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**IMPACT OF MONETARY POLICY AND  
MACROECONOMIC ENVIRONMENT ON ISLAMIC  
BANKING OPERATIONS IN A DUAL BANKING SYSTEM  
OF MALAYSIA**

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**Mohammed Zakkariya Mulkiaman**

**Thesis Submitted in Fulfilment of the Requirements for the  
Degree of Doctor of Philosophy at Durham University**

**Durham Doctoral Training Centre for Islamic Finance  
School of Government and International Affairs (SGIA)  
Durham University Business School (DUBS)  
Durham University, United Kingdom**

**2016**

# **Impact of Monetary Policy and Macroeconomic Environment on Islamic Banking Operations in a Dual Banking System of Malaysia**

by

Mohammed Zakkariya Mulkiaman

## **Abstract**

The emergence of Islamic banking and finance since 1984 had contributed to the financial development leading to economic growth in Malaysia. Since Islamic banks operate within the dual banking system in Malaysia, it is inevitable that Islamic banking operations have interacted with the monetary policies and outcomes of the existing (conventional) system and as a result interact with interest rate related developments as well. In addition, macroeconomic interaction in the sense of Islamic banking contributing to economic growth will be higher if Islamic banks grow and increase their market share in the industry perhaps through applying legitimate Islamic compliance products and valid contracts.

This research, hence, aims to assess the impact of monetary policy as well as macroeconomic outcomes on Islamic banking operations and *vice versa* in the case of Malaysia in particular in the post-1990 period. In doing so, each research question is examined and answered in three separate yet connected empirical papers. Each econometric analysis is based on two steps Engle-Granger tests with different timelines and sampling due to availability of the data. The main tests conducted was two steps Engle-Granger approach which involved Ordinary Least Square estimation, Residual testing, and Cointegration test. Vector Error Correction Model and Granger Causality were also employed for further investigation of the long and short-run relationship between variables.

The finding indicates that the Islamic banks do have long run dynamic relationship with economic growth. However, the conventional banks are the dominion due to small market share of the Islamic banks which is less than 30 per cent.

With regards to the interest rate interaction, both conventional and Islamic interbank money market rates moving closely in the long run statistically indicates that Islamic inter-bank money market is co-integrated in long-run because both conventional and Islamic banks are subjected to the same monetary policy. While saving interest rates of the conventional banks and profit rates of the Islamic banks are not associated but moving parallel need to adjust their return rates in the long short and long run either slightly higher or lower to remain competitive in the market.

The findings on the relationship between Islamic banks saving profit rates spread show that they are affected by financial factors such as inflation rate and real interest rate. This indicates that Islamic banks are exposed to the interest rates risk, as they operate under the dual banking system and reign by the same monetary policies.

The results indicate that there is a close and inevitable interaction between Islamic banking operations and monetary policy outcomes. In particular close operational relationship between Islamic banking profit rates and interest rates should be considered as a source of worry in the face of the religious positioning of the prohibition of interest rate. The outcome reflects that prohibition of *riba* is only considered as the form nature of Islamic law (*Shari'ah*), while the operations of Islamic banks are vulnerable to interest rates risk in everyday life. However, in dual banking system such interactions will be inevitable.

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## LIST OF ABBREVIATIONS

ADF	-	Augmented Dickey Fuller
AITAB	-	<i>Al-Ijarah Thumma Al-Bay</i>
AR	-	Autoregression
BAFIA	-	Banking and Financial Act
BBA	-	<i>Al-Bay Bithaman Ajil</i>
BLR	-	Base Lending Rate
BLUE	-	Best Linear Unbiased Estimate
BNM	-	Bank Negara Malaysia
BNMN	-	Bank Negara Monetary Notes
BNNN	-	Bank Negara Negotiable Notes
CBM	-	Central Bank of Malaysia Act
CPI	-	Consumer Price Index
CSR	-	Corporate Social Responsibility
DOSM	-	Department of Statistics of Malaysia
ECM	-	Error Correction Model
GDP	-	Gross Domestic Products
GFCF	-	Gross Fixed Capital Formation
GII	-	Government Investment Issue
GPD PC	-	Gross Domestic Product Per Capita
HPA	-	Hire Purchase Act
IAB	-	Islamic Accepted Bills
IBA	-	Islamic Bank Act
IBONDS	-	Islamic Bonds
ICP	-	Islamic Commercial Papers
IFSB	-	International Financial Services Board
IIMM	-	Islamic Interbank Money Market
IMF	-	International Monetary Fund
IMTN	-	Islamic Medium Term Notes
i-PDS	-	Islamic Private Debt Securities
IRC	-	Interest Rate Ceiling
KHAZANAH	-	<i>Khazanah Nasional</i>
KLIBOR	-	Kuala Lumpur Interbank Offered Rate
LOG	-	Logarithm
LUTH	-	<i>Lembaga Urusan Tabung Haji</i> (Pilgrims Management Fund Board)
MSB	-	Monthly Statistical Bulletin
NEP	-	New Economic Policy
NID	-	Negotiable Instrument Deposits
NIM	-	Net Interest Margin
OECD	-	Organisation Economic Cooperation and Development
OLS	-	Ordinary Least Square
OMO	-	Open Market Operation
ONR	-	Overnight Policy Rate
PLS	-	Profit and Loss Sharing

PP	-	Phillip Perron
RIR	-	Real Interest Rate
RWA	-	Risk Weighted Average
RWCR	-	Risk Weighted Capital Ratio
SAC	-	<i>Shari'ah</i> Advisory Council
SMC	-	Sanadat Mudaharabah Cagamas
SPI	-	<i>Skim Perbankan Islam</i> (Islamic Banking Scheme)
SSE	-	Sum Squared Error
SSR	-	Statutory Reserve Requirement
2SLS	-	Two Stages Least Square
USA	-	United States of America
USD	-	United States Dollars
VDC	-	Volume of Direction of Credit
VEC	-	Vector Error Correction
WA	-	Wadiah Acceptance

## GLOSSARY OF ARABIC WORDS AND ITS MEANING IN ENGLISH

ARABIC WORD	MEANING
<i>Akhirah</i>	Hereafter. Life after death.
<i>Akhlaq</i>	Moral or ethics
<i>Al-bay al-dayn</i>	Sale of debt in which the creditor sells its payable right upon the debtor either to the debtor or to the third party.
<i>Al-adalah</i>	Justice. Fairness principle. To put something in the right perspective.
<i>Al-bay inah</i>	A contract, which involves the sale and buyback transaction of assets by a seller.
<i>Al-bay bithaman ajil</i>	A contract that refers to the sale and purchase for the financing of assets on a deferred and an installment basis with a pre-agreed payment period.
<i>Al-bay salam</i>	A contract whereby the payment is made in cash at the point of contract but the delivery of asset purchased will be deferred to a preset time and date.
<i>Al-Maqasid al-Shariah</i>	The aim and intention of the Islamic law
<i>Al-Wakala</i>	Agency.
<i>‘Aql</i>	human intellect/Intelligence.
<i>Aqeedah</i>	Belief/faith.
<i>Ar-rahnu</i>	Islamic pawn system
<i>Bay al-amanah</i>	A type of trust sale
<i>Baitul mal</i>	Treasury
<i>Bismillahir rahmanir rahim</i>	With the name of Allah almighty the most merciful and most benevolent
<i>Din</i>	Religion/Way of life.
<i>Dinar</i>	Islamic Gold money
<i>Dirham</i>	Islamic Silver money
<i>Fiqhi</i>	Islamic jurisprudence. The Principles of Islamic Jurisprudence. It covers all aspects of life – religious, political, social or economics etc.
<i>Fuqaha</i>	Islamic Scholar in Islamic Jurisprudence
<i>Gharar</i>	Uncertainty, hazard, chance or risk.
<i>Hadith</i>	Narration of saying from the prophet Muhammad (peace be upon him).

ARABIC WORD	MEANING
<i>Halal</i>	Lawful, permitted or permissible according to <i>Sharī'ah</i>
<i>Hibah</i>	Dividend
<i>Hijri</i>	Islamic calendar
<i>Hilal</i>	Legal device
<i>Ibadah</i>	Practice and activities
<i>Ibra</i>	Discount or Rebate
<i>Ijarah</i>	A lease agreement.
<i>Ijarah muntahiya bittamlik</i>	Leasing ending with ownership
<i>Ijarah thumma al-bay</i>	Leasing then buying
<i>Ijarah waiqtina</i>	Leasing for a particular of period and ending with ownership
<i>Ijtimai</i>	Social sector
<i>Islamic</i>	Following the principles of Islam
<i>Istihsan</i>	Principle of equity
<i>Istisna</i>	A contract of sale in which a supplier of the goods or services is asked to supply goods of definite specifications at agreed rates, place and time of delivery.
<i>Jizya</i>	Tax to non Muslim
<i>Kali-bi-Kali</i>	Swapping one debt with another debt
<i>Kant</i>	Prohibition of hoarding of coins
<i>Kurush</i>	Silver coin
<i>Maisir</i>	Gambling
<i>Mal</i>	Wealth
<i>Mandub</i>	Encouraged
<i>Muamalah</i>	Business dealings
<i>Muassarah</i>	Community or charitable activities
<i>Mubah</i>	Permissible
<i>Mudarabah</i>	Joint venture contract. One party provide capital, another party manage the business.
<i>Mudarib</i>	Refers to the partner who provides entrepreneurship and management in a <i>mudarabah</i> agreement.
<i>Mufti</i>	Islamic Scholar

