven that higher level of competition in loan market will lead to higher bank profitability as the high level of competition may lead to the business boom in the economy. Besides, high level of competition tends to provide lower default risks (Berger, Klapper & Turk-Ariss, 2008). When there are lower default risks in the market, the number of undergoing money laundering will also decrease. It is because of the financial stability that can prevent people involving in money laundering.

According to Beck, Demirgue-Kunt and Levine (2006), the increase in bank competitiveness improves the financial stability. The author conducted a test and measured the degree of market power in the loan market using Lerner index based on bank-specific interest rates and found a negative relationship between loan market power and portfolio risks. The results of his finding showed that the nonperforming loans decrease when there is an increase in the degree of loan market power, and therefore promoting financial stability.

In the study of Tan (2017), he stated that shadow banking which refers to the financial activities conducted under unregulated conditions has a positive relationship with the bank profitability in China. The results of his findings suggested that the large volume of unregulated financial activities improved the profitability of the banks. Tan (2017) also mentioned that shadow banking

system focuses typically on lending to small and medium-sized enterprises. Thus, this statement can be further explained by the fact that bankers can increase the volumes of their businesses by focusing on providing more available funds or credits to the large and state-owned enterprises. Moreover, bankers can use the available funds for more non-interest income activities. Both can lead to the increase in bank profitability.

2.2.2 Stock Market Capitalization

There is a high possibility that money from illegal activities will be laundered into the stock market. It is because money launderers could exploit the stock market through anonymity or custodial accounts. Money launderers can inject their funds into the stock market quickly without any suspicion. Although money laundering in securities market is often treated as the white-collar variety of criminal enterprise, the ingenuity with which manipulators can abuse the securities markets should never be underestimated (Jayasuriya, n.d.). The ease with which funds can be transferred within the market poses terrible problems to the stock market regulators who are persistent in keeping their financial systems not contaminated by illicit funds. The market regulators must be stringent in monitoring the daily transactions done by investors or trader. It is very challenging to control and monitor the share trading, especially transactions of trading usually are happened within a short period, particularly in T or T+1 settlement. Besides that, the modern technology had increased the use of electronic trading which make it more difficult to identify the licit or illicit fund for the regulators.

2.2.3 Remittance Inflows

Underground banking is a recognised financial system that allows legitimate remittances from overseas workers through informal banking sectors. It is referred to as the alternative remittance system. Somehow, underground banking is misused by the people to undergo money laundering. It is because underground banking takes place in many parts of the world, the combination of the geographic diversity and varied typology of underground banking makes it attractive for money laundering (Passas, 1999). Licensed brokers who operate the underground banking must pay extra caution when evaluating the practicalities and its consequences. Undeniably, an unregulated system in which illicit funds flowed with licit funds is dangerous. According to Sander (2003) and Ratha (2005), there is a total amount of US$200 billion was remitted by foreign workers from developing countries in 2002, constituting second largest money inflow after foreign direct investment. However, Buencamino and Gorbunov (2002) said that this significant amount of remittances usually comprises from many small transactions which the formal financial sector does not facilitate.

It is imperative to find a balance in regulating the underground banking to reduce illicit funds flow when it is still permitted as the legal remittance system (McCusker, 2005). People often demand their money to be dispatched rapidly, efficiently and as cheaply as possible. Thus, they will go for underground banking as underground banking are not bound by any official or market exchange rate and often speculate in exchange rates. People will find it cheaper to transfer fund from underground banking as it charged lower fees than formal banking sectors. Therefore, reducing the level of underground banking has become extremely important as it may remove the camouflage surrounding illegal remittances. Also, underground banking does not require the identification of the remitter or receiver in the process of remittance.

Thereby, this anonymity advocates the possibility of money laundering as criminals can hide their identity from the legal authorities.

2.3 Relationship between Liberalisation and Money Laundering

In this part of Chapter 2, we will be reviewing the impacts of liberalisation on money laundering in developing countries. The liberalisation of a country can be measured through the freedom index of a country. According to The Heritage Foundation (2017), the freedom index is an indicator of the fundamental rights of every individual to manage his or her financial resources or property. A country with a high freedom index is said to be correlated to higher prosperity, lower poverty and better human development. Thus, the liberalisation may pose an impact on money laundering in developing countries. In this part, we have used two proxies to measure the liberalisation which is financial freedom and investment freedom.

2.3.1 Financial Freedom

Financial freedom is an assumption where an individual has sufficient access to a certain level of financial resources and will have the chance to use it when needed (Dickerson, 2009). In the study of Blau (2017), the author debated that financial freedom in a particular country would constitute an unregulated framework causing markets to crash. The increase in financial freedom may lead to an unregulated institutional regime which may lead to the increase in money laundering activities. Moreover, the increase in financial freedom in a country may also lead to potential higher wealth inequality since the people have more freedom in holding and utilising financial assets. According to Islam (2018), the increasing discrepancy in wealth distribution in a country

will cause the country to have limited access to sound money. This scenario indicates that the poor may have limited access to sound money and they will tend to involve themselves in illegal activities such as drug trafficking to gain additional income. Hence, the degree of financial freedom in a country may trigger the pervasiveness of money laundering in that particular country. By reviewing the past pieces of literature about financial freedom, it is justified that financial freedom may be a contributing factor to money laundering activities in a country. When an individual possesses more financial resources, an individual will have more opportunities to engage in money laundering activities.

2.3.2 Investment Freedom

According to The Heritage Foundation (2017), investment freedom can be broadly generalised as the freedom of an individual to move their financial resources freely without any restrictions or limitations into and out of a particular business. Numerous works of literature are supporting the idea of ideal investment freedom in the market, and the results of the study proved that it would boost the expansion of business formation in a country (Blanchflower & Oswald, 1998; Di Patti & Dell'Aricca, 2004). When individuals have the freedom to invest, different innovative business ideas will emerge, and these ideas will be executed with high investment freedom. In the study of Herrera-Echeverri, Haar and Estévez-Bretón (2014), the researcher claimed that the freedom to invest would drive the country towards higher business opportunities and it may act as mechanisms that drive entrepreneurship. When a nation has more entrepreneurs, the people in the country will tend to commit less illegal activities since they have better opportunities for themselves. Thus, the amount of money laundering activities may decrease due to the freedom to invest. The study of Berdiev and Saunoris

(2016) stated that the financial development in a country would reduce the occurrence of shadow activities. The financial development of a nation is somehow driven by the freedom of individuals to invest in different businesses. Hence, the degree of investment freedom in a nation may determine the prosperous of a country which will subsequently lead to lower level of money laundering activities. By reviewing the past researches, there is a high possibility that the degree of investment freedom will affect the money laundering activities in developing countries.

2.4 Relationship between Political Factors and Money Laundering

According to Schelling (1984) money laundering seems to have emerged in the political sectors which bring pronounced negative results. The act of Money laundering can directly affect political factors (Razmi & Jamalmanesh, 2014). Besides that, there are various studies revealed that political factors such as corruption and political stability served as the reasons that have a massive effect on the growth of the scope of money laundering (Remeikiene & Gaspareniene, 2015).

2.4.1 Corruption

In the study of Goredema (2004), the researcher claimed that money laundering is directly related to corruption in many developing nations. One of the results and findings of the future literature on corruption and money laundering were in line with the results of Goredema's research (Mugarura, 2010). Mugarura (2010) debated that developing countries tend to have higher corruption rate due to the materialistic and pretentious behaviour that cannot be sustained by the populations' limited income and this lead to the

pervasiveness of money laundering in developing countries. The Financial Action Task Force (2006) annual report also stated that many money laundering activities are linked to high corruption rate and incomplete disclosure of government activities. According to the recent literature of Choo (2015), the researcher argued that money launderers will tend to bribe the government officials to disguise their illegal money laundering activities and this will promote the widespread of money laundering activities. Furthermore, the government officials that have solicited bribes would carry out a series of business transactions to blend in the bribes sought into the legal financial system (Choo, 2015). Therefore, the government officials themselves may be the one committing money laundering activities due to the bribes solicited. The uprising trend of corruption in the country will also cause the money launderers to become bolder in undertaking money laundering activities in the country.

2.4.2 Political Stability

According to Dell'Anno (2016), political instability encourages the poor to participate in crime and unethical activities such as money laundering. An unstable politic will provide incentives to develop an informal economy which involve money laundering. However, fundamental political stability, reflected in substantial changes in the authority pattern of the political system, is consistently found to be directly related to the money laundering in the informal economy (Elbahnasawy, Ellis & Adom, 2016). Moreover, the findings of the study of Razmi & Jamalmanesh (2014) proved that a better political structure would result in a decrease in the activities in the underground economy considering a greater regulation quality with the stability of politics. Political instability is one of the factors in affecting the

uncontrolled illegal activities and the level of money laundering will also be subsequently affected.

Furthermore, the developing countries with high political instability will tend to witness a very low pace of economic growth. However, the studies of Badreldin & Farzanegan (2013) argued that the impact of money laundering and political stability is mixed. The theory and stylized facts provide different arguments for the positive and negative impacts of the underground economy on the factors of political stability. There is a high possibility that the pervasiveness of money laundering among the citizen of developing country is due to political instability. Hence, there is a significant relationship between political stability and money laundering.

2.5 Relationship between Governance and Money Laundering

In this segment, we would review the impacts of governance towards money laundering. The governance is measured by the two proxies which are the rule of law and government effectiveness. The rule of law is the enforcement of the law to avoid money laundering. However, some researchers would say that there are many gaps in the law which most money launderers would take advantage of their activities. In spite of the fact that there are rules to comply with, yet the money launderers will go through any doors accessible to conduct the money laundering crime. Therefore, the effectiveness of the government plays a significant role in fighting against money laundering. Weak governance will decrease the institutional credibility, hence increasing money laundering.

2.5.1 Rule of Law

The broad definition of the rule of law is a principle that every individual is subject to the law. Earlier scholars describe the laws as the rules of actions and behaviour that are publicly recognised, well-known and steady over time (Fuller, 1969). The broad idea of the rule of law is that the law should rule a country, rather than being ruled by the decisions of the higher authority in the country. The rule of law can also be described as the extent to which individuals have faith in and obey the rules of the society. In the study of Isa, Sanusi, Haniff and Barnes (2015), the researchers argued that most money launderers have a comprehensive understanding of the law enforcement and they will grab any opportunity to circumvent the law. This indicates that money launderers are committing the crime even though they have sufficient knowledge of the money laundering law enforcement and this exhibit that they do not consider the rule of law when they perform a particular behavior. According to the study of Blum, Levi, Naylor and Williams (1998), the researchers claimed that all efforts to impede money laundering activities require the constant commitment to the rule of law. The researchers added that in many events, the government did not endeavour full responsibility to destruct the money laundering activities. This causes lengthy dissemination of valuable information, giving money launderers the time to prepare different strategies to circumvent the law.

2.5.2 Government Effectiveness

According to World Governance Indicators, the government effectiveness is referring to the efficacy of the government in the conduct of public affairs and the quality of public services. As mentioned by Jamalmanesh, Naji Meidani and Khodaparast Mashhadi (2014), the government effectiveness is one of the

standard governance indicators used by different scholars. Moreover, according to the study of Reuter (2005), there is a strong negative correlation relationship between the government effectiveness and the money laundering. In other words, the money laundering is more bounteous in nations with weak governance and fragile institutions credibility.

Besides, the Financial Task Force is in the only international, inter-governmental body that specially designed in combating money laundering with the aims of "setting standards and promoting effective implementation of legal, regulatory and operational measures for fighting money laundering with the government effectiveness. They fully believe that the government effectiveness can be said as one of the factors that are affecting the money laundering in the developing countries (Livescu, 2017).

Not only that, in the study of Friedman (2014) contended that the degree of conflict in Iraq was identified with an expansion in the country's underground economy in money laundering and that enhanced governance as expanded law and implementation of anti-corruption measures would diminish the money laundering. Governance is multidimensional, and its relationship to the informal economy and it need additional and further investigation.

2.6 Relationship between Government Policy and Money Laundering

The following pillar influencing money laundering within the country is government policy. According to Schneider and Enste (2000), secure and efficient government institutions will decrease the issue of money laundering in that country. They further explained that the rise of money laundering is not because of the imposing of high taxes. Instead, it is because of the ineffectual and discretionary application of the

government policy or regulation. Researchers also argued that it will only be useful if the government focuses on enforcing the laws and regulations than increasing the number of laws and regulations (Schneider & Enste, 2000). There are two proxies used to represent the government policy pillar which are the trade barriers and money supply.

2.6.1 Trade Barriers

In our study, we measured the trade barriers of a country by using the level of tax on international trades. Schneider and Enste (2000) stated that trade barriers are the critical factor that is pushing the money laundering up, because tax on international trade increase the cost of work, and thus causing money launderers willingly to undergo illegal activities to avoid taxes. Some of the previous researches have substantial evidence to prove that the tax regime of a country contributed to pervasiveness of the money laundering in a country. For instance, the burden of taxes is the most significant impact on the growth of money laundering in few countries, such as Austria, Germany and United States. In the United States, the shadow economy grows by 1.4 percentage point when the tax rate increased by one percentage point. Fleming, Roman and Farrell (2000) also emphasise that the burdensome and oppressive of the tax rate, regulation and policy are the reason for the growth of shadow economy. Therefore, it is necessary to lower down tax rate to slow down the growth of shadow economy.