ARABIC WORD	MEANING
<i>Murabahah</i>	A sale contract between the bank and its client for the sale of goods at a price which includes a profit margin agree by both parties.
<i>Musharakah,</i>	A profit and loss sharing contract.
<i>Mustauriq</i>	Customer or client
<i>Musyarakah mutanaqisah</i>	Diminishing partnership
<i>Nafs</i>	Human self
<i>Nasl</i>	Human posterity
<i>Qardhul Hassan</i>	Benevolent loan or an interest-free loan given mainly for welfare purposes.
<i>Quran</i>	Revealed Knowledge. The Holy Book of the Muslims consisting of the revelations made by Allah to the Prophet Muhammad (PBUH). The Quran lays down the fundamentals of the Islamic faith including beliefs and all aspects of the Muslim way of life.
<i>Rab al mal</i>	The owner of capital in a <i>mudarabah</i> contract. The owner agrees with the working party to give him an amount of money to be invested such that the profit is distributed among them with known predetermined percentages that are not based on the capital but on the amount of the realized profit itself. As for the loss (if any), is to be borne by the owner of capital alone and the working party suffers the loss of his effort and his time without any compensation.
<i>Riba</i>	Literally means an increase or addition.
<i>Riba al-fadhl</i>	Double or multiplying interest or compounding interest
<i>Sadaqah</i>	Donation/charity money
<i>Sanadat mudarabah</i>	<i>Mudarabah</i> bond
<i>Sharia'h</i>	Islamic law.
<i>Shirkat al-aqad,</i>	Partnership contract
<i>Shirkat al-milk</i>	Co-own partnership
<i>Sukuk</i>	An Islamic bond.
<i>Takaful</i>	Literally it means guaranteeing each other. It is a system of Islamic insurance based on the principle of mutual assistance ( <i>tawun</i> ) and voluntarily ( <i>tabbaru</i> ) where risk is shared collectively by the group voluntarily
<i>Tawarruq</i>	It is the method of how an Islamic bank is facilitating the demand/supply of cash from/to its customers. The

ARABIC WORD	MEANING
	bank's customers ( <i>mutawarriq</i> ) will buy a commodity on deferred payment basis from the bank and sells the commodity for a cash amount less than the deferred price to a third party (authorised commodity trader).
<i>Tawarruq al fardi</i>	Classical tawarruq
<i>Tawarruq al munazzam</i>	Organized <i>tawarruq</i> .
<i>Tawheed</i>	Oneness of God
<i>Tijari</i>	Commercial sector
<i>Umayyah</i>	One of the Islamic Caliphate Dynasty from 41 Hijri to 131 Hijri
<i>Uqudal-mu'awadhat</i>	Exchange contracts
<i>Uruf</i>	Customary practice
<i>Wadiah</i>	Saving
<i>Wajib</i>	Compulsory
<i>Waqf</i>	Endowment
<i>Zakah</i>	Tax in Islam. A tax, which is prescribed by Islam on all persons having wealth above a certain amount and that, is fixed by the Shariah. According to the Islamic belief Zakat purifies wealth and souls.

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# CHAPTER 1

## INTRODUCTION

### 1.1 BACKGROUND

Originally there is no word of '*Islamic banking*' under the teaching of Islam. In the Islamic history, there was no 'Islamic banks' during the time of Prophet Muhammad (*pbuh*). However, there were moneylenders, which loaned their monies and charged interest or *riba*<sup>1</sup> in their money lending activities. Borrowers who failed to pay their principal amount or interest rates were charged double or even triple or more than the original amount that they owed to the money lenders (As Sadr, 2000). To establish justice and avoid oppression in the society, Islam had prohibited the practice of *riba*. Even though, there was no Islamic bank at that time, the non-institutional nature of transactions was conducted minus the *riba* after the prohibitions.

A modern banking system in the world was established in the 17<sup>th</sup> century (Quinn,1997) and presently became the mainstream in the financial services sector. The banking system was established primarily for savings, deposit keeping and money lending activities. The money lending activities charges interest rates which is prohibited in Islam.

Therefore, Muslim scholars have developed products that resemble conventional banking products, replacing interest rate payments and discounting with fees and contingent payment structures (Beck, Demirguc-Kunt and Merrouche,2010:p.3). When this idea was implemented, it leads to emergence of the Islamic banking system. The principles of Islamic finance are such as:

- i) *Mudarabah*: A joint venture agreement made between two parties one which provides 100 percent of the capital for the project and another party

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<sup>1</sup> *Riba*-technically it denotes any increase or advantage obtained and accrued by the lender in a loan transaction without giving an equivalent counter-value or recompense in return to the borrower. (Nawawi, 1999). Linguistically *riba* in Islam means to increase, to grow, to exceed, to be more than or excess than principal amount (Razi, 2008,18). For further reading on *riba* and its prohibition in Islamic Law (Shari'ah) may also refer to Chapra, (2006), **Ahmad, and Hassan, (2007), and Zaman (2008).**

known as a *mudarrib*, who manages the project using his entrepreneurial skills. Profits are distributed according to a predetermined ratio. Any losses accruing are borne by the provider of capital. The provider of capital has no control over the management of the project (Aziz, Anjam, Fahim and Saleem, 2013).

- ii) *Murabahah*: A contract sale between the bank and its client for the sale of goods at a price which includes a profit margin agreed by both parties. As a financing technique, it involves the purchase of goods by the bank as requested by the client. The goods are sold to the client with a mark-up. Repayment, usually in instalments is specified in the contract. According to Mufti Usmani, one of the basic requirements for the validity of *murabahah* is that the commodity is purchased by the financier before selling it to the customer. In this case the financier is taking risk and the profit made by the financier is the reward for taking the risk (Usmani, 1998).
- iii) *Musyarakah*: A Partnership contract between two parties who both contribute capital towards the financing of a project. Both parties share profits on a pre-agreed ratio, but losses are shared on the basis of equity participation. Either parties or just one of them may carry out management of the project. This is a very flexible partnership arrangement where the sharing of the profits and management can be negotiated and pre-agreed by all parties. However, each partner is liable to their commitments (Arshad and Ismail, 2010).
- iv) *Ijarah*: Generally, *ijarah* is to give something on rent. Specifically, *Ijarah* is a leasing contract whereby a bank or financier buys an item (like a building, equipments etc) for a customer and then leases it to person over a specific period, thus earning profits for the owner of the asset by earning rental income (Vejzagic, 2014). There are three types of leasing contract namely, *leasing then buying contract (ijarah thumma al-bay)*, *leasing ending with ownership (ijarah muntahiya bittamlik)* and *leasing for a particular of period and ending with ownership (ijarah waiqtina)* (Bank Negara Malaysia, 2014).

- v) *Al-bay salam*: A contract whereby the payment is made in cash at the point of contract but the delivery of asset purchased will be deferred to a pre-determined date (Muhammad and Chong, 2007).
- vi) *Istisna*: A contract of sale in which a supplier of the goods or services is asked to supply goods of definite specifications at agreed rates, place and time of delivery. The price of the goods is paid in advance, but the goods are manufactured and delivered at a later date (Bank Negara Malaysia, 2010).
- vii) other Islamic Law (*Shari'ah*<sup>2</sup>) based contractual principles to products of the conventional banks (Bank Negara Malaysia, 2010).

This has been possible due to the fact that Islam does not restrict applying principles of Islam religion (*Islamization*) of any activity because the general rule is that, what was not prohibited is permitted in Islam. However, in the effort of Islamizing the existing conventional products, the main question is that: is it enough to Islamize the non-permitted (*non-halal*) products by applying Islamic finance principles to the banking sector to achieve the objective of Islamic Law (*al-maqasid al-Shari'ah*)<sup>3</sup>?. According to Al-Ghazzali, one of the Islamic Scholars, there are five main objectives Shari'ah namely, faith (din), human self (nafs), human intellect ('aql), human posterity (nasl) and wealth (mal). The objective of these five Shari'ah principals are to promote the well-being of all mankind and safeguarding public interest (Dusuki and Abdullah, 2007:31).

Islamic teaching consists of faith and belief (*aqeedah*), practices and activities (*ibadah*), financial and business dealings (*muamalah*), social and charitable activities (*muassyyarah*) and moral and ethics (*akhlaq*). There is a link between each of these

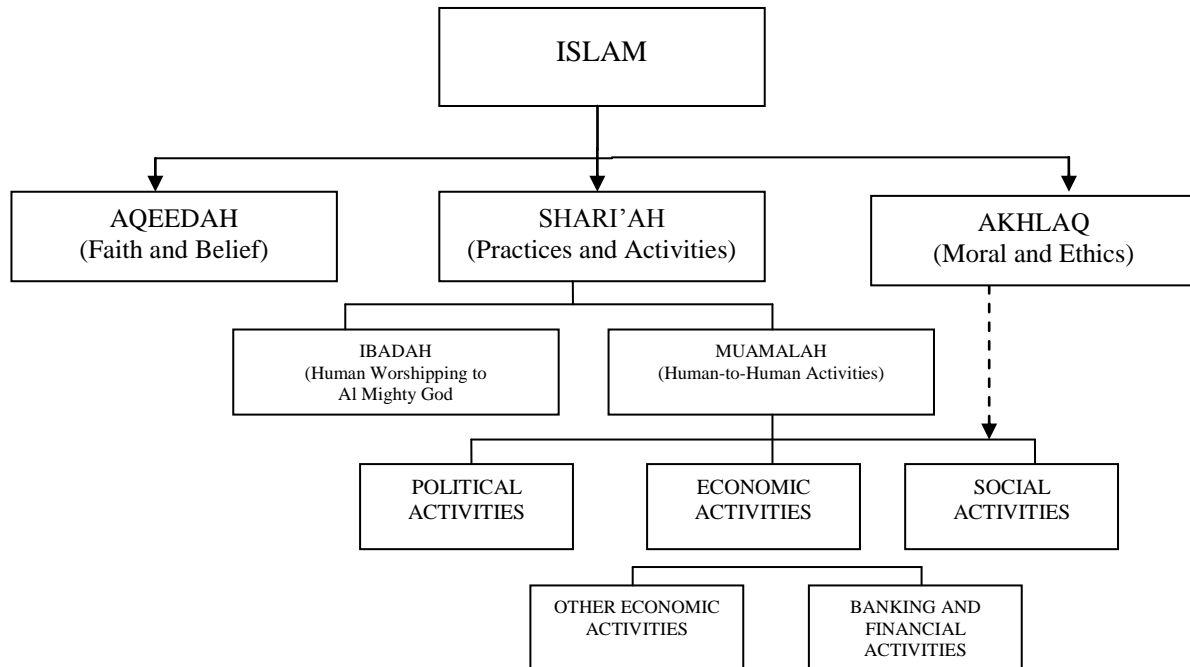
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<sup>2</sup> In legal terminology, *Shari'ah* means the law as extracted by the *Mujtahids* from the sources of law. The term *Shari'ah* can also mean divine guidance as given by the Quran and the *Sunnah* of the Prophet Muhammad (Peace be upon him) and embodies all aspects of the Islamic faith, including beliefs and practice. For further reading on Shari'ah please refer to book on Shari'ah Law by Kamali, 2008.