A tax haven is a controlled foreign corporation offshore where fewer records are needed, and then shipped back the funds as a foreign direct investment that exempted from taxation (Georgiou, 2017). For example, Liberia, the Cayman Islands, the British Virgin Islands and Panama are among the favourites of the offshore corporation or tax haven. These offshore corporation and tax havens

are free of tax or regulation and are protected by corporate secrecy laws. These tax avoidance or evasion conditions attract money launderers to deposit their illegally earned income in a tax haven to get rid of the tax. The earned income unlawfully not only can be protected from tax but also can help money launderers to launder them to the appearance of being legally earned. Besides, the high level of bank secrecy is the selling point of a tax haven. Thus, tax enforcement becomes the essential issues to the nature of laundering process.

2.6.2 Money Supply

The researcher stated that the increase of money laundering is due to the relatively loose or weak laws and financial regulatory system or in a cash-based economy such as in Cambodia, Vietnam, Myanmar and Laos (Nguyen, 2012). Banks and financial institutions faced difficulties in combating money laundering as they provide services, instruments and facilities that can be used by money launderers to hide the source of ill-gotten funds. For instance, bankers do not require an individual to provide the source of deposited funds. People can quickly deposit a vast sum of cash into the bank account without any record needed to explain the funds.

Money supply is defined as the spread of cash or banknotes in the market. However, the circulation of cash or banknotes is hard to be distinguished whether it is licit or illicit (Georgiou, 2017). It is because cash or banknotes are monetary instruments without any records of its source, owner or legitimacy. Circulation of cash or banknote is the crucial factor that contributes to the economy of a country, but the lack of transparency of this circulation causes the flow of illicit fund in the global economies. Many states had paid their efforts in controlling the dissemination of unknown sources of

cash. For example, the resident and non-resident of Malaysia must comply with the Exchange Control Act, 1953 regarding the legal flow of ringgit or foreign currency coins and notes. If anyone found guilty of the Exchange Control Act, the penalty for offences committed could be fine for RM10,000 or jail sentences for not more than three years or both (Bank Negara Malaysia, 1998). Moreover, in the United States, every merchant is required to report any transaction made with more than US$10,000 in cash under the Bank Secrecy Act. The problem is that there are still cases reported that some merchants refuse to abide by the government policy (US Department of the Treasury, 2015).

Next, it is the issue of complicit violators within the financial institutions. We understand that monetary instrument is the medium for illicit fund flows while financial institutions served as the channels explicitly and implicitly for the illicit fund flows. The further explanation of this point entails that some individuals open bank and brokerage accounts on behalf of criminals and send or move unknown funds to undertake crimes. This is to hide or shield the identities of criminals who own and control the funds (Buchanan, 2004). Besides that, businesses are opened as the name of the business, so it does not need to be registered with the beneficial owner controls the funds. Criminals usually take over cash-intensive business such as car washes, parking buildings, clothes laundries and casinos, which is a business typically expected to receive a significant amount of revenue in the form of cash. In this case, it combines the licit and illicit money and reports them as the total earnings of the cover business (Blum, Levi, Naylor & Williams, 1998). This is the most common type of money laundering because it combines all three stages of money laundering in one step. The money was apart from the crime under the accounts of legitimate business, and the amount of money resurfaced as the total earnings for a plausible reason (Reuter, Peter & Truman, 2004).

2.7 Relationship between Macroeconomic factors and Money Laundering

In this segment of Chapter 2, we will be reviewing the effect of macroeconomic factors on money laundering activities in developing countries. In the study of Loayza, Villa and Misas (2017), the researchers investigated the impact of economic growth on illicit activity and money laundering in Columbia. The results of the study show that the economic growth in Columbia will have a substantial impact on the money laundering activities in Columbia. The author argued that money laundering hurt the country's economic development as well (Kumar, 2012). The proxies that we have included to test the relationship between macroeconomic factors and money laundering in developing countries are Gross Domestic Product (GDP) and Consumer Price Index (CPI). The macroeconomic performance of a nation will directly affect the well-being of a country. A country's crime rate is linked with the economic return of a country. When a country is experiencing an economic recession, the quality of living of the country will decrease tremendously as well. When the people do not have sufficient financial resources to survive, they will have resort to involving in criminal activities such as money laundering.

2.7.1 Gross Domestic Product (GDP)

According to Argentiero, Bagella and Busato (2008), the size of money laundering is as large as 5% of the total world GDP. In the previous literatures, money laundering that is in the underground economy is somehow positively correlated with the GDP of a country (Benhabib, Rogerson, & Wright, 1991; Roca, Moreno, & Sánchez, 2001). Money laundering is fundamentally an act to hide incomes from a criminal action in a particular industry. Since the increase in Gross Domestic Product (GDP) will indicate an increase in the production for that specific industry as well. Hence, it is logical to deduce that

Gross Domestic Product (GDP) will facilitate the money laundering activities. However, Quirk (1997) opposes the traditional theory, and the results of his studies show that money laundering and Gross Domestic Product (GDP) has a negative relationship which means that money laundering in a country will decrease when the Gross Domestic Product (GDP) of a country increase. The results of the study of Argentiero et al. (2008) are in line with the results of Quirk. These researchers believed that there is a different explanation towards the relationship between the Gross Domestic Product (GDP) and money laundering. The researchers proposed that the increase in a country's GDP will indicate better living conditions and better business opportunities. The people will be able to earn a sufficient income without involving themselves in the shadow economy. Hence, criminal organisations may not be operating as actively and aggressively as compared to the bad times since the regular economy will be running more efficiently as compared to the shadow economy. After reviewing the past works of literatures, the effect of the Gross Domestic Product (GDP) of a country on the level of money laundering is inconclusive.

2.7.2 Consumer Price Index (CPI)

According to Ene (2014), the consumer price index (CPI) is the universal economic indicator and also known as a deflator of other economic series. The CPI is otherwise called a record that measures the rate at which the prices for consumer goods and services are changing from period to a period. Besides, the CPI also measures the inflation of the price expansion which experienced and perceived by the consumers such as the household (Hill, 2004). The most commonly utilised aggregate price statistics in the United States is the Consumer Price Index (CPI). This reality alone most likely accounts for the prominence it has achieved as a point of convergence in the Federal Reserve's

inflation fight. As mentioned by Bryan & Cecchetti (1993), the CPI was never proposed to be utilised as an indicator of inflation. On the inflation side, the CPI measures the general price level of goods and services in the market, and it does exclude the price level in the underground market (Alkhdour, 2011).

Also, there are few studies which stated that the consumer price index (CPI) has a positive relationship with money laundering. At the point when the expansion high, the inflation rate is high, the individuals, as well as the household, will confront troubles in managing the expanded cost for daily basis needed items for the cost of living rise. Henceforth, these individuals will take part in illegal activities to get more income or money to cover the high inflation rate (Matsoso, 2015). In the meantime, during the inflation period, the businesses such as the industries supplying products and services to the launderer increase which will ripple through their suppliers. Sota and Koleneci (2013) have concluded that there is a connection between annual inflation rate which measures by the indicators of consumer price index (CPI) and the cases alluded in the prosecutor's office or police for money laundering. There is several studies demonstrate that there is a relationship between the CPI and money laundering. Thus, the increments or declines in CPI would influence the volume of money laundering in the underground economy.

2.8 Chapter Summary

Throughout the entire chapter, we have discussed the comprehensive review of the relationships between the six pillars of variables and money laundering in developing countries. However, after reviewing the previous works of literatures, the outcome of the review is ambiguous and vague since there is not a definite answer for the determinants of money laundering in developing countries. There are numerous pieces of literatures which provide similar outcomes, but there are some which provide different statement and findings on the issue. The legal and regulatory framework of a country was said to be a vital ingredient in the effort of combating money laundering activities. The review of literatures on the determinants of the level of money laundering in developing countries are inconclusive since some of the scholars propose different findings on the issue. In a nutshell, we will develop a model with the six pillars of variables as described in Chapter 2 and we will further discuss the methodology of our study.

CHAPTER 3: METHODOLOGY

3.0 Introduction

In this chapter, we considered the use of panel data to examine the relationship between our chosen dependent variable and independent variables. We had selected ASEAN, BRICS and other developing countries with a total of 19 countries which range from the year 2004 to 2013. By combining the pool of these 19 countries over 10 years of time, we believed that this could increase the efficiency and accuracy of our estimation. This chapter also identifies the type of data that we were using and the sources for obtaining the data. Besides that, it also explains the flow of data processing and the reason that why we were choosing these variables to conduct our research. Last but not least, this chapter also explains the empirical and diagnostic tests that we had carried out in our research.

3.1 Research Design

The research design is directing the overall plan to connect the conceptual research problems and questions into an empirical research. It shows that the research design expresses what the data is required, the methods that are going to be used to collect and evaluate the data and how to analyse the data. The data and methods will be configured during the research project in the way which will be the most effective in dealing and produce the answers to the research question. Our study is to determine the determinants of money laundering, while we have chosen ASEAN, BRICS and others developing countries with a total of 19 countries which range from the year 2003 to 2014. Besides that, the secondary data on Lerner index, stock market capitalisation, remittance inflows, financial freedom, investment freedom, corruption,

political stability, rule of law, government effectiveness, trade barriers, money supply, gross domestic product, and consumer price index are being employed to test why and how they affect money laundering of different countries. The secondary data that we were using in this research project are collected from World Bank, and the Heritage Foundation which makes the data set more accurate and reliable. Last but not least, panel data method is used instead of cross-sectional data or time-series data because it can help us to generate a more informative and efficient data for this study.

3.2 Theoretical Framework

3.2.1 Theory of Crying Wolf

According to Takáts (2009), he introduced a theory "Theory of Crying Wolf". It defines as the bank might not able to share its signal with the government, while the government have to make decisions based on whether or not it observes the report. In addition, the crying wolf could eliminate the value of the information of a reports if the bank suspect any transactions as suspicious, and the bank fails to identify any one of the transactions. The crying wolf could arise due to the excessively fines which forcing the banks make a mistakes on the safe side and report transactions which are less suspicious. The model discussed the agency problem between the bank and government law enforcement agencies. As the bank will monitors those transactions and reports any suspicious activity to the government, while the bank will undertakes costly in monitoring and reporting, as the government will fines if money laundering activities is successfully carried out and the bank failed to report the transaction. The theory of crying wolf has led us to include the governance factors in our theoretical framework to test the determinants of money laundering.

3.2.2 System Theory

According to Angell and Demetis (2005), System Theory has been introduced which it can be applied into a variety of domains which it could successfully addresses the problems. This theory is suitable to fit into the Anti Money Laundering (AML) community as it is a solid theoretical which could give an opportunity to AML community to drift away from those endless descriptions, and could obtain the necessary tools for in-depth analysis. According to the System Theory, there is no perfect communication between sub-systems, as all information flows between all sub-systems are asymmetric for a number of reasons. The greater the number of connections, the greater the source of the asymmetry, which will then lead to greater ambiguity and misinterpretation. Money laundering and the AML are consider as coupled activities, which subsystems each of which will stimulates the other to expand its own powers within its particular domain, so that the harder the anti-money laundering push the economy will leads to more launderers push back, the money launderers might even create a parallel but illegal banking system. Thus, we constructed our theoretical framework to examine which independent variables are relevant to the money laundering based on the assumptions of the System Theory.

Figure 3.1 Theoretical Framework
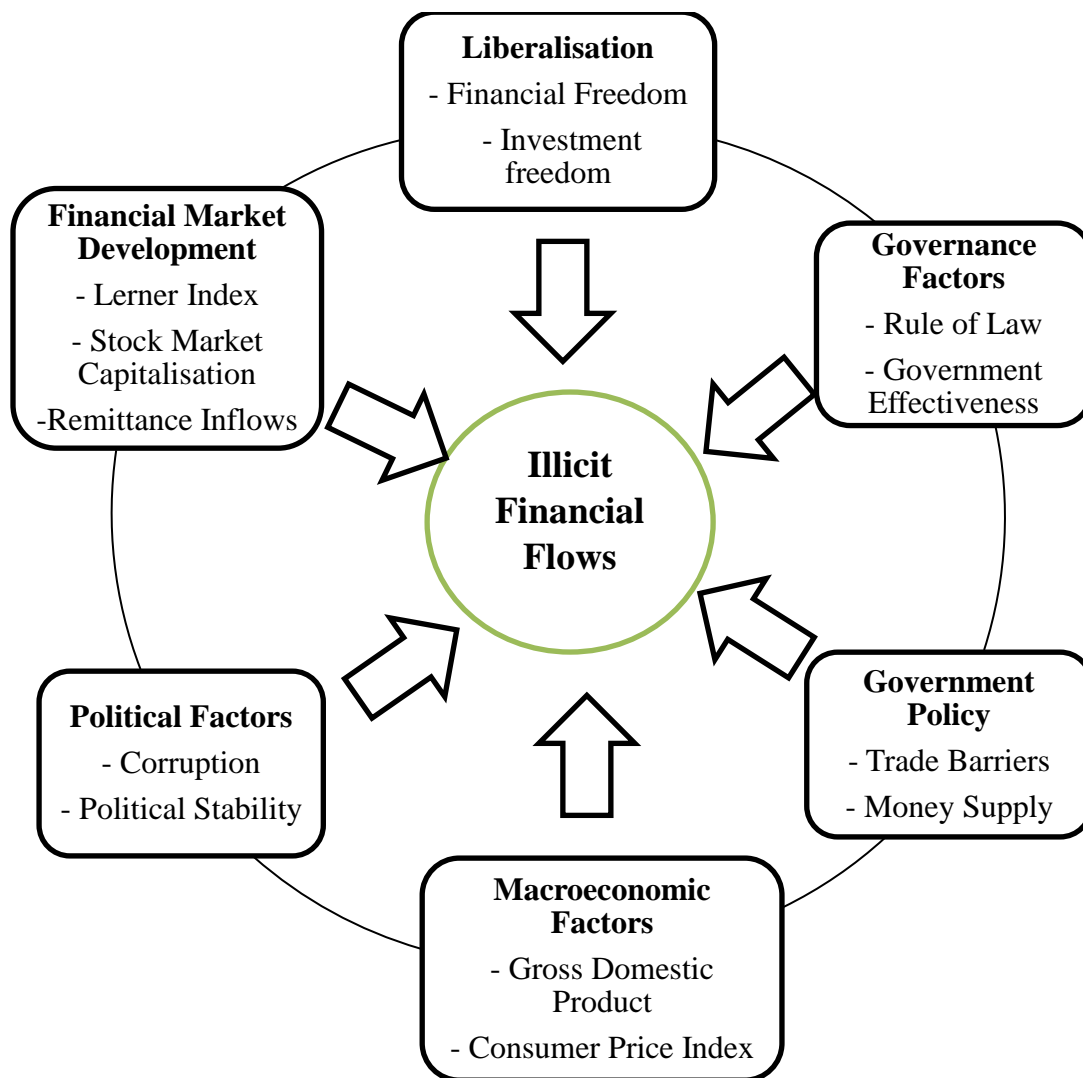
Figure 3.1 illustrates the relationship between the illicit financial flows and 13 selected independent variables which are Lerner index, stock market capitalisation, remittance inflows, financial freedom, investment freedom, corruption, political stability, rule of law, government effectiveness, trade barriers, money supply, gross domestic product, and consumer price index.