<sup>3</sup> For further reading on *Al-Maqasid Al-Shariah* please refer to Auda, Jasser (2007), Syed Ali and Hassan (2014) and Mohammad and Syahwan (2013).

principles and it cannot be practice in isolation or on a piecemeal basis. Figure 1.1 shows the position of Islamic finance and banking under the Islam.

Figure 1.1: Position Islamic Finance and Banking Activities under the Islam



Source: Asutay, (2014:p.75)

Note: (---) denotes the missing link between the commercial and non-commercial activities with Ethics and Morality.

There have been many studies conducted in the areas of Islamic finance and banking particularly on the development of Islamic finance and banking in Malaysia. Most of the research in the areas of Islamic finance has been on the risk management, liquidity management, profitability, quality management and service management, corporate social responsibility and performance of the Islamic banks. However, there is limited study regarding Islamic monetary policy and impact of the monetary policy on the Islamic banks operations. This research, however, aims to shift the debate on the impact of monetary policy on the Islamic bank's operations and vice versa.

Some of the researchers that had conducted studies on the Islamic monetary policy and concluded that Islamic monetary policy are the mainframe of development of the Islamic economics. According to Hassan (1998), monetary policy in the Islamic framework should play a vital role in establishing stability and growth. Prohibition of

interest as one of the fundamental pillars of Islamic economics makes the instruments and mechanism of the monetary policy different from the conventional economic.

According to Asutay (2007), since Islamic economics present an alternative system within a political economic framework pragmatist solutions are suggested to accommodate the monetary policy aspects of Islamic banking. In line with this, most of the scholars were focusing on the instruments of the monetary policy in the conventional system and suggesting a similar approach in implementing the Islamic monetary policy. The focus has been on utilizing '*Islamic*' instruments with the absence of the interest rate element.

Siddiqi (2008) opined that the monetary policy is one of the subsets of the Islamic economics. The goal of the Islamic monetary policy is to achieve the socio- economic justice and distribution of wealth. Monetary policy in a conventional system implemented through the Central Banks. Therefore, in Islamic Economics, the Central Bank must conduct monetary policy to achieve the Islamic socioeconomic objectives (Siddiqui, 2008).

This study explores the concept of monetary policy in Islam to answer the question as to whether is there a concept called monetary policy in Islam? How the Islamic Law based (*Shari'ah* based) principles utilized as the guiding principles of the Islamic monetary policy.

In addition to such conceptual questions, empirical attempts are made to explore the interaction areas between Islamic bank operations and the monetary policy outcomes and policies in Malaysia. As within the dual banking system, Islamic banks have consequences for monetary policy and monetary policy also causes Islamic banks.

## 1.2 PROBLEM STATEMENT

There are limited studies on monetary policy and its impact on the Islamic banking operations. Furthermore, the researcher could not find any comparative studies on the conventional policy with the Islamic monetary policy. Moreover, when a first Islamic bank was established in Malaysia in 1984, the understanding was that the banks will be not charging interest rate and all transaction will be interest free. At that time,

business contracts such as cost plus profit (*murabahah*), profit and loss sharing (*musharakah*), joint venture (*mudarabah*) and leasing (*ijarah*) was introduced for the Islamic banks.

However, in case of Malaysia, after about 20 years in operation, in 2004, the application of *murabaha* contract was 49.9 per cent, leasing was 24 per cent, *musyarakah* was 0.4 percent and *mudarabah* was at 0.1 per cent. *Murabahah* in Malaysia is referred to as deferred payment sale (*Al-Bay Bithaman Ajil-BBA*), (Chong and Liu, 2009). This triggered a question whether Islamic banks in Malaysia are Islamic?.

From 1987 till 2010, there were about 20 court cases of which majority involved *Al-Bay Bithamin Ajil (BBA)* facility (Hassan and Asutay, 2011;43). From 2003 to 2009, about 90 per cent of the Islamic finance cases registered related to BBA. In the case of *Bank Islam Malaysia Berhad v Adnan Omar (1994)*, the High Court held that the defendant was bound to pay the total amount of the selling price because he knew the terms of the contract and knowingly entered into the agreement. In the case of *Affin Bank Berhad v Zulkifli Abdullah (2006)* and *Malayan Banking Berhad v Marilyn Ho Siok Lin (2006)* the courts held that the Islamic contract of BBA was similar to a conventional loan and therefore the Islamic banks could not claim the unearned profits because it was equal to interest computation. In 2008, the High Court ruling in the case of *Arab Malaysian Finance Bhd v Taman Ihsan Jaya Sdn Bhd & Ors* that the application of the *Al-Bay Bithaman Ajil* was contrary to the Islamic Banking Act 1983 (IBA) and the Banking and Financial Institutions Act 1989 (BAFIA) These court rulings adversely affect the image of the Islamic bank in Malaysia (Hassan and Asutay, 2011,43-46).

The court judgement was that borrower of Islamic banks are bound to pay the total selling price when default, BBA contract is similar to conventional loan and application of the BBA was contrary to Islamic Banking Act (IBA) 1983. This judgment further adds confusion to the general public perception that the Islamic banks contracts are compliance to the Islamic law (Sha'riah). The Islamic banking and finance scholars and academics in Malaysia claimed that all products and services of Islamic banking and finance are Sha'riah compliance and interest free. The

Malaysian shariah scholar also claimed that the only element that is not *Islamic* for the Islamic banks are the monetary policy where the same monetary policy used by the Central bank in Malaysia for the conventional banks as well as for the Islamic banks. This motivates the researcher to investigate that how Islamic banks operate under the dual banking system in Malaysia. Even if the Islamic banks products are shariah compliance there must some effect on Islamic banks operations because the banks not only operating in a dual banking system but also subjected to the same monetary policy under the supervision of the Central Bank of Malaysia (BNM).

### 1.3 AIMS AND OBJECTIVES OF THE RESEARCH

This research aims to describe, explore, examine and analyze the economic impact of monetary policy on Islamic banks operation. The aims, hence, are also to explore the guiding principles of the Islamic monetary policy, identify differences between the conventional and Islamic Monetary Policy, examine the development of Islamic banks, explore the relationship between institutional and macroeconomic variables, investigate the causal effect between Islamic profit rates and conventional interest rates, and examine Islamic banks' contribution in expanding interest rates spread. However, since this research comprises of three different empirical investigating four different topics, the research aim and objectives for each essay are discussed individually below:

(i) The aim of the first essay is to examine and analyze the growth and investment function of the Islamic banks in Malaysia. In doing so, the following specific objectives are developed:

- a) to examine the relationship between growth of the GDP with growth of total financing and investment of the Islamic banks.
- b) to identify causality effect between the GDP and the total financing and investment of the Islamic banks;
- c) to measure the impact of the total Islamic bank financing on investment growth of the Islamic banks; and

- d) to investigate the GDP growth impact on the total financing of the conventional banks.
- (ii) The aim of the second essay is to examine and investigate the association and causality effect of the Islamic banks with the conventional inter-bank money market, savings and investment. It also aims to examine the short and long-term relationship between conventional deposit rates and Islamic investment rates. In fulfilling this, the following objectives are developed:
- a) to examine the causality effect between saving rates of interbank money market of the Islamic with conventional banks;
  - b) to examine the causality effect between fixed deposit rates of interbank money market of the Islamic with conventional banks;
  - c) to investigate the causality effect between saving rates of interbank money market rates of the Islamic and conventional banks; and
  - d) to investigate the causality effect between investment rates of interbank money market rates of the Islamic and conventional banks.
- (iii) The aim of the third essay is to investigate the market and macroeconomic determinant factors which affect the spread of Islamic profit and return on investment rates of the Islamic banks in Malaysia. In doing so, the following specific objectives are developed:
- a) to analyze the impact of GDP, bank growth and reserve requirement ratio on the Islamic profit rate spread of the Islamic banks;
  - b) to analyze the impact of GDP, Inflation, and Treasury Bill rates on return on investment rates spread of the Islamic banks;
  - c) to examine the causal effect between Islamic profits rates spread and interest rates spread of the conventional banks; and

- d) to examine the causal effect between Islamic investment rates spread and fixed deposit rates spread of the conventional banks;

#### 1.4 RESEARCH QUESTIONS

The research aims were to answer the following research questions, which include:

- (i) What are guiding principles of the monetary policy in Islam?
- (ii) What are the differences between the conventional and Islamic monetary policy?
- (iii) What are the determining factors of the growth of the Islamic banks for the year 1984 until the year 2012?
- (iv) Do Islamic banks contribute to the economic growth particularly the growth of the GDP?
- (v) Is there any causal relationship between conventional interest rates and Islamic profit rates?
- (vi) Do Islamic banks contribute in expanding the interest rate spread?

Three empirical chapters in this research aim to provide answers to the research questions (iv)-(vi).

#### 1.5 SCOPE OF THE STUDY

The empirical research in this study is designed as a paper-based with three empirical papers utilizing the secondary data. The data obtained from the website of the Bank Negara Malaysia (BNM) and also from the International Monetary Fund (IMF) database.

It should be noted that the literature review was limited to the issues of differences between the conventional and Islamic monetary policy. With regard to the empirical

chapters, the scope of analyses was confined to the Islamic banking industry in Malaysia.

## 1.6. RESEARCH METHOD

As described above, this research is a quantitative research. The approach is deductive, where the analyses were conducted utilizing mathematical modelling to investigate correlation, co-integration and to examine the long and short-run relationships between variables.

### 1.6.1 Data collection

Data for this study consist of secondary data, which are utilized to examine the impact of conventional monetary policy on Islamic banks. The secondary data obtained from Malaysian Central Bank, or Bank Negara Malaysia-BNM's, Monthly Statistical Bulletin, starting from the year 1984 until the year 2012. Some of the macroeconomic data were obtained from the BNM Annual Reports, BNM Financial Stability Reports and Malaysia's Economic Report published by the Ministry of Finance of Malaysia. Data on Malaysia's money supply was derived from the International Monetary Fund (IMF) Financial Statistics Database subscribed by the Durham University.