Our research scope is targeted at the ASEAN, BRICS and other developing countries with a total of 19 countries, at which the period for this study starts from the year 2003 to 2014. The expected econometric model is assumed to be:

$$\ln\text{IFF}_{it} = \beta_0 + \beta_1\text{LRI}_{it} + \beta_2\text{SMC}_{it} + \beta_3\text{RIF}_{it} + \beta_4\text{FNF}_{it} + \beta_5\text{INF}_{it} + \beta_6\text{COR}_{it} + \beta_7\text{POS}_{it}$$

$$+\beta_8\text{ROL}_{it} + \beta_9\text{GOE}_{it} + \beta_{10}\text{TAB}_{it} + \beta_{11}\text{MYS}_{it} + \beta_{12}\text{GDP}_{it} + \beta_{13}\text{CPI}_{it} + \mathcal{E}_{it}$$

IFF	=	Illicit Financial Flows
LRI	=	Lerner Index
SMC	=	Stock Market Capitalisation
RIF	=	Remittance Inflows
FNF	=	Financial Freedom
INF	=	Investment Freedom
COR	=	Corruption
POS	=	Political Stability
ROL	=	Rule of Law
GOE	=	Government Effectiveness
TAB	=	Trade Barriers
MYS	=	Money Supply
GDP	=	Gross Domestic Product
CPI	=	Consumer Price Index
$\mathcal{E}$	=	Error terms

3.3 Data Description and Collection Methods

To analyse the main relationship between the illicit financial flows and the 6 different pillars of variables, we have decided to use the panel data method to continue our research. A set of secondary data was obtained from World Bank, Global Financial Integrity, and Heritage Foundation respectively, which range from the year 2004 to 2013 across ASEAN, BRICS and other developing countries which is total of 19 countries as the sample of our study. The finalised countries to be examined in this research are Brazil, China, India, Russian Federation, South Africa, Indonesia, Malaysia, Philippines, Thailand, Vietnam, Azerbaijan, Bangladesh, Kazakhstan, Mexico, Nigeria, Oman, Qatar, Sri Lanka, and Turkey.

The research was conducted by using a set of secondary data and structured into a set of panel data instead of using primary data. The reason behind this is because the secondary data appears to be more accurate and reliable in conducting the research, as these data were retrieved from reliable sources such as World Bank, and Heritage Foundation. Besides that, this research uses panel data which is the combination of cross-sectional and time series data instead of using only cross-sectional or time series data. It is proven that the panel data estimations can explain the heterogeneity which is bound to exist in different variables and gives more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency (Gujarati & Porter, 2009).

The summary of data descriptions is shown in the following Table 3.1 and 3.2.

Table 3.1 Summary of Variables, Abbreviation of Data and Source of Data

Category	Abbreviation	Variable	Source
Money Laundering	lnIFF	Illicit financial flows (in millions of nominal U.S. dollars)	Global Financial Integrity

	LRI	Lerner Index	World Bank
Financial Market Development	SMC	Stock Market Capitalisation to GDP (%)	World Bank
	RIF	Remittance Inflows to GDP (%)	World Bank
Liberalisation	FNF	Financial Freedom	Heritage Foundation
	INF	Investment Freedom	Heritage Foundation
Political Factors	COR	Corruption	Heritage Foundation
	POS	Political Stability and Absence of Violence/Terrorism: Estimate	World Bank
Governance	ROL	Rule of Law (Estimate)	World Bank
	GOE	Government Effectiveness (Estimate)	World Bank
Government Policy	TAB	Trade Barriers	World Bank
	MYS	Money Supply (Board Money GDP per percentage)	World Bank
Macroeconomic Factors	GDP	GDP growth per annual	World Bank
	CPI	Consumer Price Index (2010=100, Average)	World Bank

Sources: World Bank, Global Financial Integrity, and Heritage Foundation

Table 3.2 Definition of Variables

Abbreviation	Definition
InIFF	In the international development community, the concept of IFFs is emerging as a robust and constructive umbrella to bring together previously disconnected issues. The term appeared in the 1990s and was initially associated with capital flight. It now generally refers to the cross-border movement of capital associated with illegal activity or more explicitly, money that is illegally earned, transferred or used that crosses borders.
LRI	A measure of market power in the banking market. It compares output pricing and marginal costs (that is, markup). An increase in the Lerner index indicates a deterioration of the competitive conduct of financial intermediaries.
SMC	The total value of all listed shares in a stock market as a percentage of GDP.
RIF	Workers' remittances and compensation of employees comprise current transfers by migrant workers and wages and salaries earned by non-resident workers. These data include three items which are defined in the fifth edition of the IMF's Balance of Payments Manual, such as workers' remittances, compensation of employees, and migrants' transfers.
FNF	Financial freedom is a measure of banking efficiency as well as a measure of independence from government control and interference in the financial sector.
INF	Investment freedom evaluates a variety of restrictions that are typically imposed on the investment. As most countries have a variety of restrictions on investment, such as restriction on foreign exchange, payments, transfers and capital transaction. These factors can affect the freedom that investors have in the market.

COR	Corruption which is a corrupt practice such as offering, giving, receiving, or even soliciting directly or indirectly in anything of value that could influence the actions of the other party improperly.
POS	Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and politically-motivated violence, including terrorism.
ROL	Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
GOE	Government Effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
TAB	Trade barriers are used to measure that governments or the public authorisations which introduce that prevent or restrict overseas trade and investment.
MYS	Broad money is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveller's checks; and other securities such as certificates of deposit and commercial paper.
GDP	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any

	subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources.
CPI	Consumer price index reflects changes in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.

Sources: World Bank, Global Financial Integrity and Heritage Foundation.

3.4 Sampling Design

3.4.1 Target Population

The target population of our research is the developing countries in the world. However, we might not be able to include all developing countries this research. Therefore, we have selected our target population in 3 different country regions which are ASEAN, BRICS, and other developing with a total of 19 countries. The 19 countries included are Brazil, China, India, Russian Federation, South Africa, Indonesia, Malaysia, Philippines, Thailand, Vietnam, Azerbaijan, Bangladesh, Kazakhstan, Mexico, Nigeria, Oman, Qatar, Sri Lanka, and Turkey. Our research uses a panel data which is based on a yearly basis from the year 2004 to 2013. Table 3.3 exhibits our total sample size.

Table 3.3 Sample size of data

Total Data	19 countries X 14 variables (including dependent variable) X 10 years=	2660
Missing Data	14 (LRI) + 11 (SMC) + 7 (RIF) + 40 (TAB)	(72)
	Final Data	**2588**

3.4.2 Sampling Technique

In this research, we have chosen to use Stata to analyse our data and generate the outputs as it is complete, integrated statistical software that could run data analysis. Besides that, it is used for running statistical analyses and econometric analyses as well, which able to run cross-sectional, time series and panel data analysis estimation and hypothesis testing. Other than that, the data management features of Stata also able to fully explained and documented on the examples, every estimator is fully documented and includes with several examples on real data, with a discussion of how to interpret the results. Lastly, there are many empirical and diagnostic tests can be carried out such as Hausman test, multicollinearity test, random-effect model, fixed-effect model, Lagrange multiplier test and more.

3.4.3 Data Processing

Figure 3.2: Data processing procedures

Data collection from World Bank, Heritage Foundation, and Global Financial Integrity.

Analyse and intepret the empirical results.

Check and edit the collected data for empirical testing.

Running the empirical testing through Stata.
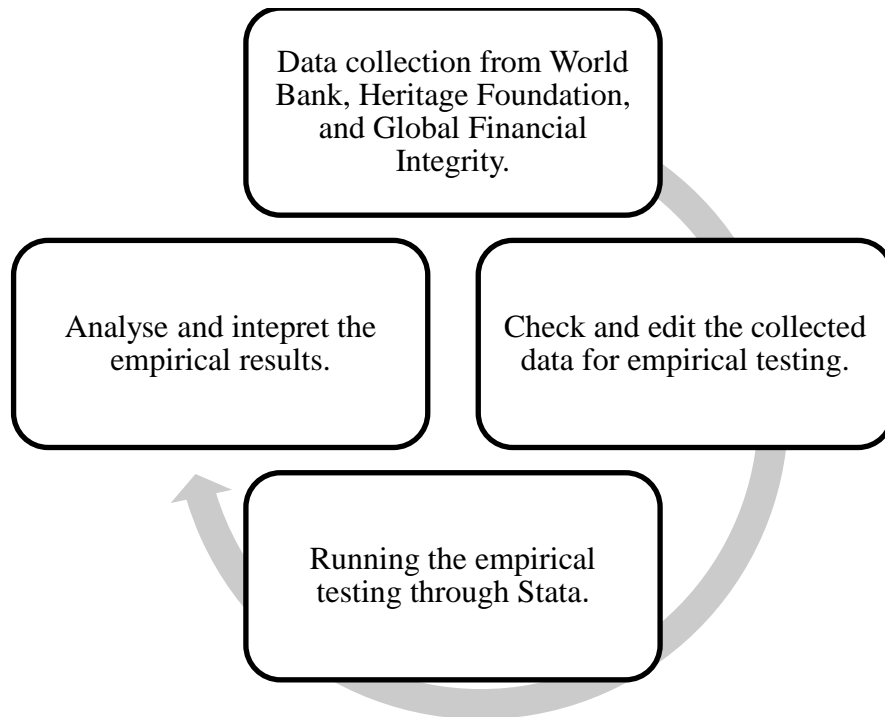
Firstly, the data used in our research is collected from World Bank, Heritage Foundation, and Global Financial Integrity. Subsequently, the data are arranged in Microsoft Excel and then used to run diagnostic checking and empirical test by using the Stata software. Lastly, the empirical results generated have been analysed and interpreted in detail.

3.4.4 Rationale behind choosing our variables

3.4.4.1 Illicit Financial Flows (IFF) – Dependent Variables

These undisclosed accounts are one manifestation of what has known as money laundering. Money laundering is of policy interest partly because it will drain a country's capital and tax revenues (Reuter, 2017). There are many different sources of illegally earned financial flows, ranging from embezzlement to drug trafficking. It also can be classified based on whether the actors involved are criminal, organisations, individuals or corporations. It creates a huge challenge to political and economic security around the world, especially in developing countries. These corruptions, organised crime, fraud in international trade and tax evasion are as harmful as the diversion of money from public priorities. Besides that, drugs counterfeiting can have even more dire consequences, which leads to more than thousands of preventable death from malaria and tuberculosis due to sub-standard counterfeit drugs. We chose this variable as our dependent variable because it can threaten more fundamental aspects of the development of a country; it shows that it is an important variable that is worth to be studied. On the other hand, there are plenty of different factors or variables that can affect the level of money laundering. However, we still decided to narrow down the scope and only focus on the 6 pillars of variables which are financial market development, liberalisation, political factors, governance, government policy, and macroeconomic factors. Lastly, we will proceed with these data to investigate the relationship between these variables and money laundering by using the panel data analysis.

3.4.4.2 Independent Variables

We have separated our variables into 6 pillars to conduct our research, which consists of financial market development, liberalisation, political factors, governance, government policy, and macroeconomic factors. We have chosen around 2 to 3 variables for each of the group and with total sums up a total of 13 variables to explain and conduct our research project. For instance, the variables chosen are Lerner index, stock market capitalisation, remittance inflows under the first pillar of our variables which is financial development markets; financial freedom, and investment freedom are under the second group of pillar which is liberalisation; corruption and political stability will fall under the third pillar of our variables which is political factors variables; rule of law and government effectiveness will fall under the fourth pillar of our variables which is governance; trade barriers and money supply will be under the fifth pillar of the variables which is under government policy variables. Lastly, gross domestic product and consumer price index variables will be under the sixth pillar which is the macroeconomic factors. The reason that we choose these variables to conduct our research is that it is feasible to collect and gather these data from the reliable sources such as World Bank, Global Financial Integrity, and Heritage Foundation, which makes these data more reliable and accurate to continue and conduct our research.

3.5 Econometrics Method

3.5.1 Ordinary Least Squares (OLS) Regression

OLS regression is a way to estimate the unknown parameters in a linear regression model. It can be applied to categorical independent variables and single or multiple independent variables. The variables including error term in the random effects model will not be independent. Based on Gujarati (2009), Ordinary Least Square (OLS) is one of the methods to examine the estimation of true population relationship between an exogenous variable and endogenous variable with the presences of sample data. OLS also is commonly used to examine the estimation of a parameter of the data and obtain the function which has the most approximates data. OLS will prevent from using the squared errors which are the differences between predicted and observed values.

Based on the Gauss-Markov Theorem, the OLS estimator is the best linear unbiased estimator (BLUE). An estimator is a rule that can be applied to a sample of data t further estimation. If there is a failure of zero unconditional mean assumption, it will cause the OLS to be biased.

According to Schmidt (2005), we can write the econometric model as:

$$Yi = \beta 0 + \beta 1 Xi + \varepsilon i$$

Where Xi and Yi represent the values of its observation of X and Y and εi which is known as the error term, represents the omitted factors from the economic model but in reality, it is important factors.

3.5.2 Fixed Effect Model (FEM)

Fixed effects model are used when there in the interest of analysing the influences of the variables in a period. The parameters in FEM are fixed or non-random which also identified as the statistical model. Fixed effects regression is used when we are trying to control the omitted variables in panel data when the variables that have been omitted in the very first place differ from the entities but did not alter over time (Stock & Watson, 2007). The fixed effects regression model can be written in the following way:

$$Yit = \beta_1 Xit + \alpha i + uit$$

Where Z is an unobserved variable that differs from each state but remains constant over the time. Specially, let α=$\beta 0 + \beta_2 Zi$

Based on Dranove (n.d.), fixed effects regressions have two requirements needed to be fulfilled which is we must have a time series data, and there must be variant in between the period.

3.5.3 Random Effect Model (REM)

REM is also known as the variance components model. The variables in the model are assumed as random and uncorrelated with the independent variables. REM uses the time-invariant variables in the model. In this model, the intercept will absorb the variables. REM deals with numbers of unknown parameter which is lower as compared to the FEM According to Gujarati (2009), the random effect model can be illustrated as follows:

$$Yit = \beta 1i + \beta 2X2it + \beta 3X3it + uit$$

Where β_1 is fixed variable and the intercept of the model will be expressed as β1i.

We presume the intercept value for the model of an individual variable to be expressed as:

$$\beta_1 i = \beta_1 + \varepsilon i$$

Where i=1,2,….N and εi as the random error term with zero value for mean value.

3.5.4 Redundant Fixed Effects Test: Pooled OLS vs FEM

As POLS regression might mislead the result in the test examining the relationship between the dependent and independent variables. Hence, Fem is applied to capture the true relationship between the variables. Based on the study of Choudhury (1993), it shows that the conventional estimation disregards the effect of non-participation where it might cause to have a bias in the estimation.

Hypothesis:

        H0: Pooled OLS is preferable

        H1: FEM is preferable

Assume the significant value (α) to be 1%, 5% and 10% in the test

F-Test Result

Reject H_0 if: (1.) Test statistic > Critical Value

               (2.) Probability (p) test < α

Otherwise, do not reject the H_0

If the null hypothesis is rejected, FEM is more preferable than POLS.

3.5.5 Lagrange Multiplier (LM) Test: Pooled OLS vs REM

LM test is also known as the Breusch and Pagan test. This test is derived to determine the presence of the spatial error correlation including the random region effects within the panel data regression model (Baltagi, Feng & Kao, 2012).

According to the thesis, the heterogeneous panel data model can be written as follows:

$$y_{it} = x'_{it}\beta_i + u_{it} \text{ , for } i = 1, \ldots, \text{n}; t = 1, \ldots,$$

where i indicates the cross sectional units and t indicates the time series observations. x_{it} as the exogenous regressors of dimension. u_{it} is known as the cross-sectionals dependent but it is not correlated with the x_{it}.

Hypothesis:

H_0 : Pooled OLS is preferable

H_1 : REM is preferable

If the null hypothesis is being rejected, hence, the model is REM preferable.

3.5.6 Hausman Test: FEM vs REM

Hausman test is a test that decides between fixed effects and random effect. This test is also known as the Durbin-Wu-Hausman (DWS). This test helps to detect the endogenous variables in a regression model. The OLS estimators will be more likely to have failed the test as there is the presence of endogenous variables in a model. In the procedure of the Hausman test, the conclusion will either to choose FEM or REM depending on the result of the test.

Hypothesis:

H_0: Cor (μi, Xi) = 0 (REM is preferable)

H_1: Cor (μi, Xi) $\neq$ 0 (FEM is preferable)

If we reject the null hypothesis, FEM will be more appropriate to be used instead of using the REM (Gujarati, 2009).

3.6 Scale Measurements

3.6.1 Normality Test

Researchers can use the Jarque-Bera test statistics to determine the normality of the model (Ra ïssi, 2017). To compute the Jarque-Bera test statistics, it uses the value of skewness and kurtosis of data. A normal distribution usually has a skew of zero whereas if a large value of Jarque-Bera indicates the errors in the model are not normally distributed.

H_0 : The error term is normally distributed

H_1 : The error term is not normally distributed

Researchers should reject the null hypothesis only if the p-value is lower than the significance level which is at 5% or 1%. When the p-value is lower than 5% or 1%, it indicates that the error term is not normally distributed.

3.6.2 Multicollinearity

Based on Yu, Jiang and Land (2015), multicollinearity problem exists when there is collinearities among the independent variables are correlated in the regression model. If the multicollinearity problem exists, it will be difficult to interpret the results of the regression model. There are few methods that can be used to detect the multicollinearity in regression analysis. The first method that can be used to detect the problem is to make sure the t-test for every individual slope is not significant which refers to p-value of the model. If the p-value is more than 0.05, the multicollinearity does not exist. Secondly, researchers can examine the correlation matrix that is generated by the Eviews Software. If the correlation between two variables is higher than 0.8, the probability of having multicollinearity problem will be high. Besides, multicollinearity problem can also be detected by conducting the tolerance (TOL) and the Variance Inflating Factors (VIF). When the VIF is equal to 1, it indicates that there is a perfect multicollinearity problem between two variables. When VIF is above 10, it indicates that there is a high correlation between the two independent variables. Hence, researchers will have to concern on the problem. If the VIF is between 1 and 5, it shows that variables are moderately correlated.

In our study, we have opted to use the correlation matrix method to identify the presence of multicolinearity problem in our study.

3.6.3 Heteroscedasticity

Heteroscedasticity arises when the variability is not equal across the range of values of other variables that predict it. In another word, Heteroscedasticity happens when the standard deviation of variables over the specific amount of

time is non-constant. Heteroscedasticity might arise when there is incorrect data transformation or some incorrect functional forms.

Researchers can use the White test to testify the presence of the heteroscedasticity problem. White test is similar with the Breusch-Pagan test. The White test enable researcher to testify a nonlinear independent variable and interactive effect over the error variance. A general linear regression model can be expressed as following with the assumption of heteroscedasticity:

$$Y_t = \beta_1 + \beta_2 \, X_{t2} + \ldots + \beta_k \, X_{tk} + \mu_t$$
$$Var(\mu_t) = E(\mu_t{}^2) = \sigma_t{}^2 \qquad \text{for } t = 1, 2, \ldots, n$$

There are few consequences of heteroscedasticity. Firstly, if all assumptions of classical linear regression model are satisfied but the error term consist a non-constant variance, then the outcome of using the least square estimator to procure estimates of population parameters are the least square estimator is unbiased and inefficient which does not fulfil the estimation of BLUE. The estimated covariance and variances of the least square estimation should be biased and not constant.

According to Li and Yao (2018), in order to detect the presence of the heteroscedasticity problem, Breusch-Pagan test or White test should be held.

Hypothesis for applying result of White test are as following:

H_0 : There is no heteroscedasticity problem

H_1 : There is heteroscedasticity problem

We reject the null hypothesis if the p-value is lower than the significance level, otherwise we do no reject null hypothesis.

3.6.4 Autocorrelation

The correlation between the specific periods of time over the observations of the same variables is known as the autocorrelation. Autocorrelation can also be known as a serial correlation or a lagged correlation. The autocorrelation is referring to the degree of similarity in the regression model (Nielsen, Brodtkorb & Jensen, 2018). A negative correlation appears when there is an autocorrelation of negative 1 whereas a positive correlation appears when there is autocorrelation of positive 1. To detect the presence of the autocorrelation problem, Durbin-Watson test is run.

There are few consequences of autocorrelation on detecting the presence of the autocorrelation problem. Firstly, when there is a serious correlated in the disturbance term, the least square estimation will be unbiased while the optimist property will not be satisfied. Secondly, if autocorrelation exists on the disturbance term, then the least square estimation variance will be large and it will not be asymptotic.

Hypothesis:

H_0 : There is first order autocorrelation problem

H_1 : There is first order autocorrelation problem

Researcher should reject null hypothesis if the p-value of the model is lower than the significance level. Otherwise, researcher should reject null hypothesis which indicates that there is no autocorrelation problem.

3.7 Chapter Summary

In this chapter, the relevant statistical testing and also empirical testing have been determined, while our data will be collected based on the discussion of the collection methods. Besides that, variables will be explained accordingly based on the discussion of data description, and sampling design also explained our target population and sampling technique to run and analyse our data.

This chapter also focuses on presenting and interpreting the empirical results that are derived from our methodologies explained in Chapter 3, these diagnostic checking of data is determined to check for any econometrics issues or problems exist in our model.

CHAPTER 4: RESULTS & INTERPRETATION

4.0 Introduction

In this chapter, we will be exposing the factors that broaden the forbidden sea of money laundering. We will be discussing the empirical results generated from our econometric model, and we will be explaining our findings obtained from the econometric model. Firstly, we demonstrated the descriptive statistics of our panel data and briefly described the statistical summary of our panel data. Then, we regressed the Pooled Original Least Square (POLS) model to test the impact of the six pillars of variables on money laundering in developing countries. Other than the POLS model, we regressed the FEM and REM model as well to enhance the quality of our results. To find out which model among the POLS, FEM and REM model is the most suitable model, we also run the Redundant Fixed Effect test, Lagrange Multiplier (LM) test and the Hausman test and compared the results of the three tests. After identifying the most appropriate model to estimate our data, diagnostic test such as the normality and multicollinearity test were also run to ensure that the data is normal and free from multicollinearity. Furthermore, we discussed the empirical findings of our study and explain the significance of each variable in our research topic. We also assessed the effect of each pillar of variables on the final results of the REM regression model. Lastly, in this chapter, we also compared the results of money laundering factors between the BRICS, ASEAN and the developing countries to assess the differential effect between the different regional models.

4.1 Descriptive Statistics

Table 4.5 depicts the statistical summary of the descriptive statistics of all variables. The mean is the average of the data values; whereas the median is the statistical middle number of the data values. The maximum is the largest data value, while the minimum is the smallest data value. The standard deviation is the measurement of the dispersion of the data to its mean value; the skewness is the measurement of the degree at which the data distribution diverges from the normal distribution; the kurtosis is the measurement of the tailness of the probability distribution, and the jarque-bera depicts the goodness of fit where all the variables obey the normality distribution.

In overall, most of our variables including our dependent variable, money laundering exhibit a positive mean value. However, the political stability (POS) and rule of law (ROL) variable demonstrated a negative mean value. The consumer price index (CPI) has the highest average value of 92.5600. According to Calvo and Végh (1999), it is one of the inherent macroeconomic characteristics in developing countries for having higher and persistent inflation rate in their country. For the median, the consumer price index (CPI) has the highest median value of 93.5800, following by the money supply (MYS) and stock market capitalisation (SMC) with the median value of 63.6632 and 45.3700 respectively. The stock market capitalisation (SMC) variable has the highest maximum value of 252.4200 whereas the trade barrier (TAB) has the lowest minimum value of -15.8417. For the standard deviation, the stock market capitalisation (SMC) shows the highest standard deviation of 55.1793, following by the money supply (MYS) variable with a standard deviation value of 37.8632. This indicates that the stock market capitalisation (SMC) of the 19 developing countries has the highest degree of deviation from its average value among all the 13 independent variables as well as the money laundering variable. Furthermore, most of the variables in our panel data are skewed to the right as well.

Table 4.1 Summary Descriptive Statistics of all variables

	LNIFF	LRI	SMC	RIF	FNF	INF	COR	POS	ROL	GOE	TAB	MYS	GDP	CPI
Mean	9.7569	0.2676	62.0809	2.9078	0.3791	0.3434	0.3038	-0.6231	-0.2485	0.0031	10.4690	74.4166	5.1695	92.5600
Median	9.7700	0.2700	45.3700	0.6300	0.4000	0.3000	0.3000	-0.7494	-0.3153	-0.0409	5.5072	63.6632	5.4219	93.5800
Maximum	12.4600	0.4400	252.4200	13.3200	0.7000	0.7000	0.7000	1.1155	0.5938	1.2671	32.5584	185.8942	14.2314	138.0100
Minimum	7.2400	-0.0100	0.4100	0.0600	0.0000	0.0000	0.0000	-1.9083	-1.0200	-0.9113	-15.8417	28.1104	-7.8209	52.1800
Std. Dev.	1.1971	0.1015	55.1793	3.7916	0.1614	0.1548	0.1361	0.7425	0.4329	0.4505	9.1713	37.8632	3.1889	17.9097
Skewness	0.0247	-0.4323	1.7886	1.1758	-0.6093	-0.3235	-0.0732	0.3151	0.1128	0.5767	0.5122	1.0852	-0.8563	-0.1380
Kurtosis	2.6194	2.7731	5.8635	2.9825	3.3872	3.1887	3.9139	2.1071	1.9520	3.4947	2.5435	3.5008	5.7500	2.6205
Jarque-Bera	0.7918	4.2947	112.8558	29.7237	8.7880	2.4410	4.6044	6.4199	6.1766	8.4652	6.7610	26.6697	56.4145	1.1836
Probability	0.6731	0.1168	0.0000	0.0000	0.0124	0.2951	0.1000	0.0404	0.0456	0.0145	0.0340	0.0000	0.0000	0.5533
Sum	1258.6400	34.5200	8008.4400	375.1100	48.9000	44.3000	39.1900	-80.3757	-32.0625	0.3941	1350.4970	9599.7440	666.8691	11940.2400
Observations	129	129	129	129	129	129	129	129	129	129	129	129	129	129

Source: Developed for research

4.2 Model Comparison

Since our data is panel data, we have regressed the POLS, FEM and REM model to test the impact of the six pillars of variables on money laundering as mentioned in the previous segment.