### 1.6.2 Data analysis

This section aims to briefly describe the statistical and econometrics methods used to analyse data in fulfilling the aim of the formulated relationship. By definition, this study is constructed within time series analysis. The data are analysed using the Econometrics Software, namely E-views<sup>4</sup> version 7. Among other econometric techniques employed include the *descriptive statistics corelogram test*, *unit root test*, *Lag Structure test*, two steps *Engle Granger* procedure which involved estimation of the raw data using OLS test followed by residual testing and test of cointegration by applying Johansen Co-integration test. If the data is stationary and the variables are cointegrated, then will proceed with the Vector Error Correction Model (VEC) test.

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<sup>4</sup> To learn how to use e-views application can refer to Brooks C.(2008) and Asteriou D. and Hall SG (2011), It contains e-views tutorials.

The Wald test and Granger causality was conducted to identify the short causality effect between the variables.

## 1.7 SIGNIFICANT CONTRIBUTION OF THE RESEARCH

This thesis adds value to the existing knowledge particularly in the areas of the Islamic banking operation and monetary policy in Islam. This research is first kind of venture to compare the monetary policy from conventional and Islamic point of view. As of to date, there is no discussion about the monetary policy from the Islamic perspective and comparing it with the conventional monetary policy which is implemented in the banking system including for the Islamic banks. Through the literature review, the reader able to differentiate in terms of definition, philosophy including the principles, instruments, similarity and principal differences between conventional monetary policy and Islamic monetary policy.

The literature also indicates that most of the conventional monetary instruments are *Islamic* and some instruments need modifications before applying it for the Islamic banks. Furthermore, there is also limited study on how monetary policy is transmitted in Islamic banks and its impact on Islamic banking operations. This research contributes in the areas of monetary policy impact on Islamic banking which operates under the dual banking system in Malaysia. It also describes the Malaysian monetary policy pre and post 1978 and elaborates on the development of Islamic banking system in Malaysia since year 1984 until the year 2010. The literature review finding shows that, despite a small market share, Islamic banks have greater potential to grow and increase the market share in future.

This research also a first time effort to investigates market determinant and macroeconomic determinant factors influencing the Islamic banks' saving and investment spread. Based on the literature, even subject of determinants fir interest rate spread is still inconclusive for the conventional bank. However, the result has shown that Islamic banks spread also affected by the market and macroeconomic determinants. It may provide some inputs and empirical evidence for further research in the areas of Islamic monetary policy. This research is a paper based with three empirical chapters. Each empirical chapter has its own literature review, methodology and analysis. The empirical chapters can be updated and submitted for publication. It

may also benefit various groups including the regulators, the *Shari'ah* scholars, the bankers, the academicians and the customer or the general public that are interested in this field.

The findings of the research may provide some inputs to the regulator predominantly to the Central Bank. The results of the finding also suggest that Islamic banks are affected by the implementation of the conventional monetary policy. Thus it is challenging the *Shari'ah* scholars to come out with the Islamic monetary policy for Islamic banks, where interest rates are no longer is the mechanism in transmitting the monetary policy.

The research suggests that the Islamic finance should not only be limited to the banking system. The Islamic banking and finance cannot be separated from the element of ethics and morality. The research also recommends that the Islamic banks cannot operate like conventional banks where profit maximization of the shareholder wealth becomes the main objectives. Despite Islamic banking products are *Shari'ah* compliant, the Islamic Banks will not be able to achieve the objective of *al-maqasid al-Shari'ah* if, it is continued to be administered by the conventional monetary policy.

## 1.8 AN OVERVIEW OF THE RESEARCH

This thesis is divided into three main parts with eight chapters. The first part is the literature review chapters; the second part consists of empirical chapters, while the third part presents analysis, contextualization of the findings, recommendations and conclusion.

*Chapter 1* describes the aim and objective of the thesis, which also outlines the research questions, thesis layout, scope of the study, and contribution to the existing knowledge.

*Chapter 2* (Conventional and Islamic Monetary Policy) discusses the definition and aspects of monetary policy from the conventional and Islamic perspective. With regards to the Islamic monetary policy, it describes the monetary system in the early Islamic period, end of bimetallism coinage system, deliberations on Islamic monetary policy and links of Islamic monetary policy with ethics and other principles of Islam.

*Chapter 3* (Malaysia Monetary Policy) presents an analysis of the Malaysian Monetary policy and how the Central Bank implemented the monetary policy. Malaysian monetary policy can be divided into two phases. First is prior to the 1978, and the second is after the year 1978. The chapter also elaborates on Islamic monetary and instruments and Islamic finance instrument used in the Malaysian Islamic banks.

*Chapter 4* (Performance of the Islamic Banks in Malaysia) reviews the past performance of the Islamic banks in Malaysia by looking at the total assets, deposits, financing and investment, capital and liabilities, and selected financial ratio of the Islamic banks. Overall the total assets, financing and deposits of the Islamic banks grew at an annual average rate of 23 per cent, 10.8 per cent and 14.3 per cent respectively. Overall the market share of the Islamic banks is still about 25 per cent of the financial system. The growth pattern provides evidence that the Islamic banks have greater prospects compared to conventional banks.

*Chapter 5*-Research Methodology- explained the procedures and steps involved in analysing the data using the econometric models and tests mainly the two steps of Engle-Granger test. The Engle Granger test is despite having its own weaknesses, but it is the simplest way to identify the cointegration between the variables. However, it also involves testing the residual to ensure that the data is stationary and the estimation result is not spurious and reliable.

*Chapter 6* (Islamic Banks Macroeconomic Nexus) investigates whether there is a relationship between Islamic banks with macroeconomic indicator such as GDP. Islamic banks variables are total financing and investment while macroeconomic indicators are GDP) as a proxy for economic growth, trade balance as proxy for net transfer from abroad, and Gross Fixed Capital Formation (GFCF) as a proxy for investment. The result of the finding indicates that the contribution of the Islamic banks to the GDP growth relatively very low due to the small market shares of the Islamic banks. With regards to the investment model, the finding shows that the indirect effect of the Islamic banks on investment is higher than the conventional banks.

*Chapter 7* (Causality Effects between Conventional Interest Rates and Islamic Profit Rates) explores if there is any causal effect between interest rates and profit rates of

Islamic banks. The Granger causality test utilized to examine the causal effect between conventional bank interbank rates with Islamic bank interbank profit rates. The rates include one year savings deposit rates and fixed deposit rates of one month, three months, six months, nine months and twelve months of the Islamic banks. The findings indicate that there is a long-run association between Islamic interbank money market rates with the conventional bank money market rates. The mean adjustment lag result indicates that the Islamic banks took shorter time than the conventional banks to adjust their profit rates against the interest rates of the conventional banks.

*Chapter 8* (Islamic Profit Rates Spread), being the last empirical chapter, intends to establish the fact that Islamic banks additionally contributing to the spread of interest rates. Market determinant variables are tested with macroeconomic variables, which include Islamic bank profit rates, investment rates of return and bank development ratio, while macroeconomic variables are GDP and the Reserve Requirement Ratio. The test result provides evidence that statistically Islamic banks spread of saving and investment affected by the statutory reserve requirement of the conventional monetary policy.

*Chapter 9* (Summary of Findings, Policy Recommendations and Conclusion) summarizes findings of the literature review chapters and empirical chapters. Among other findings of literature review chapters include that, there are substantial differences in principles between the conventional and Islamic monetary policy. There are some conventional monetary policy instruments such as reserve ratio, credit ceilings, selective credit control, issues of directives and moral suasion, which are suitable to be used as modern Islamic banking monetary policy instruments. Other instruments like an open market operation required modification and the bank rate policy are not suitable for Islamic bank monetary policy. The econometric test result shows some relevant and conclusive findings. For the empirical chapters, the result shows that statistically:

- (i) Conventional bank and Islamic banks do contribute to the economic growth. However, the contribution of the conventional banks are more significant due to bigger market share compared to the Islamic bank which is controlling less than 30 percent of the market share in Malaysia;

- (ii) The findings confirmed that statistically there is long-run association between conventional and Islamic interbank money market rates that Islamic banks overnight interbank money market rates and Islamic rates Granger cause conventional overnight interbank money market rates and vice versa. The result also indicates that there is no significant association between conventional bank saving rates with Islamic bank profit rates because the Islamic banks profit rates are always lower than the conventional banks; and
- (iii) the Islamic banks saving and investment spreads are affected by the market and macroeconomic determinant factors including the reserve requirement ratio and 12 months Treasury Bill rates set by the Bank Negara Malaysia.

The findings also indicate that the Islamic banks are sensitive to the adjustment of the conventional bank interest rates, and Islamic Banks are exposed to the interest rates risk, market risk and liquidity risk under the dual banking system.

## CHAPTER 2

### A SURVEY ON CONVENTIONAL AND ISLAMIC MONETARY POLICY

#### 2.1 INTRODUCTION

Monetary policy in conventional terms is often associated with the function of the Central Bank. The first Central Bank was established in the 17<sup>th</sup> century. The main function of a Central Bank in most of the countries is to act as the monetary authority for the monetary policy implementation by using specific monetary policy instruments. For example, in the event of a banking crisis, the Central Bank as the lender of last resort would bail out the banks using the tax payers' money or by printing additional money. Therefore, the banking system would not collapse and would continuously provide loans and financing by creating more debts in the financial system.

The concept of Islamic monetary policy is different from the conventional monetary policy. Many modern Muslim scholars define the meaning of Islamic monetary policy within the framework and function of the Central Bank. They propose instruments which are Islamic Law (*Shari'ah*) compliant to be used by the Central Banks to operate in the economy in a *Shari'ah* compliant manner.

This chapter aims to identify the differences between the conventional and Islamic monetary policy, and briefly discusses the background and the evolution of the monetary system, starting from barter trade to commodity money and implementation of gold and silver standard as the currency. After the failure of the gold standard, the Breton Wood system was begun to be implemented, according to which the US dollars were convertible to gold with the ratio of 1 ounce of gold equal to \$US 35. The Breton Wood system only survived until 1970, and subsequently fiat money (without any asset-based or asset-backed) became the legal tender as currency until present. There have been large numbers of research in the areas of monetary policy and on how the Central Bank controls the money supply.