4.2.1 POLS Model

According to the results obtained from the POLS model, the model is shown to be statistically significant with a goodness of fit of 0.78066. Furthermore, out of the 13 variables tested, 8 of the variables are proven to be statistically significant, and 5 of the variables are proven to be insignificant.

The 8 variables that are statistically significant are namely the Lerner Index (LRI), stock market capitalisation (SMC), remittance inflows (RIF), corruption (COR), political stability (POS), rule of law (ROL), money supply (MYS) and consumer price index (CPI). All these variables are statistically significant at 1% significance level. All variables from the financial sector development pillar and political factors pillar are statistically significant under the POLS model.

The 5 variables that are statistically insignificant are namely the financial freedom (FNF), investment freedom (INF), government effectiveness (GOE), trade barrier (TAB), and Gross Domestic Product (GDP). All the variables from the liberalisation pillar are shown to be statistically insignificant under the POLS model.

4.2.2 FEM Model

Based on the results generated from the FEM model, the model is shown to be statistically significant with a goodness of fit of 0.67516. The results indicate lower goodness of fit in the FEM model as compared to the POLS model. Out of the 13 variables tested, the FEM model has a total of 7 significant variables and 6 insignificant variables. The number of statistically significant variables in the FEM model is also lower than the statistically significant variables in the POLS model as well. It has reduced from 8 significant variables to 7 significant variables.

In the FEM model, the gross domestic product (GDP) is statistically significant at 10% significance level. The remittance inflows (RIF), financial freedom (FNF), investment freedom (INF) and government effectiveness (GOE) are all statistically significant at 5% significance level, whereas the money supply (MYS) and consumer price index (CPI) are statistically significant at 1% significance level. By using the FEM model, all the variables under the liberalisation pillar are statistically significant which is in contrast with the POLS model which shows that the liberalization pillar is insignificant.

4.2.3 REM Model

By applying the REM model, we found that out of 13 variables that were tested, there are 7 variables that are statistically significant and 6 of them are statistically insignificant. The REM model has the same amount of significant variables as the FEM model.

In the REM model, the statistically significant variables are mostly from the liberalisation pillar and the macroeconomic factors pillar as all the variables in these two pillars are significant. The significant variables are namely the Lerner Index (LRI), financial freedom (FNF), investment freedom (INF), government effectiveness (GOE), money supply (MYS), gross domestic product (GDP) and consumer price index (CPI). The Lerner Index (LRI) and gross domestic product (GDP) are statistically significant at 10% significance level; the financial freedom (FNF), investment freedom (INF) and government effectiveness (GOE) are statistically significant at 5% significance level; whereas the money supply (MYS) and consumer price index (CPI) are statistically significant at 1% significance level. Based on the REM model, the political factors pillar is shown to be statistically insignificant which is in contrast with the results from the POLS model.

Table 4.2 Model Comparison of POLS, FEM and REM

		POLS	FEM	REM
	VARIABLES	LNIFF	LNIFF	LNIFF
Financial Market Development	LRI	-2.41092***	-0.58869	-0.66327*
		(0.67691)	(0.37526)	(0.36800)
	SMC	0.01020***	0.00190	0.00211
		(0.00241)	(0.00177)	(0.00170)
	RIF	-0.18795***	0.08238**	0.03914
		(0.01982)	(0.04042)	(0.03572)
Liberalisation	FNF	-0.26144	1.07526**	1.02909**
		(0.60116)	(0.45196)	(0.43828)
	INF	0.45677	-0.79625**	-0.81705**
		(0.58490)	(0.33794)	(0.33134)
Political Factors	COR	3.00489***	-0.62684	-0.29347
		(0.98456)	(0.88028)	(0.81587)
	POS	-0.41384***	-0.15166	-0.15787
		(0.09742)	(0.11040)	(0.10673)
Governance	ROL	-1.26151***	0.03351	0.05206
		(0.26864)	(0.25966)	(0.24680)
	GOE	-0.43007	-0.66599**	-0.61488**
		(0.34739)	(0.30189)	(0.28706)
Government Policy	TAB	0.01589	0.00396	-0.00060
		(0.01016)	(0.00861)	(0.00805)
	MYS	0.01482***	0.01125***	0.01296***
		(0.00189)	(0.00361)	(0.00328)
Macroeconomic factors	GDP	-0.00589	0.01598*	0.01609*
		(0.01912)	(0.00924)	(0.00904)
	CPI	0.01288***	0.01103***	0.01077***
		(0.00327)	(0.00176)	(0.00169)
	Constant	6.34310***	7.54744***	7.53653***
		(0.51317)	(0.37641)	(0.49147)
	Observations	129	129	129
	R-squared	0.78066	0.67516	

Notes: ***, ** and * indicates that the variable is statistically significant at significance level 1%, 5% and 10% respectively.

Source: Developed for research

4.2.4 Model Comparison Test

To test which model is the most appropriate model to determine the factors of money laundering, we applied three different tests which are the Redundant Fixed Effect test, Lagrange Multiplier (LM) test and the Hausman test. Firstly, we conducted the Redundant Fixed Effect test to compare the POLS model and the FEM model. As stated in Table 4.2, the result from the Redundant Fixed Effect test demonstrates a p-value of 0.0000, which is smaller than the 1%, 5% and 10% significance level. Hence, we reject the null hypothesis, and we have sufficient evidence to conclude that the FEM model is preferable as compared to the POLS model. We then move on to the Lagrange Multiplier (LM) test to assess the suitability of the POLS model over the REM model. From the Table 4.2, we can see that the probability of the Lagrange Multiplier (LM) test is 0.0000 which is also smaller than the 1%, 5% and 10% significance level. Therefore, the null hypothesis is rejected, and we have sufficient evidence to conclude that the REM model is more suitable than the POLS model. Since both the LR test and LM test proved that the POLS model is not desirable for our panel data, we would need to run the Hausman test to find out the most appropriate model among the FEM and REM model. The results of the Hausman test showed a p-value of 0.7283. In this case, we do not reject null hypothesis since the p-value is larger than the 1%, 5% and 10% significance level. Hence, we concluded that the REM model is the most suitable model to test our panel data.

Table 4.3 Model Comparison Test

	Probability (p)	H$_0$	Decision	Conclusion
Redundant Fixed Effect test	0.0000	Pooled OLS is preferable.	Reject null hypothesis.	FEM preferable
Lagrange Multiplier (LM) test	0.0000	Pooled OLS is preferable.	Reject null hypothesis.	REM preferable
Hausman test	0.7283	REM is preferable.	Do not reject null hypothesis.	REM preferable

Note: If probability, p<0.01, 0.05, 0.1; reject null hypothesis.

4.3 Generalized Least Square Estimator

As mentioned in the previous segment 4.1.4, we concluded that the REM model is the best-fitted model to test our panel data. According to Hauser (2010), the REM model has a specific error structure and one of the elements of the error is that it is an individual specific component which does not vary over time. As mentioned in Chapter 3, the REM model is assumed to be random and uncorrelated with the independent variables. Hauser (2010) stated that the simple OLS estimator does not capture the specific error structure of the REM model. Hence, the Generalized Least Square (GLS) estimator needs to be used to estimate the REM model. Thornton (n.d.) claimed that the Generalized Least Square (GLS) estimator has a few inherent properties such as the estimator is unbiased, efficient and the standard errors are unbiased and consistent. According to Thornton (n.d.), heteroscedasticity and autocorrelation information are not applied in the Ordinary Least Square (OLS) estimator; whereas in the Generalized Least Square (GLS) estimator, the heteroscedasticity and autocorrelation information are used. Consequently, the OLS estimators waste information. Therefore, for diagnostic tests, we exclude the diagnostic testing for heteroscedasticity and autocorrelation since REM model is estimated under the Generalized Least Square (GLS) estimator. We will then proceed to perform the diagnostic testing for the normality and multicollinearity test.

4.4 Scale Measurements

4.4.1 Normality Test

Table 4.4 Normality Test

	Jarque-Bera Test Statistic	Probability (p)
Normality Test	0.493012	0.781527

Note: If probability, p<0.01, 0.05, 0.1, reject null hypothesis.

The normality test results show that the p-value of the Jarque-Bera statistics is 0.781527, which is higher than the 1%, 5% and 10% significance level. Hence, we do not reject the null hypothesis. In this case, we have sufficient evidence to conclude that the error term is normally distributed.

4.4.2 Multicollinearity

According to Gujarati and Porter (2009), if the pairwise correlation coefficient exceeds 0.8000 or is lower than -0.8000, then variables are considered to have serious multicollinearity problem. From the Table 4.4, all the pairwise correlation coefficient are not more than 0.8000 and are not lesser than -0.8000. Hence, we can conclude that there is no serious multicollinearity problem among our independent variables.

Table 4.5 Multicollinearity

	LNIFF	LRI	SMC	RIF	FNF	INF	GOI	POS	ROL	GOE	TAX	MYS	GDP	CPI
LNIFF	1.0000													
LRI	-0.1612	1.0000												
SMC	0.2036	-0.1022	1.0000											
RIF	-0.4143	-0.2223	-0.3207	1.0000										
FNF	-0.0005	0.3870	-0.3917	-0.1351	1.0000									
INF	-0.0919	0.2944	-0.4162	-0.0500	0.6492	1.0000								
COR	-0.1317	0.4816	-0.1196	-0.2721	0.5945	0.5354	1.0000							
POS	-0.1088	0.3230	0.3217	-0.5285	0.1059	-0.0382	0.4940	1.0000						
ROL	-0.1759	0.2108	0.4971	-0.3468	0.1532	0.1283	0.6293	0.5831	1.0000					
GOE	0.1201	0.1752	0.6139	-0.4365	0.1730	0.0609	0.5419	0.5518	0.8592	1.0000				
TAB	-0.0809	-0.4081	-0.3467	0.6029	-0.1993	-0.1272	-0.3852	-0.5367	-0.5357	-0.5660	1.0000			
MYS	0.4827	-0.0129	0.3195	-0.2038	-0.1293	-0.2064	0.1440	0.1532	0.2644	0.4680	-0.2853	1.0000		
GDP	-0.2387	0.2965	-0.0448	0.0549	-0.0772	-0.0453	0.0913	0.1025	-0.0636	-0.1012	-0.1037	-0.0833	1.0000	
CPI	0.2764	0.0014	0.0716	-0.0661	0.1794	0.077	0.1419	0.0611	0.1105	0.1599	-0.1000	0.2431	-0.2608	1.0000

Source: Developed for research

4.5 What drives Money Laundering?

4.5.1 Empirical Findings of REM Model

Table 4.6 Summary of Findings (REM Model)

	Variables	Results
Financial Market Development	Lerner Index	Significant
	Stock Market Capitalization	Insignificant
	Remittance Inflows	Insignificant
Liberalisation	Financial Freedom	Significant
	Investment Freedom	Significant
Political factors	Corruption	Insignificant
	Political Stability	Insignificant
Governance	Rule of Law	Insignificant
	Government Effectiveness	Significant
Government Policy	Trade Barriers	Insignificant
	Money Supply	Significant
Macroeconomic Factors	Gross Domestic Product	Significant
	Consumer Price Index	Significant

According to the REM model, the Lerner Index (LRI), financial freedom (FNF), investment freedom (INF), government effectiveness (GOE), money supply (MYS), gross domestic product (GDP) and consumer price index (CPI) are found to be statistically significant.

Firstly, one of the variables from the financial sector development pillar which is the Lerner Index is found to be negatively related to money laundering. Low Lerner Index suggests that there is a high level of bank competition, and

higher level of bank competition will improve the financial stability and bank profitability in a country (Beck, Dermirgue-Kunt & Levine, 2006). According to the Financial Action Task Force (2018), money launderers will tend to invest their illicit funds in countries with a stable financial system.

For the liberalisation pillar, the results indicate that higher financial freedom will contribute to a higher level of money laundering in developing countries. If a state has a high degree of financial freedom, it suggests that the people will be able to own more financial resources. When people have more financial resources, they will have more chances to engage in money laundering activities. Furthermore, investment freedom is negatively related to the level of money laundering in developing countries. When a nation has a higher rate of investment freedom, the people will have better business opportunities and it will boost the financial development of the country. Capasso and Jappelli (2013) claimed that the financial development of a country will reduce the occurrence of underground activities.

In the governance pillar, a higher level of government effectiveness is found to reduce the level of money laundering in developing countries. When a nation has a secured and stable government, it will be more difficult for money launderers to invade into the country, leading to a lower level of money laundering. This finding is compatible with the results of the studies by Reuter (2005) and Livescu (2017).

Moreover, the money supply variable from the government policy pillar is positively related to the level of money laundering. This finding is justified since high level of money supply indicates that money launderers have more instruments to launder their illicit funds in a country. Since cash and banknotes are the primary media of money laundering activities, the increase in money supply will put the money launderers into an advantage.

Both GDP and CPI from the macroeconomic pillar are proven to be positively related to the level of money laundering. One of the explanations for the GDP variable is that when a country's GDP level increase, it indicates that the nation's production level is increasing as well. Although money laundering activities are considered as an underground production, it is logical to conclude that the level of money laundering increases along with the increase in production level in the regular economy. However, this finding is not compatible with the results of Quirk (1997) and Argentiero et al. (2008) which stated a negative relationship between money laundering and GDP. The increase in the consumer price index indicates that there is an increase in the price level of goods and services in a country. According to Flesher (2012), an increase in the consumer price index is desirable for governments and businesses, but it places the consumers in a disadvantaged situation. This is because households may need to incur additional expenses to sustain their current standard of living. Hence, the people will try to involve themselves in illegal activities such as money laundering to gain some extra income. This finding is in line with the findings of Sota et al. (2013) and Matsoso (2015).

To sum up, the liberalisation and macroeconomic factors pillars are the most impactful pillars towards the level of money laundering in developing nations. It turns out that a country's restriction on private individual activities will affect the amount of money laundering activities in a certain way. Money launderers will also tend to assess the macroeconomic conditions of a country before transferring their illicit fund into the country.

On the contrary, variables such as the stock market capitalisation (SMC), remittance inflows (RIF), corruption (COR), political stability (POS), rule of law (ROL), and trade barriers (TAB) are statistically insignificant. These results contradict with previous findings by Schneider et al. (2000); Goredema (2004); Mugarura (2010); Dell'Anno (2016) and Elbahnasawy et al. (2016).

4.5.2 Money Laundering in a Broader Aspect

Table 4.7 Comprehensive View on Money Laundering

Variables	(1) Financial Market Development	(2) Liberalisation	(3) Political Factors	(4) Governance	(5) Government Policy	(6) Macroeconomic Factors
LRI	-0.737	-0.841*	-0.903**	-0.870*	-0.900**	-0.663*
	(0.511)	(0.457)	(0.460)	(0.493)	(0.440)	(0.368)
SMC	0.00649***	0.00516**	0.00598***	0.00731***	0.00345*	0.00211
	(0.00228)	(0.00206)	(0.00209)	(0.00225)	(0.00196)	(0.00170)
RIF	0.0946***	0.0940***	0.0899***	0.0601**	0.0151	0.0391
	(0.0283)	(0.0260)	(0.0259)	(0.0267)	(0.0380)	(0.0357)
FNF		2.811***	2.717***	2.695***	2.053***	1.029**
		(0.464)	(0.464)	(0.492)	(0.473)	(0.438)
INF		-1.479***	-1.553***	-1.670***	-1.116***	-0.817**
		(0.430)	(0.430)	(0.461)	(0.385)	(0.331)
COR			1.421*	1.248	0.318	-0.293
			(0.835)	(0.889)	(0.916)	(0.816)
POS			-0.197	-0.204	-0.110	-0.158
			(0.121)	(0.130)	(0.126)	(0.107)
ROL				0.217	-0.0379	0.0521
				(0.289)	(0.285)	(0.247)
GOE				-0.366	-0.458	-0.615**
				(0.328)	(0.331)	(0.287)
TAB					-0.00200	-0.000598
					(0.00930)	(0.00805)
MYS					0.0213***	0.0130***
					(0.00317)	(0.00328)
GDP						0.0161*
						(0.00904)
CPI						0.0108***
						(0.00169)
Constant	9.296***	8.813***	8.288***	8.450***	7.613***	7.537***
	(0.329)	(0.386)	(0.449)	(0.441)	(0.477)	(0.491)
Observation	158	158	158	158	129	129

Notes: ***, ** and * indicates that the variable is statistically significant at significance level 1%, 5% and 10% respectively.

Source: Developed for research

Table 4.7 exhibits the results of the overlapping impact of each variable whenever a distinct pillar is introduced into the Random Effect regression model. Money supply (MYS) is the only variable that remained statistically significant at 1% significance level throughout the regression model. On the contrary, political stability (POS), rule of law (ROL), and trade barriers (TAB) were utterly insignificant throughout the entire regression model.

The Lerner Index (LRI) was insignificant at the beginning of the regression model, but it became slightly significant at 10% significance level at the end of the regression model. Conversely, stock market capitalisation (SMC) was highly significant at 1% significance level before introducing other pillars. However, the stock market capitalisation (SMC) changed into total insignificant when they approach the end of the regression model. In developing countries, the capital markets are underdeveloped and there are limited financial services provided (Fredholm & Taghavi-Awal, 2006). According to Singh (1999), developing countries will face more difficulties in promoting their stock markets due to the high cost and weak financial structure. Investors in developing countries will opt to invest their capital in the money market rather than the capital market. Therefore, it can be seen in the Table 4.7, when the money supply variable is introduced into the model, the effect of the stock market capitalization (SMC) variable on money laundering reduced from the highest significance level of 1% to the lowest significance level of 10%. The remittance inflows (RIF) was at the highest significance level of 1% in the beginning of the regression model, but it's significance level decrease gradually after the introduction of the governance pillar. Money laundering through remittance inflows can be better controlled if a country has better governance in their anti-money laundering measures.

Financial freedom (FNF) and investment freedom (INF) were significant at 1% significance level but became less significant at 5% significance level after the

introduction of the macroeconomic pillar. This is an indication that the macroeconomic conditions will affect the liberalisation in a country. An individual's financial and investment freedom is restricted when the nation is experiencing an economic recession since they will own limited financial resources. The corruption (COR) variable was at the lowest statistical significance level of 10% but changed into a total insignificant variable towards the end of the regression model after the introduction of governance pillar. According to Beddow (2016), poor governance in a country will cause the country to experience a high corruption rate.

In the governance pillar, the government effectiveness (GOE) variable turned from an insignificant variable into a significant variable at 5% significance level after the introduction of the macroeconomic factors' pillar. The study of Han, Khan and Zhuang (2014) found that the government effectiveness in a country is correlated with the macroeconomic stability of a country which explains the changes of the significance of the government effectiveness variable after the introduction of macroeconomic factors pillar. The study also highlighted that the rule of law (ROL) in a country does not have a considerable effect on a nation's economic development. Hence, it can be seen in Table 4.7 that the rule of law (ROL) variable remained statistically insignificant despite the introduction of the macroeconomic factors' pillar.

In a nutshell, the gradual introduction of each pillar into the REM regression model will impose an effect on the results of the overall REM regression model.

4.6 Comparison of Regional Models of ASEAN, BRICS and other developing countries

Table 4.8 Comparison between BRICS, ASEAN and developing countries

	VARIABLES	REM ASEAN	REM BRICS	REM OTHERS
Financial Market Development	LRI	-1.13476 (0.75485)	-0.48456 (0.78004)	-1.41370 (1.16551)
	SMC	0.01853*** (0.00597)	0.00129 (0.00214)	-0.01053 (0.01563)
	RIF	0.03242 (0.03712)	0.14186 (0.09843)	-0.24037*** (0.05334)
Liberalisation	FNF	-0.35056 (0.94806)	2.32225** (1.02162)	-0.40234 (1.43484)
	INF	-1.10005 (0.96496)	-0.19591 (0.93475)	-1.05955 (0.80680)
Political Factors	COR	2.09926 (2.53695)	-3.70590** (1.78848)	1.49339 (1.70454)
	POS	-0.13547 (0.15410)	-0.28468 (0.26565)	-0.18037 (0.18723)
Governance	ROL	-0.00654 (0.71875)	-1.11780*** (0.35376)	-0.01586 (0.59895)
	GOE	-1.22853 (0.76962)	-0.38533 (0.43849)	-1.34935* (0.74087)
Government Policy	TAB	-0.07479*** (0.02455)	0.03270*** (0.00904)	-0.03137* (0.01600)
	MYS	0.00202 (0.00321)	0.01841*** (0.00264)	0.04988*** (0.01692)
Macroeconomic factors	GDP	-0.02500 (0.02680)	0.01598 (0.01466)	0.02483 (0.02255)
	CPI	0.00471 (0.00444)	0.01117*** (0.00334)	0.02062*** (0.00549)
	Constant	8.84528*** (1.04890)	7.45494*** (0.61115)	6.15941*** (1.19747)
	Observations	45	49	35

Notes: ***, ** and * indicates that the variable is statistically significant at significance level 1%, 5% and 10% respectively.

Source: Developed for research

In this section, we will be discussing about the results of the regional test and the difference between the results of each regional model will be showcased. Table 4.8 demonstrates the comparison of money laundering factors among the three country regions which are ASEAN, BRICS and other developing countries. Among the three country regions, BRICS has the highest number of significant variables, following by other developing countries and lastly ASEAN with only 2 statistically significant variables.

The Lerner Index (LRI) was completely insignificant in all three ASEAN, BRICS and other developing countries regional model. The Lerner Index (LRI) is an indicator of the market power in the banking industry (Elzinga & Mills, 2011). When we segregate our countries into three regional model of ASEAN, BRICS and other developing countries, the impact of the banking industry's market power on the level of money laundering of the segregated model is not as influential as compared to the aggregated model. Hence, the results show that the Lerner Index (LRI) does not affect the level of money laundering in the three different regions of developing countries.

The stock market capitalization (SMC) was found to be highly significant in ASEAN countries but insignificant in BRICS and other developing countries. According to the Asia Regional Integration Center (2015), the ASEAN Capital Market Forum was formed in the year 2004 to foster the development of capital markets in ASEAN countries. Since ASEAN countries focus specifically on improving the development of the capital market, more capital inflows are more likely to enter the capital market of ASEAN countries. Higher capital inflows will result in a higher likelihood of the occurrence of money laundering activities in ASEAN's capital market. Besides, the remittance inflows (RIF) variable is significant at the highest significance level of 1% in other developing countries but statistically insignificant in ASEAN and BRICS countries.

Furthermore, the financial freedom (FNF), corruption (COR) and the rule of law (ROL) variables are found to be only significant in BRICS countries in affecting the level of money laundering whereas the government effectiveness (GOE) variable is only significant in other developing countries. Trade barriers (TAB) are found to be significant in all three ASEAN, BRICS and other developing countries.

On the other hand, money supply (MYS) is statistically insignificant in ASEAN, but significant in BRICS and other developing countries. This scenario is somehow correlated to the significance of the stock market capitalization (SMC) variable in ASEAN countries. In ASEAN countries, investors are more likely to invest in the capital market over the money market. Hence, the money supply in ASEAN countries does not contribute to the changes in money laundering level in ASEAN countries.

4.7 Chapter Summary

In this chapter, we managed to obtain insights regarding the determinants of money laundering in developing countries. After comparing among the three models, POLS, FEM and REM, we found that the REM model is the best-fitted model to describe the factors affecting money laundering activities in developing countries. We also performed diagnostic testing to ensure that our data is normal and free from multicollinearity. According to the REM model, 7 out of 13 independent variables are found to be statistically significant. We concluded that the drivers of money laundering in developing countries are mainly the market power of the banking industry, liberalization of a nation, government effectiveness, money supply and the macroeconomic conditions of the country. In this chapter, we discussed money laundering in a broader aspect by assessing the effect of each pillar of variables on the REM regression model. We also assessed the factors of money laundering in different country regions such the ASEAN countries, BRICS countries and other developing countries. All three country regions have shown mixed results due to the distinct elements of each country region.

CHAPTER 5: CONCLUSION

5.0 Introduction

Money laundering is a global issue, which gives birth to the terrorism, militancy or even corruption; it will strengthen the terrorism and also provides them with an opportunity to ruin an economy or even world. Therefore, it is essential to highlight the issues for the authorities towards the true side of money laundering, as it can be harmful to any financial sector and economy especially in developing countries. The primary objective of this research aims to investigate and quantify the relationship between illicit financial funds and those selected independent variables by using the panel data analysis. By using a secondary data for our example of research, we have chosen ASEAN, BRISC and others countries which a total of 19 countries which the range from the year 2003 to 2014. Besides that, the purpose of this research is to investigate the causal relationship between each group of the variables and illicit financial flows. Therefore, making a comparison among all of the variables groups is one of step for us to get the final result and contribution. In this chapter, we will summarise the findings of our research and also some policy implements should be implemented will be suggested based on our findings. Lastly, we will also discuss and highlight on the limitations or gaps that we had found throughout our research and also discuss on the recommendations that could be useful for the researchers that wanted to create research in the relevant or related field in the future.

5.1 Summary of findings

This research is to understand how developing countries react to money laundering and use a proper way to control money laundering activities in the country that will affect the financial economy in the country by using law enforcement.

Based on the findings in Chapter 4 of our research, the REM model is proven to be the most appropriate model to test our panel data. Since we have tested that REM model is the most preferable model, based on the result of REM model in Chapter 4, there are 7 variables that are statically significant and 6 variables that are statistically insignificant to our dependent variable, money laundering. Based on the result in Chapter 4, we can conclude that the level of money laundering in developing countries will increase if a country has:

      i.   High level of bank competition
      ii.   High financial freedom
      iii.   Low investment freedom
      iv.   Weak government effectiveness
      v.   High money supply
      vi.   High GDP rate
      vii.   High inflation rate

However, the results of our findings show that the level of money laundering in different country regions which are the ASEAN, BRICS and other developing countries is drove by different factors. This is due to the distinct element of each country regions. The disparity may come from the difference of cultures and behaviour of their citizens, the role of the government and institutions and the general macroeconomic conditions of each country regions. Hence, the money laundering activities are droved by different factors in each country regions which are ASEAN, BRICS and other developing countries.