The second section of this chapter explores the monetary system during the early Islamic period when Islamic gold dinar was used as the currency for international trade. However, due to various reasons, Islamic Gold dinar failed to sustain and ceased to exist as the currency at the end of the Ottoman Empire in the 18<sup>th</sup> century (Pamuk, 2002).

It should be noted that by definition, there are some differences between monetary policy and Islamic monetary policy. It should also be noted that monetary policy is generally confined to the activities of the Central Banks in terms of controlling the supply of money and inflation (Mathai, 2009). The supply of money and inflation is controlled through an adjustment of the rates of interest and using monetary policy instruments such as open market operations, reserve requirement, discount window lending, and currency board.

In a broader context, monetary policy in Islam is not limited to the scope of the Central Bank activities. It falls under the main principles of business dealings (*muamalah*) which comprises the commercial sector (*tijari*) as well as the social sector (*ijtimai*). While the foremost objective of the capitalist system is the maximization of wealth of the shareholders or stakeholders, in Islam, wealth is considered to belong to God and human beings are merely vicegerent of the God. As manager of the wealth, it is the responsibility of the Muslims to spend and distribute wealth according to the teaching of Islam (Chapra, 1985).

Furthermore, as an essential Islamic jurisprudence (*fiqhi*) financial principle, interest and interest rate is considered *riba* and prohibited in Islam, which constitutes the essential difference between Islamic and conventional monetary policy. Therefore, Islamic monetary policy cannot utilise interest rate as the mechanism to control inflation and money supply. On the other hand, in conventional monetary policy, interest rate is the principal instrument for implementation of the monetary policy.

Chapra (1985) of the view in Islamic economics, the absence of interest rate, and the existence of some institutions like *Zakah*, would minimize the speculative demand for money and make total demand for money in Islamic economics more stable. Chapra also opined that the monetary aggregate instruments play the main role for executing monetary policy in Islamic economics and this was also echoed by Mohamed Ariff

(1982) that monetary policy should be executed through controlling money supply without using interest based instruments (Kiae, 2007).

## 2.2 AN INTRODUCTION TO MONEY AND MONETARY SYSTEM

Monetary policy is related to the origin of money and the monetary system. However, nobody knows who and when money was invented. According to Davies, cattles were probably the oldest form of money from 9000 BC to 6000 BC in a barter dominated environment. When the needs to exchange goods expanded, they required a more efficient way of exchanging goods and commodity (Davies, 2002). In the beginning, the commodity was used as money, as commodities were exchanged to get other commodities. Shells and cowries were used before metals were introduced as money around 5000 BC. Later, transactions were conducted using money (Toutouchian, 2009).

The banking function originated from Babylon, Mesopotamia in the year 3000 BC to the year 2000 BC. At that time, palaces and temples provided places for storage of valuables (Davies, 2002: 48). By the year 700 BC, Lydians became the first in the Western world to make coins. By the year 600 BC, Pythius operated as the merchant banker in Asia Minor. But in 550 BC, Lydians produced separate gold and silver coins which were the world's foremost bimetallic coinage. In the year 546 BC, the Persian used gold coins and silver when they captured Croesus, King of Lydia (Davies, 2002: 62-65). From the year 600 to 300 BC, base metal coins were invented in China.

In the meantime, in the year 406-405 BC, Athens issued bronze coins with a silver coating because the Athens public were hoarding silver coins. The hoarding caused the silver coins to vanish from the currency circulation (Davies, 2002: 77-78). It was recorded in the history that among other problems with the metal currency was that it was exposed to hoarding and debasement of the content from its value. The shortage of copper in China caused the Chinese in the year 806 AD to invent fiat or paper money. Subsequently paper money was abandoned in 1455. Instead, paper notes appeared for the first time in the middle of the 16<sup>th</sup> century in Europe and in the United States of America on 10 March 1862.

Before the implementation of fiat (paper money) monetary system, gold was used as the standards for the international monetary system. At that time, the value of coins and bank notes of participating nations were specified in terms of quantities of gold (Acton, 2001). Under the gold standard, the value of the currencies was fixed as a primary reserve asset based on the value of gold. Similarly, the money supply or the amount of money issued by the member countries of the gold standard had to be directly linked to the value of gold. Some countries were using gold coins as their currency. Before 1914, the USA and other countries that were not using gold coins were required by law to have a certain percentage of gold to support their currencies (Colander, 2008).

The gold standards had enabled a country to prevent speculation on its currency and maintain stability of its exchange rate, as gold was not then a commodity. However, the disadvantages were that, when a country was in deficit of the balance of payment, it could not offset with expansionary monetary policy because the amount of money supplied was tied to the actual reserve of gold. The deficits also often led to recession which was among the reasons for abandonment of the gold standards in 1933 (Colander, 2008:434).

After the end of the Second World War II, the gold standard collapsed. The failure was mainly due to the shortage of money supply which led to deflation. The USA and its allies agreed to establish a new International Monetary System known as Bretton Wood. Under the new system, fixed exchange rates were maintained and not only gold, but the USA currency, namely dollar was convertible to gold. The member countries were allowed to request for payment in terms of gold or the US dollars. In the case of the USA, they had the distinct privilege of choosing between paying with printed US dollars or by using gold from its reserves (Gordon, 1993).

The principal feature of the Bretton Woods system was that each member country had an obligation to maintain the exchange rate of its currency against the US dollars. The national authorities were allowed to make small parity adjustments, but large changes would require approval from the IMF (Bofinger, 2001)

The Bretton Wood system established the International Monetary Fund (IMF) to provide short-term loans to member countries and the World Bank was established to arrange long-term loans to the developing countries. To ensure that there would be enough reserves, the IMF established a stabilization fund that allowed member countries to borrow a short-term loan to stabilize their currency. If there was disequilibrium in the exchange rates, the member countries must agree to adjust their exchange rates up to 10 per cent of one-time adjustment. However, the IMF approval was required when the adjustment was greater than one per cent (Colander, 2008:434).

The IMF subsequently created a universal money or known as ‘Special Drawing Right’ (SDR). However, the effort to establish SDR as an international currency was not successful because the US dollars continued to serve as the official reserves for individual and member countries. By 1970s, the amount of US Dollars exceeded the amount of the USA gold reserves. The member countries that held the US Dollars as their reserves started to demand their payment in terms of gold. (Colander, 2008:435).

Since, the USA was unable to pay in gold as demanded by the other countries, on 15<sup>th</sup> of August 1971, the USA unilaterally terminated convertibility of dollars to gold. When the US dollars were no longer convertible to the gold, the Bretton Wood System collapsed. This created the situation whereby, the USA dollars became the sole backing currency and a reserve currency for the IMF member countries. Since then, fiat money has become the leading medium of exchange in the IMF until today.

After the demise of the Gold Standard and Bretton Wood System, fiat money has been used as a medium of exchange which is not backed by any asset but by the government issuing a currency. The value of the currency in the fiat system is determined based through the supply and demand of the currency and exchange rates. Table 2.1 shows the summary development the monetary policy since the gold standard until the post-Bretton Wood.

Table 2.1: Summary Development of the Monetary Policy  
from Gold Standard to Post Bretton Woods

Period	Regime		Stability	
	Financial	Monetary	Financial	Monetary
Classical Gold Standard	Liberalized	Gold/Credible	No	Yes
Intra-war period	Liberalized	Mixed	No	Mixed
Bretton Woods	Repressed	Increasingly fiat non-credible over time	Yes	Lost over-time
Post-Bretton Woods	Liberalized	Fiat increasingly credible	No	Regained over-time

Source: Borio,2014,p.5.

According to Issing (2010), the history of monetary policy shows that money evolves from physical entities of scarce goods to either was backed by gold or silver. Monetary policy under the gold standard was determined by the evolution of its gold reserves and was constrained by the balance of payments. Among other goal of the monetary policy conduct at that time was to defend the external value of the currency which was based on the gold parity to other currencies. In the 20<sup>th</sup> century after the demise of gold standard and the Bretton wood system, the monetary policy changes from gold to paper currency (Issing, 2010). Although the monetary policy instruments change over time and period but the ultimate objective to achieve financial and monetary stability remain same.

In sum, the fiat money is accepted as the currency even though it has no intrinsic value because it is enforced as the legal tender by the issuing Government. Legal tender means the paper money is valid and legal as a means of payment, medium of exchange and payment of all public and private debts. In such as system, Central Bank remains at the centre of monetary policy using interest rates as the main tool to determine monetary outcomes through monetary policy.

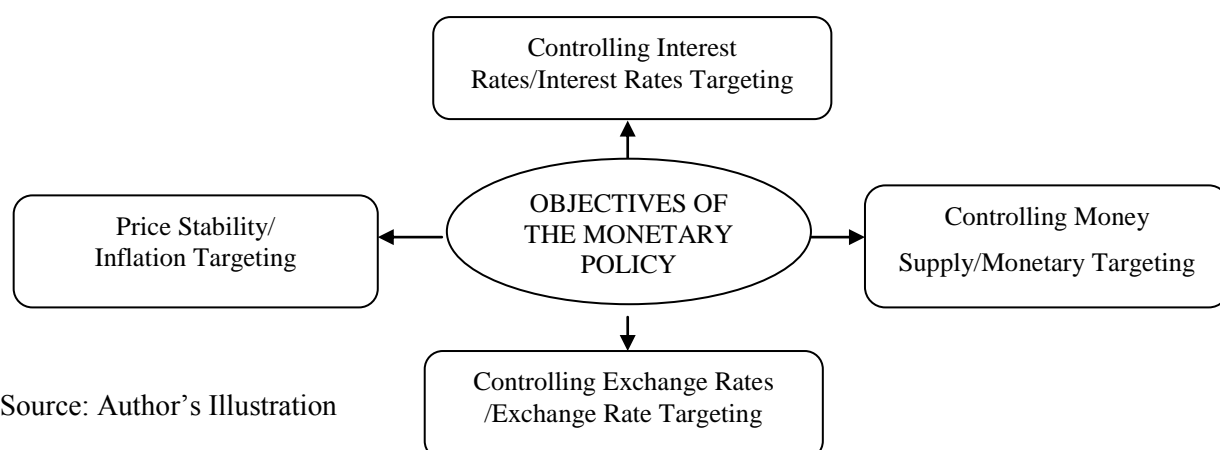
### 2.3 OBJECTIVES OF THE MONETARY POLICY

There are two types of policies under the macroeconomic framework, namely fiscal and monetary policy. Fiscal policies are related to the government income and expenditure while monetary policy is the process by which the government, Central Bank, or monetary authority of a country controls the growth and stability of the economy.