5.2 Policy implications

The rising trend in money laundering is a key message to all the countries worldwide. It is crucial that governments consider the occurrence of money laundering when they are implementing the nation's economy and financial policy to prevent their country from being invaded by the money laundering crime.

The Financial Action Task Force (FATF) was established in the year 1989 and a series of international Anti-Money Laundering (AML) standards were implemented. Countries were required to comply with the AML standards that were developed by the FATF and the compliance to the standards are strictly monitored by the FATF. The AML system makes it compulsory for countries to report on the Currency Transaction Reports (CTRs) and Suspicious Activity Reports (SARS) to monitor the transparency of the country as an effort to hinder the pervasiveness of money laundering activities in the country (Reuter & Truman, 2005).

According to our results obtained from Chapter 4, the level of money laundering is more likely to increase if a country has a high level of bank competition, high financial freedom, low investment freedom, weak government effectiveness, high money supply, high GDP rate and high inflation rate. Policy makers can impose different schemes and efforts to reduce the pervasiveness of money laundering according to the determinants identified.

Based on the study of Vives (2011), the deregulations in the banking industry will impede the competition in the banking industry. Hence, to lower the competition in the banking industry, the nation's policy maker, central bank and fiscal authorities can intervene by imposing stricter controls on the capital movements, interest rates and the banking investment activities in the banking industry. These control policies will reduce the liberalisation in a country which will subsequently reduce the degree of financial freedom and investment freedom in a country.

However, our findings stated that high level of investment freedom in a country will reduce the occurrence of money laundering in a country. Hence, policy makers need to be cautious when they are implementing a tight economic policy to impede the pervasiveness of money laundering. Government should be selective while imposing restrictions and lift controls that specifically affect the investment regime. Government can also enter to a multilateral trade agreement to enhance the degree of liberalisation of investment in a country (Egger, Larch & Pfaffermayr, 2004).

Government effectiveness is the efficacy of the government in the conduct of public affairs and the quality of public services. Policy makers can improve the government effectiveness by improving the quality of public institutions. According to Schneider and Williams (2013), the quality of public institutions is consider as one of the factors influencing the size of money laundering, however, a good quality of public institutions could prevent the pervasiveness of money laundering. The instability of institutional due to the lack of transparency will undermine the willingness to be involved in a normal market because they will thought they are not in a fair market (Razmi, Falahi & Montazeri, 2013). The enhancement of rules and regulations by government in the information transparency in public institutions could keep the high effectiveness of government to combat money laundering. The transparency of information could minimize the chance of a public institutions to involve in money laundering, a full disclosure of their operation and financial to make clear of their business nature and operations to the public and government. Besides, it also help in promoting an efficient market economy to lower down the underground activities as in money laundering.

Government should also monitor the level of money supply in the market and ensure that there is no excessive supply of money in the market. If there is excessive supply of money, government should intervene by applying a tight monetary policy. A tight monetary policy may involve measures such as increasing the reserve requirements and the discount rate.

High inflation rate will contribute to the increase in money laundering in a country. According to the descriptive statistics in Chapter 4, 4.1, the results show that the inflation rate is relatively high in the selected developing countries in our study. Hence, the level of money laundering will be affected by the high inflation rate in the selected developing nations. The government or central banks of these nations can apply the inflation targeting policy to maintain a low and stable inflation rate within the country. The inflation targeting is a monetary policy at which the central bank will announce the official target range of the inflation rate to the public (Bernanke & Mishkin, 1997). The central bank can manipulate the inflation rate of the nation by raising or lowering the interest rates according to the target ranges of inflation rate of the country. Therefore, the inflation targeting policy will be able to stabilize the price and support the development of the country in the long run. When the price levels in a country are stabilized, the regular economy will be able to excel as compared to the shadow economy in which money laundering is based in.

5.3 Limitations of the study

Our major limitation is we have unbalanced data for our independent variables where we collected 19 different countries from the year of 2004 to 2013. We struggled to search the complete data from the various database. This reduces the accuracy of our data set where there are few countries that do not have complete data figures in between the periods of the country. Based on Kang (2013), unbalanced data will reduce the statistical power which affects the probability that is rejecting the null hypothesis when it is not true. Unbalanced data will lead to having a bias in the estimation of parameter, and it may create complication on the study.

In our research, the data constraint of our data is also one of the limitations of our study where our data is only up to 2013 and not the latest year which is 2017. This is because money laundering activities are classified as production and transactions in

the underground economy. Hence, it is difficult for institutions or central banks to estimate the level of money laundering in each country. This scenario results in the scarce information and data of the money laundering estimate from reliable and certified sources. The Global Financial Integrity is the most reliable source that provides data estimates for money laundering. However, the Global Financial Integrity only published the illicit fund flows estimates up to the year 2014. In this case, due to absence of the latest illicit fund flows estimate for the latest year, our research can only predict the determinants of money laundering based on the past estimates. Therefore, the future researchers should do future research on this topic with the latest data to recognise our current situation in each country.

Besides, another limitation in our study is the presence of the endogeneity problem in our panel data. The endogeneity problem will lead to a critical problem for our research as it understanding of the critical condition to claim on causality. Endogeneity problem is most commonly appears in the context of ordinary least square estimation (Zaefarian, Kadile, Henneberg & Leischnig, 2017). Endogeneity problem might lead to incorrect inferences which it may provide a misleading result at the end of the research (Ullah, Akhtar and Zaefarian, 2018). In a statistical model, endogeneity problem happens when there is a correlation between the independent variables and the error term. Endogeneity is also caused by having omitted variables (Sorensen, 2012). Endogeneity problem can happen due to a loop of causality between the dependent and independent variables of a model.

5.4 Recommendations

Future researchers are encouraged to take into account a more extended period for their research to enhance the accuracy and reliability of the findings. Besides that, future researchers are suggested to consider making the number of the variables in different group to be tally, as this ensures that the comparison between different

groups looks more convincing. This is because people might make an assumption where some of the groups that might consist more number of variables usually will become the group that will have a great influence on the result of the illicit financial flows. On the other hand, future researchers are also recommended to identify more variables that could significantly affect the result of the illicit financial flows, excluding those variables that have been identified previously in our research. This will offer them an observation of a more accurate result and relationship on the illicit financial flows.

Last but not least, future researchers also able to improve this study by comparing different developing countries with those developed countries, to check on the accuracy and the differences by using and emphasizing the same group of the variables for illicit financial flows. Lastly, future researchers can study deeper by only using one group of the variable that could impact the most on the illicit financial flows, instead of emphasizing on several groups of variables.

5.5 Chapter Summary

In a nutshell, the negative impacts of the pervasiveness of money laundering in a country are substantial and it could hurt the economic and financial structure of developing countries. The determinants of money laundering in different country regions will differ in a certain way due to distinct elements of each country. Hence, it is vital that governments or policy makers apply the correct strategies and policy to combat the occurrence of money laundering in a country. Future researchers can extend the literature of the determinants of money laundering by assessing the pervasiveness of money laundering with latest money laundering data. Our research has filled in the gap in the literature of the determinants of the pervasiveness of money laundering in developing countries.

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APPENDICES

Appendix 4.1 Redundant Fixed Effect Test

```
Fixed-effects (within) regression              Number of obs     =        129
Group variable: idc                            Number of groups  =         15

R-sq:                                          Obs per group:
     within  = 0.6752                                        min =          5
     between = 0.0184                                        avg =        8.6
     overall = 0.0449                                        max =         10

                                               F(13,101)         =      16.15
corr(u_i, Xb)  = -0.3358                        Prob > F          =     0.0000

------------------------------------------------------------------------------
     LNIFF |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-----------+------------------------------------------------------------------
       LRI | -.5886916   .3752589    -1.57   0.120    -1.333104    .155721
       SMC |  .0018954    .001772     1.07   0.287    -.0016198   .0054105
       RIF |   .082384   .0404214     2.04   0.044     .0021988   .1625692
       FNF |   1.07526   .4519642     2.38   0.019     .1786847   1.971836
       INF | -.7962525   .3379374    -2.36   0.020    -1.466629  -.1258755
       GOI | -.6268425   .8802821    -0.71   0.478    -2.373085     1.1194
       POS | -.1516647   .1104046    -1.37   0.173    -.3706778   .0673483
       ROL |  .0335126   .2596642     0.13   0.898    -.4815913   .5486164
       GOE | -.6659869   .3018868    -2.21   0.030    -1.264849  -.0671247
       TAX |   .003956   .0086112     0.46   0.647    -.0131263   .0210383
       MYS |  .0112469    .003612     3.11   0.002     .0040817   .0184122
       GDP |   .015983   .0092392     1.73   0.087    -.0023452   .0343111
       CPI |  .0110297    .001759     6.27   0.000     .0075403   .0145191
     _cons |  7.547443    .376415    20.05   0.000     6.800737   8.294149
-----------+------------------------------------------------------------------
   sigma_u |  1.2503086
   sigma_e |   .2404249
       rho |  .96434212   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(14, 101) = 42.50                  Prob > F = 0.0000
```

Appendix 4.2 Breusch and Pagan Lagrange multiplier test

```
LNIFF[idc,t] = Xb + u[idc] + e[idc,t]

Estimated results:
                 |       Var      sd = sqrt(Var)
         --------+-----------------------------
           LNIFF |   1.432951        1.197059
               e |    .0578041        .2404249
               u |   1.742391        1.319997

Test:   Var(u) = 0
                      chibar2(01) =    192.94
                   Prob > chibar2 =    0.0000
```

Appendix 4.3 Hausman Test

Note: the rank of the differenced variance matrix (13) does not equal the number of coefficients being tested (14); be sure this is what you expect, or there may be problems computing the test. Examine the output of your estimators for anything unexpected and possibly consider scaling your variables so that the coefficients are on a similar scale.
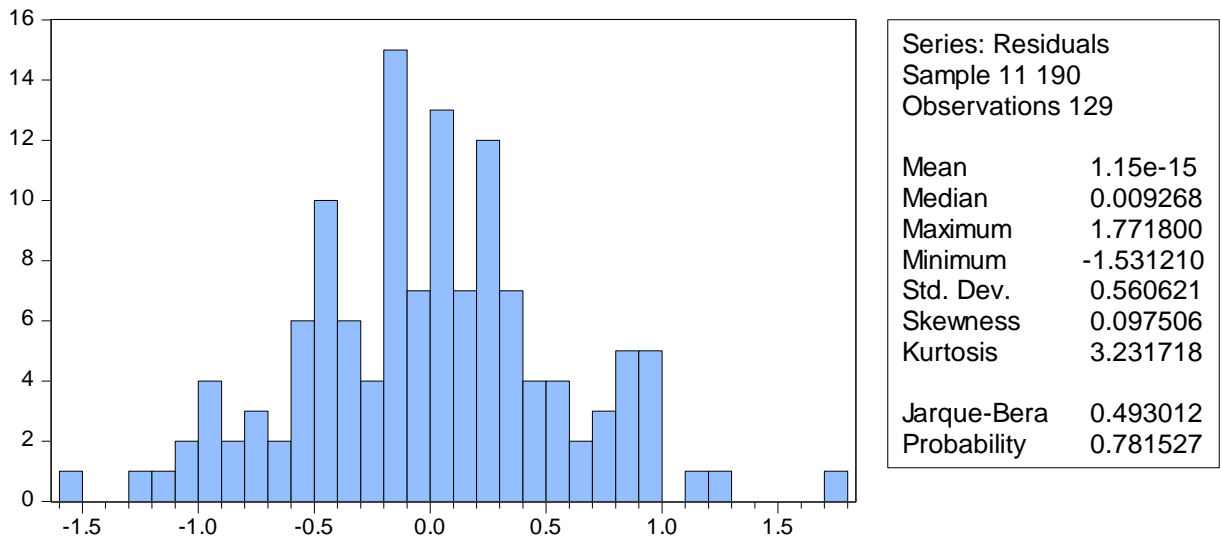
```
              ---- Coefficients ----
           |      (b)          (B)            (b-B)      sqrt(diag(V_b-V_B))
           |      FEM          REM          Difference          S.E.
-----------+-------------------------------------------------------------------
       LRI |  -.5886916    -.6632738        .0745822          .0352354
       SMC |   .0018954     .0021069       -.0002116          .0004091
       RIF |   .082384      .0391382        .0432459          .0176009
       FNF |   1.07526      1.029088         .0461722          .0785059
       INF |  -.7962525    -.8170494         .0207969          .0324183
       GOI |  -.6268425    -.2934653        -.3333772          .293972
       POS |  -.1516647    -.1578738         .006209           .0209576
       ROL |   .0335126     .0520551        -.0185426          .0672921
       GOE |  -.6659869    -.6148849        -.0511021          .0777507
       TAX |   .003956     -.0005983         .0045542          .002678
       MYS |   .0112469     .0129587        -.0017118          .0013901
       GDP |   .015983      .016091         -.000108           .0010863
       CPI |   .0110297     .0107716         .0002581          .0003629
     _cons |   7.547443     7.536534         .0109086              .
-------------------------------------------------------------------------------
                     b = consistent under Ho and Ha; obtained from xtreg
          B = inconsistent under Ha, efficient under Ho; obtained from xtreg

   Test:  Ho:  difference in coefficients not systematic

            chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                    =           9.57
          Prob>chi2 =        0.7283
          (V_b-V_B is not positive definite)
```

Appendix 4.4 Normality Test

Series: Residuals	
Sample 11 190	
Observations 129	
Mean	1.15e-15
Median	0.009268
Maximum	1.771800
Minimum	-1.531210
Std. Dev.	0.560621
Skewness	0.097506
Kurtosis	3.231718
Jarque-Bera	0.493012
Probability	0.781527

Appendix 4.5 Measurement of Dependent Variable (LNIFF)

Money Laundering

1. GFI presents figures in this report for the two main conduits of illicit financial flows from developing countries: a) the misinvoicing of trade (GER) and b) leakages from the balance of payments (HMN).