The main objectives of the monetary policy are to control the interest rates, stabilize output and inflation. The policy to control the interest rates known is as the interest rates targeting policy conducted by increasing or decreasing interest rates. The level of the interest rates may influence the cost of financing thus affects the real output growth and inflation rate. A set of condition required to effectively using interest rates targeting monetary policy. First, the money market has to operate smoothly so that changes in the central bank's short term policy rate can have an effect on the yield curve. Second, commercial banks' funding and liquidity management policies must allow a gradual adjustment of lending rates to money market setting. Third, whilst allowing the market to develop the risk management instruments that allow more active use of an interest rate, the monetary management has to ensure that money market conditions is in line with the monetary policy stance (Chailloux, Durré, Alain, and Laurens Bernard J.,2009)

Another objective of the monetary policy is to control the money supply, which aims at stabilizing the value of money known as the monetary targeting strategy. Excessive volatility of the exchange rate can disrupt the trade between countries and affect price stability, monetary stability and output growth. By controlling the money supply, it will also stabilise the exchange rate which is another main objective of the monetary policy (Cecchetti, 2000). In addition, a number of studies found that there is a relationship between changes of the quantity of money and the price level (see: Lucas, 1980; Dwyer and Halfer 1988' Friedman, 1992; Barro, 1993; McCandless and Weber, 1995; Rolnick and Weber, 1997; Dewald, 1998; Dwyer, 1988; Dwyer and Hafer, 1999). In a nutshell, the main objectives of the monetary policy can be illustrated as in Figure 2.1.

Figure 2.1: Objectives of the Monetary Policy



Source: Author's Illustration

The monetary policy is also concern about price stability or known as inflation targeting. Price stability is not only to keep the value of money stable but also help in reducing inequalities in income and wealth. The monetary policy can influence the assets prices and wages by setting the interest rates. Stable prices and steady economic growth will make ease for financial planning and an economy with inflation will have lower level of output (Cecchetti, 2000).

A line of empirical research focused on the behavior of inflationary expectations and employment costs of anti-inflationary policy under an inflation-targeting monetary regime. For example, Laubach (1997) examines long-term nominal interest rates and finds no evidence that the introduction of inflation targets affects expectations of inflation. In most cases inflationary expectations have come down as a result of the central bank's efforts to consistently maintaining low inflation. Mishkin (1999) cited the empirical studies by Almeida (1998) and Bernanke et al.(1999) which shows that, inflation expectations do not come down immediately after the adoption of an inflation-targeting monetary regime. Study by Posen (1995) found little evidence that inflation targeting has significantly reduced the employment costs of reducing inflation. Similarly study by Debelle (1996) and Blinder (1998) shows that there is also no reduction in the output loss associated with anti-inflationary policy targeting countries like in Australia, New Zealand and Canada (Epstein,2007).

The liberalization of international financial transactions may cause large amounts of capital flow into a country and back out just as quickly, and it would be difficult to maintain a stable exchange rate and could jeopardize financial stability. Therefore, the monetary policy of exchange rate targeting could influence and minimize currency exchange rate risk either through a fixed exchange rate policy or float currency regime. Experience shows changing path from a fixed exchange rate policy to a more flexible one may cause problems. Study by Eichengreen (1999) found that out of 29 countries examined, 23 countries abandoned fixed exchange rate regimes in favour of more flexible ones, the change was accompanied by a financial crisis (Petursson,2000).

However, there are advantages and disadvantages of the fixed and float exchange rate regime. Among other the advantages are that a fixed exchange rate reduces transaction costs and exchange rate uncertainty in international trade, serve as the anchor of monetary policy and increase its transparency and an imperfect foreign exchange market can cause instability in the economy. The disadvantages of the fixed exchange rates are that it deprives the central bank of its ability to use monetary policy to respond to domestic eccentric shocks, prone to speculation against their currencies and could reduce the flow of information regarding the country's monetary position and the credibility of domestic monetary policy (Petursson,2000).

In Islam, dealing with interest rates are forbidden and cannot be used as an instrument to stabilize the inflation and output growth, as in Islam, interest rates are considered as the main culprits in destabilizing output and creating inflation. It is generally known that when interest rate is high, the cost of financing also increases. However, most of the Islamic scholar agrees with the price stability, exchange rate stability and inflation rate targeting as one of the objectives of monetary policy in Islamic economics.

## 2.4 THEORY OF THE INTEREST RATE

Interest rates play a vital role in the implementation of monetary policy. According to Fischer (1974), interest is not identical with rates of interest. Interest rate is calculated by multiplying its capital value. The rate of interest is defined as the percentage or premium paid on money known as the price of money (Fischer, 1974). The original Fisher's model of interest rates theory relates to the nominal interest rate, while the real interest rate is the interest rate after the adjustment of inflation. The Fisher theory of interest rates is described as below:

$$(1 + i) = (1 + r)(1 + \pi) = 1 + r + \pi + r\pi \quad (2.1)$$

The above equation can be re-written as follows:

$$i = r + \pi(1 + r) \quad (2.2)$$

Based on the equation above, if  $\pi$  increases by 1 per cent, the nominal interest rate increases by more than 1 per cent. If the value of  $r$  and  $\pi$  are known then the value of  $i$  can be determined. On the other hand, if the value of  $i$  and  $\pi$  are known then the value of  $r$  can be determined. This can be further explained as below:

$$I + r = (I + i)/(I + \pi) \text{ or } r = (i - \pi)/(I + \pi) \quad (2.3)$$

When the value of  $\pi$  is small, then the value of  $r$  is approximately equal to  $i - \pi$ . In the event of high rate of inflation, then more accurate relationship must be taken into account (Watkins, 2013)

With regards to the monetary policy, the basic model of interest rate targeting is based on the Fischer Model, where  $I_t$  is the nominal interest rates,  $r_t$  is the real interest rates and  $\pi_t$  is the inflation rate.

$$I_t = r_t + \pi_t \quad (2.4)$$

If the real interest rate is the target, then  $r_t$  is the real interest rates,  $\pi_t$  is the inflation rate and  $\pi_t^*$  is the targeted inflation rate:

$$r_t = (\pi_t - \pi_t^*) \quad (2.5)$$

Since the real interest rates is nominal interest rate minus inflation, Taylor (1993) came out with the principle known as ‘Taylor Rule’ where if the inflation increased by 1 per cent, the Central Bank should increase the nominal interest rates by more than 1 per cent to stabilize the output (Asso *et al.*, 2010). This means that nominal interest rates must respond to the movement of inflation rates from targeted interest rates and of actual and targeted output. The equation can be written as follows:

$$i_t = \pi_t + r^* + a_\pi(\pi_t - \pi_t^*) + a_y(y_t - \hat{y}_t) \quad (2.6)$$

The above equation is known as interest rates rules or often referred to as the ‘Taylor Rule’, which has become the main feature of macroeconomic models. (Sims, 2013).

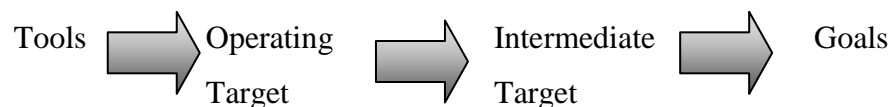
## 2.5 FUNCTIONS OF THE CENTRAL BANK

The Central Bank is the monetary authority that provides loans to the government, other financial institutions and manages the money supply in a country. It is also known as the Banker’s Bank because it governs and supervises operations of the Commercial Banks, Merchant Banks, Investment Banks and other private savings and financial institutions. It should be noted that the Bank of England which was established in the year 1694 is the first Central Bank in the world.

The objectives of the Central Bank are to assure financial stability, implementation of prudential policy of liquidity, smooth functioning of payment and settlement systems and as a lender of last resort (Mersch, 2009). The Central Bank also sets the interest rate level that enables banks to limit their debt position in the interbank money market. This practice is to avoid insolvency crisis and to ensure the smooth functioning of the payment system (Rochon and Rossi, 2007).

The Central Bank functioning as the lender of last resort refers to emergency circumstances, in which the Central Bank will lend out as much as needed to guarantee the banks to meet their cash obligations to their depositors. The monetary policy implementation process to achieve the targeted goals illustrated in Figure 2.2.

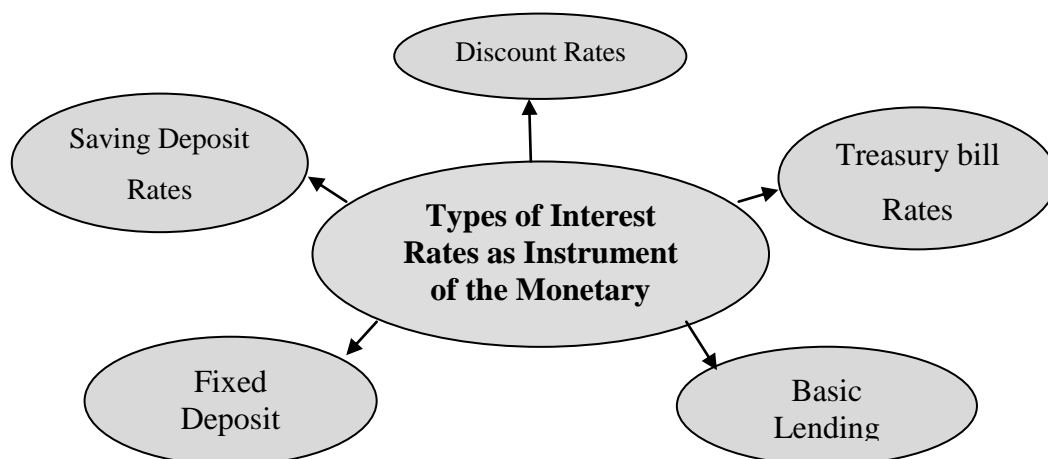
Figure 2.2: Process of the Monetary Policy



Source: Bofinger (2001:125)

Among other main instruments of monetary policy utilized by the Central Bank are the interest rates, open market operations, reserve requirement, discount window lending, and currency board. The monetary authority may be able to stabilize price by determining interest rates on loans, and savings accounts or other financial assets. The types of interest rates used for transmission of monetary policy in the conventional economy are described in Figure 2.3.

Figure 2.3: Types of Interest Rate Use as Instrument of Monetary Policy



Source: Author's Illustrations

By increasing or decreasing the interest rate(s), a monetary authority can contract or expand the money supply. On the one hand, if the interest rates are higher it will encourage savings and discourage borrowing; and on the other hand, if the interest rates are lower, it will attract investment borrowing. Both of these effects can either reduce or expand the growth of the money supply.

### 2.5.1 Open Market Operation

Open market operation (OMO) is one of the main monetary policy instruments used by most Central Banks because it has minimal effects on the interest rates (El-Gamal, 1999), which consists of buying and selling of government bonds to the commercial banks or the general public. When the Central Bank buys government bond from the commercial bank, the latter gives up part of the Government Securities that they are holding to the Central Bank. The Central Bank will be paying the commercial banks and create new reserves in the accounts of the commercial banks with the Central Bank, which is depicted in Table 2.2.

Table 2.2: Balance Sheet of Central Banks and Commercial Bank  
after the Open Market Operations

Central Bank	
Assets	Liabilities
+ Securities	+ Reserves of Commercial Banks
(a) (+) Securities	(b) (-) Reserves
Commercial Banks	
Asset	Liabilities
- Securities (a)	
+ Reserves (b)	

*Source: McConnel et al. (2009)*

The effects on the commercial banks' reserve are similar to when the Central Bank purchases securities from the general public. For example, when a Central Bank buys £1,000 bonds (security) from the commercial bank, the commercial bank reserves will go up to £1,000 (the value sold to the Central Bank). More excess reserves increase bank lending ability which increases the total supply of money. The example of a balance sheet of the Central Bank and commercial bank is in Table 2.1. The main

difference of the Central Bank and Commercial Bank balance sheet as shown in Table 2.1 is that the reserves considered liabilities for the Central bank while it is considered as an asset for the commercial bank.

The Central Bank as the bankers' bank can determine the proportion of total assets that must be held by the banks in reserve with the Central Bank. This is known as the reserve requirement ratio. The reserve requirement in the USA was established in the year 1863, with the passage of the National Bank Act. Banks were required by the National Charter to keep a minimum of 25 per cent against the note and deposit liabilities. However, the amount was reduced successively to as low as zero per cent, and it varies from one country to another. It should be mentioned that the reserve requirement ratio affects the total supply of money in the market (Goodfriend and Hargraves, 1983).

By changing the proportion of the total assets to be held as liquid cash, the Central bank changes the availability of funds for loans. By increasing the monetary base, the commercial banks' reserves increase and thus enable commercial banks to increase their loans and money supply. By decreasing the monetary base, the Central Bank can indirectly influence the loans disbursed by the commercial banks (Kennedy, 2001). Typically the Central Banks do not change the reserve requirements frequently because often changes will affect the volatility of the money supply due to the lending multiplier effect.

#### 2.5.2 The Reserve Requirement

The reserve requirement ratio or also known as the fractional reserve requirement ratio is one of the powerful monetary control tools, of which calculation is based on the money multiplier. The money multiplier is essentially a relationship between deposits and reserves, which is depicted as follows:

$$\text{Money multiplier} = D = m (R)$$

where:

*D*: Deposit

*R*: Reserves

*m*: Money multiplier

There are three main reasons for the imposition of reserve requirement (RR): prudential measures, monetary control and liquidity management. Holding of RR provides some measures against the risk of insolvency, to control monetary growth and as a short-term liquidity management (Gray, 2011).

Traditionally, RR is viewed as an integral part of the monetary control process by setting the upper limit on deposit creation and facilitating and controlling the growth of money and credit. However, in many countries, RR is no longer used to control the money stock but to facilitate control of short term interest rates (Weiner, 1992).

Some scholars propose the abolishment of the RR as it is not utilized to regulate the monetary stock anymore. In fact, some countries like Switzerland, New Zealand, Australia and Canada have already implemented zero reserve requirements. In addition, the Federal Reserve of the USA has eliminated reserve requirement on time deposit and lowered transaction deposit (Weiner, 1992).

The proponents of the fractional reserve requirement argue that the rationales for implementing fractional reserve system are for liquidity provision, credit policy and monetary control. As one of the proponents of 100 per cent reserve requirement, Friedman (1948) suggested that private creation money and discretionary control of the quantity of money by the Central Bank could be eliminated by separating depository and lending functions of the banking system.

Those who prefer fractional reserve system argue that traditional thinking about bank operations based on currency withdrawal is no longer the case. In the modern banking system, larger withdrawals are typically in the form of electronic payments of inside money which will not deplete reserves from the banking system (Skeie, 2008).

Palley (2004) who proposes for the development of a new financial system regulation based on *Asset-Based Reserve Requirement* (ABRR) highlights that the regulation of ABRR should be applied to all financial intermediaries. The advantages of ABRR are to provide policy makers with additional policy instruments and to discourage excessive risk taking by the financial intermediaries (Palley, 2004). The view is in line with the essence of Islamic finance where all transactions must be based on underlying assets: *asset based* or *asset backed*.

In short, there is an inconclusive debate on a fractional reserve system. While some scholars propose 100 per cent reserve requirements where banks are required by law to hold 100 per cent of depositors' money in the vault, others prefer the fractional reserve requirement system.

### 2.5.3 Discount Window Lending

Discount window lending refers to a situation in which any central banks or a financial institution has the authority to lend funds to financial bodies within their country. By calling in existing loans or extending new loans, the monetary authority can directly change the size of the money supply.

### 2.5.4 Currency Board

A currency board is a monetary arrangement that pegs the monetary base of one country to that of another. The currency board operates as a rigid fixed exchange rate in which the local currency in circulation is backed against the foreign anchor currency at a fixed rate. To grow the local monetary base, an equivalent amount of foreign currency must be held in reserves with the currency board. This limits the possibility of the local monetary authority to inflate or pursue other objectives.

## 2.6 TRANSMISSION OF THE MONETARY POLICY

There are four main monetary transmission channels. The first channel of the monetary policy is the interest rate channel. It can be use for expansionary as well as contractionary policy. The expansionary policy leads to reduction the real interest rate in the long-term. It can influence investment, property price and consumer expenditures. This can also affects the aggregate demand and will be reflected in the output and prices.

The second monetary policy transmissions channel is the asset price channel. The asset price channel is also explain by Tobin's (1969)  $q$  theory of investment and Ando and Modigliani (1963), life theory of consumption whereby in an expansion monetary policy, it will entails to higher equity prices which may cause investment more attractive. Higher equity prices will also lead to increase wealth raises spending and raises aggregate demand. Hence, during the contraction of the monetary policy, need to re-establish equilibrium to avoid fall in the equity prices (Ireland, 2005).

The third channel is the exchange rate channel which may influence both namely supply and demand aggregate. In an expansionary monetary policy when the domestic real interest rates is lower, through interest parity condition may cause real depreciation of the local currency which will result in increase of net exports and stronger aggregate demand. The depreciation of the local currency also may result in increase of the import goods. High price of imported goods may contract aggregate supply, reduce output and increase inflation.

The fourth channel of monetary policy transmission known as monetary and credit channel. The classical monetarist view is that money either narrow money or broad money aggregates play an important role in determining the price of assets, goods and its relation with long run inflation. While Bernanke and Gertler (1995) believes that credit channel could effect on price and output level (Loayza and Hebbel, 2002).

The monetary channel is related to the role of the Central Bank in the monetary transmission process. Studies by Meltzer (1969, 1970, 2001), Brunner and Meltzer (1972, 1988, 1990), Dotsey and Otrok (1994), McCallum (1990, 1999, 2001, 2004), Christiano and Rostagno (2001) Nelson (2003a, 2003b) and McCallum and Nelson (2004) show that money channel secures a significant role in the monetary policy transmission (Kassim and Shabri, 2009:38).

Credit channel is related to the bank balance sheet and supply of loan by the intermediaries like commercial banks, merchant banks, finance companies and other private institutions that provide credits. Empirical studies by Friedman (1984), Bernanke and Blinder (1988, 1992), Gertler and Gilchrist (1993), Hubbard (1994), Kasyap and Stein (1994, 1995, 1997a, 1997b), Bernanke and Gertler (1995), Walsh and Wilcox (1995), Garretsen and Swank (1997), Kakes (1998), Bernanke and Mihov (1998), Guender (1998), Hallsten (1999), Suzuki (2001), Ehrman (2001), Kuppers (2002), Mateut *et al.*, (2003), Driscoll (2004), Jansen and Chan (2005), highlight the importance of the banking sector channel in monetary policy transmission process (Kassim, 2006: 2). A similar study features the impact of disturbances in the banking sector on the macroeconomic variables such as interest rate, inflation, unemployment, and output (Kassim and Shabri, 2009:39).

The monetarists postulate that money channel is more influential than credit channel in the transmission of monetary policy. Studies conducted by Haug and Dewald (2004), on major industrial countries from 1880 to 2001 found that in the long run, there was a correlation between money growth and real output growth.