2. GFI measures trade misinvoicing using the Gross Excluding Reversals (GER) methodology. In essence, this methodology highlights gaps between a country's reported exports and imports vis-à-vis the world. This examination of gaps in trade statistics to quantify capital flight and tax evasion dates back to the 1960s in academic economic literature.[6] In this report, two related sub-variants of the GER methodology are employed: the "bilateral advanced economies" calculation and the "world aggregate" calculation. These variants are discussed at length in the methodological appendix. GFI has used this blended technique since 2013.[7]

3. This report calculates trade misinvoicing for 56 of 149 developing countries using the "bilateral advanced economy" method, nearly tripling the number of countries for which this more accurate calculation is made relative to GFI's previous reports.[8] For all but two of the countries joining this group, trade misinvoicing figures have been revised upwards compared to GFI's Illicit Financial Flows from Developing Countries: 2003-2012 (hereafter referred to as the *2014 IFF Update*),[9] sometimes drastically (see Appendix Table 7). This upward revision is to be expected: the "world aggregate" calculation tends to understate total misinvoicing, for reasons more fully discussed in the methodological appendix. A comparison of the illicit outflows figures presented in last year's report with this year's estimates is presented in Table A; note the upward revision at the aggregate level for all years but 2009.[10]

Appendix 4.6 Measurements of Independent Variables

Lerner Index

Series	Lerner index(GFDD.OI.04)
Indicator Name	Lerner index
Short definition	A measure of market power in the banking market. It compares output pricing and marginal costs (that is, markup). An increase in the Lerner index indicates a deterioration of the competitive conduct of financial intermediaries.
Long definition	A measure of market power in the banking market. It is defined as the difference between output prices and marginal costs (relative to prices). Prices are calculated as total bank revenue over assets, whereas marginal costs are obtained from an estimated translog cost function with respect to output. Higher values of the Lerner index indicate less bank competition. Lerner Index estimations follow the methodology described in Demirgüç-Kunt and Martínez Pería (2010). Calculated from underlying bank-by-bank data from Bankscope.
Source	Bankscope, Bureau van Dijk (BvD)
Topic	Other
Periodicity	1996-2014
Aggregation method	Median

Stock Market Capitalisation

Series	Stock market capitalization to GDP (%)(GFDD.DM.01)
Indicator Name	Stock market capitalization to GDP (%)
Short definition	Total value of all listed shares in a stock market as a percentage of GDP.
Long definition	Value of listed shares to GDP, calculated using the following deflation method: $\{(0.5)*[Ft/P\_et + Ft\text{-}1/P\_et\text{-}1]\}/[GDPt/P\_at]$ where F is stock market capitalization, P_e is end-of period CPI, and P_a is average annual CPI. End-of period CPI (IFS line PCPI) and average annual CPI is calculated using the monthly CPI values (IFS line PCPI).
Source	World Federation of Exchanges; Global Stock Markets Factbook and supplemental S&P data, Standard & Poor's
Topic	Depth
Periodicity	1989-2014
Aggregation method	Median

Remittance Inflows

Indicator Name	Remittance inflows to GDP (%)
Short definition	Workers' remittances and compensation of employees comprise current transfers by migrant workers and wages and salaries earned by nonresident workers. Data are the sum of three items defined in the fifth edition of the IMF's Balance of Payments Manual: workers' remittances, compensation of employees, and migrants' transfers.
Long definition	Workers' remittances and compensation of employees comprise current transfers by migrant workers and wages and salaries earned by nonresident workers. Data are the sum of three items defined in the fifth edition of the IMF's Balance of Payments Manual: workers' remittances, compensation of employees, and migrants' transfers. Remittances are classified as current private transfers from migrant workers resident in the host country for more than a year, irrespective of their immigration status, to recipients in their country of origin. Migrants' transfers are defined as the net worth of migrants who are expected to remain in the host country for more than one year that is transferred from one country to another at the time of migration. Compensation of employees is the income of migrants who have lived in the host country for less than a year.
Source	World Development Indicators (WDI), World Bank
Topic	Other
Periodicity	1970-2014
Aggregation method	Median

Financial Freedom

These five areas are considered to assess an economy's overall level of financial freedom that ensures easy and effective access to financing opportunities for people and businesses in the economy. An overall score on a scale of 0 to 100 is given to an economy's financial freedom through deductions from the ideal score of 100.

- **100—Negligible government interference**.
- **90—Minimal government interference**. Regulation of financial institutions is minimal but may extend beyond enforcing contractual obligations and preventing fraud.
- 80—Nominal government interference. Government ownership of financial institutions is a small share of overall sector assets. Financial institutions face almost no restrictions on their ability to offer financial services.
- **70—Limited government interference**. Credit allocation is influenced by the government, and private allocation of credit faces almost no restrictions. Government ownership of financial institutions is sizeable. Foreign financial institutions are subject to few restrictions.
- **60—Significant government interference**. The central bank is not fully independent, its supervision and regulation of financial institutions are somewhat burdensome, and its ability to enforce contracts and prevent fraud is insufficient. The government exercises active ownership and control of financial institutions with a significant share of overall sector assets. The ability of financial institutions to offer financial services is subject to some restrictions.
- **50—Considerable government interference**. Credit allocation is significantly influenced by the government, and private allocation of credit faces significant barriers. The ability of financial institutions to offer financial services is subject to significant restrictions. Foreign financial institutions are subject to some restrictions.
- **40—Strong government interference**. The central bank is subject to government influence, its supervision of financial institutions is heavy-handed, and its ability to enforce contracts and prevent fraud is weak. The government exercises active ownership and control of financial institutions with a large minority share of overall sector assets.
- **30—Extensive government interference**. Credit allocation is extensively influenced by the government. The government owns or controls a majority of financial institutions or is in a dominant position. Financial institutions are heavily restricted, and bank formation faces significant barriers. Foreign financial institutions are subject to significant restrictions.
- **20—Heavy government interference**. The central bank is not independent, and its supervision of financial institutions is repressive. Foreign financial institutions are discouraged or highly constrained.
- **10—Near repressive**. Credit allocation is controlled by the government. Bank formation is restricted. Foreign financial institutions are prohibited.
- **0—Repressive**. Supervision and regulation are designed to prevent private financial institutions. Private financial institutions are prohibited.

Investment Freedom

The *Index* evaluates a variety of restrictions that are typically imposed on investment. Points, as indicated below, are deducted from the ideal score of 100 for each of the restrictions found in a country's investment regime. It is not necessary for a government to impose all of the listed restrictions at the maximum level to effectively eliminate investment freedom. Those few governments that impose so many restrictions that they total more than 100 points in deductions have had their scores set at zero.

Investment restrictions:

National treatment of foreign investment

• No national treatment, prescreening	25 points deducted
• Some national treatment, some prescreening	15 points deducted
• Some national treatment or prescreening	5 points deducted

Foreign investment code

• No transparency and burdensome bureaucracy	20 points deducted
• Inefficient policy implementation and bureaucracy	10 points deducted
• Some investment laws and practices non-transparent or inefficiently implemented	5 points deducted

Restrictions on land ownership

• All real estate purchases restricted	15 points deducted
• No foreign purchases of real estate	10 points deducted
• Some restrictions on purchases of real estate	5 points deducted

Sectoral investment restrictions

• Multiple sectors restricted	20 points deducted
• Few sectors restricted	10 points deducted
• One or two sectors restricted	5 points deducted

Expropriation of investments without fair compensation

• Common with no legal recourse	25 points deducted
• Common with some legal recourse	15 points deducted
• Uncommon but occurs	5 points deducted

Foreign exchange controls

• No access by foreigners or residents	25 points deducted
• Access available but heavily restricted	15 points deducted
• Access available with few restrictions	5 points deducted

Capital controls

• No repatriation of profits; all transactions require government approval	25 points deducted
• Inward and outward capital movements require approval and face some restrictions	15 points deducted
• Most transfers approved with some restrictions	5 points deducted

Up to an additional 20 points may be deducted for security problems, a lack of basic investment infrastructure, or other government policies that indirectly burden the investment process and limit investment freedom.

Corruption

Government Integrity

Corruption erodes economic freedom by introducing insecurity and uncertainty into economic relationships. The score for this component is derived primarily from Transparency International's Corruption Perceptions Index (CPI) for 2011, which measures the level of corruption in 183 countries.

The CPI is based on a 10-point scale in which a score of 10 indicates very little corruption and a score of 0 indicates a very corrupt government. In scoring freedom from corruption, the *Index* converts the raw CPI data to a scale of 0 to 100 by multiplying the CPI score by 10. For example, if a country's raw CPI data score is 5.5, its overall freedom from corruption score is 55.

For countries that are not covered in the CPI, the freedom from corruption score is determined by using the qualitative information from internationally recognized and reliable sources.[1] This procedure considers the extent to which corruption prevails in a country. The higher the level of corruption, the lower the level of overall economic freedom and the lower a country's score.

Sources. Unless otherwise noted, the *Index* relies on the following sources for information on informal market activities, in order of priority: Transparency International, *Corruption Perceptions Index*, 2011; U.S. Department of Commerce, *Country Commercial Guide*, 2009–2012; Economist Intelligence Unit, *Country Commerce*, 2009–2012; Office of the U.S. Trade Representative, *2012 National Trade Estimate Report on Foreign Trade Barriers*; and official government publications of each country.

Political Stablity

Indicator Name	Political Stability and Absence of Violence/Terrorism: Estimate (PV.EST)
Long definition	Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.
Source	Detailed documentation of the WGI, interactive tools for exploring the data, and full access to the underlying source data available at www.govindicators.org.The WGI are produced by Daniel Kaufmann (Natural Resource Governance Institute and Brookings Institution) and Aart Kraay (World Bank Development Research Group). Please cite Kaufmann, Daniel, Aart Kraay and Massimo Mastruzzi (2010). "The Worldwide Governance Indicators: Methodology and Analytical Issues". World Bank Policy Research Working Paper No. 5430 (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1682130). The WGI do not reflect the official views of the Natural Resource Governance Institute, the Brookings Institution, the World Bank, its Executive Directors, or the countries they represent.
Periodicity	Annual

Rule of Law

Series	Rule of Law: Estimate(RL.EST)
Indicator Name	Rule of Law: Estimate
Long definition	Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.
Source	Detailed documentation of the WGI, interactive tools for exploring the data, and full access to the underlying source data available at www.govindicators.org.The WGI are produced by Daniel Kaufmann (Natural Resource Governance Institute and Brookings Institution) and Aart Kraay (World Bank Development Research Group). Please cite Kaufmann, Daniel, Aart Kraay and Massimo Mastruzzi (2010). "The Worldwide Governance Indicators: Methodology and Analytical Issues". World Bank Policy Research Working Paper No. 5430 (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1682130). The WGI do not reflect the official views of the Natural Resource Governance Institute, the Brookings Institution, the World Bank, its Executive Directors, or the countries they represent.
Periodicity	Annual

Government Effectiveness

Series	Government Effectiveness: Estimate(GE.EST)
Indicator Name	Government Effectiveness: Estimate
Long definition	Government Effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.
Source	Detailed documentation of the WGI, interactive tools for exploring the data, and full access to the underlying source data available at www.govindicators.org.The WGI are produced by Daniel Kaufmann (Natural Resource Governance Institute and Brookings Institution) and Aart Kraay (World Bank Development Research Group). Please cite Kaufmann, Daniel, Aart Kraay and Massimo Mastruzzi (2010). "The Worldwide Governance Indicators: Methodology and Analytical Issues". World Bank Policy Research Working Paper No. 5430 (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1682130). The WGI do not reflect the official views of the Natural Resource Governance Institute, the Brookings Institution, the World Bank, its Executive Directors, or the countries they represent.
Periodicity	Annual

Trade Barriers

Indicator Name	Taxes on international trade (% of revenue)
Long definition	Taxes on international trade include import duties, export duties, profits of export or import monopolies, exchange profits, and exchange taxes.
Source	International Monetary Fund, Government Finance Statistics Yearbook and data files.
Topic	Public Sector: Government finance: Revenue
Periodicity	Annual
Aggregation method	Median

Money Supply

Broad money (% of GDP)

Broad money (IFS line 35L..ZK) is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper.

Source: International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates.

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Aggregation Method: Weighted Average

General Comments: The derivation of this indicator was simplified in September 2012 to be current-year broad money divided by current-year GDP times 100.

Long Definition: Broad money (IFS line 35L..ZK) is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper.

Periodicity: Annual

Gross Domestic Product

GDP growth (annual %)

Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

Source: World Bank national accounts data, and OECD National Accounts data files.

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Aggregation Method: Weighted average

Consumer Price Index

Consumer price index (2010 = 100)

Consumer price index reflects changes in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used. Data are period averages.

Source: International Monetary Fund, International Financial Statistics and data files.

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Base Period: 2010