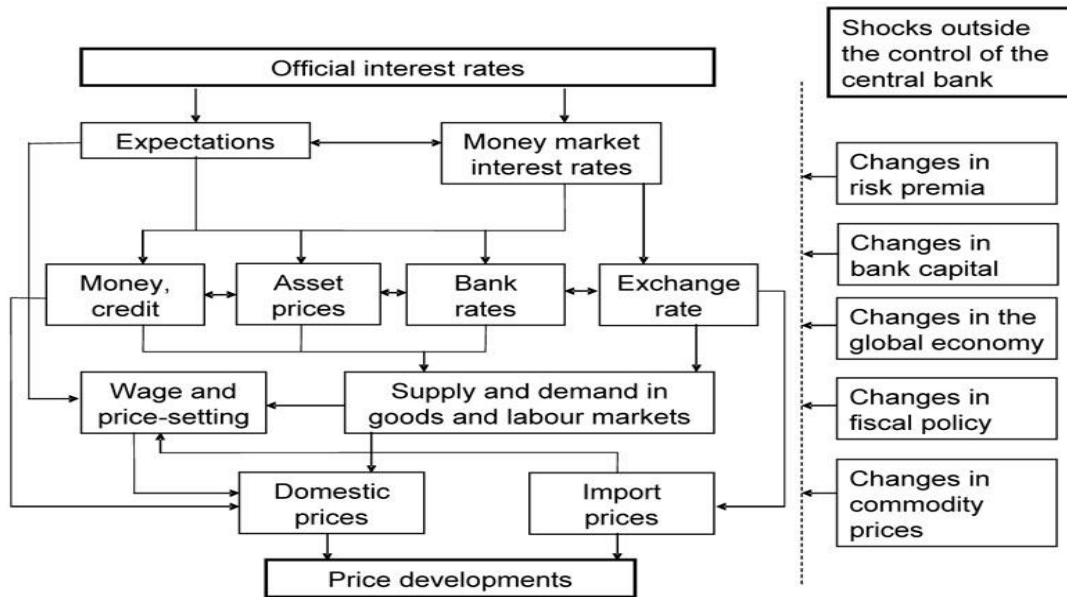
Kormendi and Meguire (1985) by using data from 1950 to 1977 for 47 countries and found that there was a negative relationship between M1 and real GDP growth. In addition, Geweke (1986) claimed that money was superneutral, and there was no relationship between M1, M2 with GNP and the Industrial Production Index for the period of 1870 to 1978. Furthermore, Dwyer and Hafer (1988) supported the argument that there was a negative correlation between money supply (M1) with the real GDP Money supply. Poirer (1991) found that money is neutral in some countries and not in other countries (McCandless (Jr) and Weber, 1995). According to Tobin (1965), money was not superneutral<sup>5</sup> because an increase in the expected growth of the actual money supply reduces the real interest rate and increases the long-run capital-output ratio (Ploeg and Alogoskoufis, (1994).

A number of studies have been conducted to identify the relationship between money supply and output, interest rates and prices/inflation. However, the discussion is still inconclusive whereby some researchers like Sims (1970, 1980a), Thornton and Batten (1985) King (1986), Stock and Watson (1989), Romer and Romer (1990) claimed that there was an impact of the money supply on output, interest rate and prices. Meanwhile others like Fiege and Pearce (1979), Sims (1980b) Litterman and Weiss (1985), Geweke (1986), Friedman and Kuttner (1993), Cochrane (1994) proposed that money was neutral (Tan and Baharumshah, 1999). In a nutshell, the monetary policy can be transmitted to various channels and it is also exposed to many challenges including external challenges such as changes in the global economy, environment, exchange rate depreciation, drop of the commodities prices, changes in the capital and shock beyond control of the Central bank as illustrated in figure 2.4 below.

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<sup>5</sup> There are also many other studies found that money is non-neutral. For further reading please refer to articles by Fischer (1979), Minsky (1992/93), Fontana (2000) and William (2005).

Figure 2.4 Flow of the Monetary Policy Transmission and Its channels



Source: European Central Bank ([www.ecb.europa.eu](http://www.ecb.europa.eu))

## 2.7 MONETARY SYSTEMS IN THE EARLY ISLAMIC PERIOD

The monetary system in the early Islamic period is discussed in this section to identify the nature of monetary paradigm produced within Islamic history within the framework, norms and principles provided by Islam.

### 2.7.1 History of the Islamic Coinage

The Arabs did not have coinage of their own before the Islam. They used the existing monetary systems of the Sassanid (Persian Empire) and the Byzantine (Roman Empire) predecessors and maintained these parallel systems for over 50 years until the first Islamic coinage was minted by the ‘Abd al-Maliki bin Marwan, Caliphate of *Umayyah* in 77-79 AH (696-698 AD). The principal coinage of Sassanid was a silver *drachm* (later known as Dirham) depicting the Emperor Khusraw II on the front of the coin with the inscription “May his splendour increase” in Persian and on the reverse showed a Zoroastrian fire altar with two attendants. The first Islamic coins, on the other hand, were made of gold known as dinar dated to 77H/696 CE and minted under ‘Abdul Al Maliki bin Marwan in the *Umayyah* dynasty with an Arabic “There is no

God except Allah, He has no association” inscription on the front of the coin (Middle East Resources, 1999). On the reverse of the coin it read: “God is one, God is Eternal, He does not beget nor is He begotten, and none is like unto Him”.

This inscription was retained until the end of the Caliphate of the *Umayyah* in 132H/750 CE. The Silver *Drachm* (*Dirham*) was introduced two years later (79H/701CE), and it also did not bear the image and the name of the ruler compared to the earlier *Drachm* of the Sassanid Empire (Middle East Resources, 1999). When the Islamic coins were introduced, the image of the ruler or idol was removed and replaced with the *Quranic* inscriptions. This indicates that there was a link between *tawheed* and *muamalat*. The society at that time expressed their belief to *Allah* and not to the ruler or idol.

In 750 CE, the Abbasid Caliphate made one initial change in the coinage by adding the words “Muhammad is the Messenger of Allah” at the reverse side of *Dinars* and *Dirhams* of the Umayyad. In 762 CE, the tradition was broken by adding the name of the ruler of Abbasid. It appeared on the coins of Al Mahdi (775-785 CE) and thereafter became the standards of all coins until the 12<sup>th</sup> century (Middle East Resources, 1999)

### 2.7.2 Supply and Demand of Money

In the early days of Islam, gold and silver performed all the functions of money. Currencies were made of gold and silver with a known intrinsic value (the amount of gold or silver contained in it). Such currencies were universally acceptable as a means of exchange, accounting for a large chunk of transactions (Obaidullah, 1999).

In Medina, during the time of Prophet Muhammad (*pbuh*) money was not supplied by the Muslim Treasury. The gold dinar was imported from Rome and the silver coins from Persia. There were no restrictions or impositions of any tariffs and customs duty for importing currencies. In that period, there was no shortage of money supply. When the demand for money increased, money in the form of gold dinar and silver coins were imported; in the case of decreased demand, commodities (gold and silver) were imported to make jewellery and ornaments. This indicates that the money supply was elastic, and there was no excess of supply or demand of gold and silver coins and the market remained in equilibrium (As Sadr, 2000). In fact, there was no money

creation in the system as the volume of the money supply was equal to the value of goods produced.

### 2.7.3 Exchange Rates

The exchange rate was relatively stable during the early Islamic period in Medina because the value of gold Dinar and silver Dirham was equal to the face value of the currency. The exchange rate ratio of the gold Dinar against the silver Dirham is shown in Table 2.3.

Table 2.3: Ratio of Gold against Silver Dirham in the Early Islamic Period

Period	Ratio of Gold Dinar Against Silver Dirham
The time of Prophet (S.A.W) until the first four Caliphs (1 <sup>st</sup> Hijri – year of 40 Hijri)	1:10
The Umayyad Period (41 Hijri to 131Hijri)	1:12
The Abbasid Period (132 Hijri to 656 Hijri)	1:15
After 656 Hijri	Fluctuated up to 1:35

Source: Chapra (1996)

The Muslim Treasury was in-charge to ensure the quality of imported coins and supervised the money supply that was minted (As Sadr, 2000: 204). The exchange rate was determined based on *hadith*<sup>6</sup> as narrated by Ahmad and Al-Bukhary that the Prophet (*pbuh*) said:

*Gold for gold, silver for silver, wheat for wheat, barley for barley and salt for salt, in equal weight and hand to hand, whoever increases or asks for an increase falls in riba; the taker and the giver alike. (Saadalla, 1994)*

The *hadith* asserts that when the commodity money is exchanged, it shall be of equal amount and the transaction shall be completed on the spot. Transaction of future,

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<sup>6</sup> Hadith is referring to the tradition or collection of traditions attributed to the Prophet Muhammad (PBUH) that includes his saying, acts, and approval or disapproval of things. Hadith is valued by Muslims as a major source of religious law and moral guidance. The physical appearance of the prophet is not included in the definition (Phillips, 2007). Hadith is valued by Muslims as a second source of religious law and moral guidance after Al-Quran.

forward and swaps of the currency market are forbidden due to the elements of speculation and gambling which is permitted in the conventional transactions (see: Table 2.4) (Ahmed, 2001).

Table 2.4: Agents and Transaction of Currency Market

Agents	Spot		Forward	Future	Swaps
Traders	•	X	•	•	•
Investors	•	X	•	•	•
Speculators	•		•	•	•

Notes: (•) Transaction in conventional economies;

(X) Transactions accepted by *Shari'ah*,

Source: (Ahmed, 2001:28)

#### 2.7.4 Stability of the Value of Money

The stability of the value of money is particularly crucial in any economies. It is an indispensable goal in Islamic economics as the principle of honesty and fairness in measuring the value as stated in the Qur'an (7:85, 11:84-85; 17:35 and 26; 181) to be upheld. The verses highlight the importance to give full measure and weight with justice. Most scholars agree that this also applies to money, as one of the functions is to measure value (Chapra, 1985).

It should be noted that the value of the *Dinar* and *Dirham* was determined by their weight and fineness. The standard weight for dinar was 4.25grams, and fineness was fixed at 96 per cent of pure gold alloy. With regards to Dirham, it was fixed at 2.97 grams and fineness at 99 per cent of silver content. To ensure the stability of the value, during the *Umayyah* period, a few initiatives was taken including (Brill, 1977).

- (i) production of gold coinage in the Muslim Empire;
- (ii) reforming of the silver coinage to ensure standards of weight; and
- (iii) circulation of fineness and uniformity of the coinage in the market

According to the numismatic evidence, the standard of fineness of the dinar during the *Umayyah* period was maintained at 96 to 98 per cent and the standard of Abbasid dinars did not differ from the standard of *Umayyah* dinars. However, in the final decades of the Abbasid period, the standard of fineness fluctuated between 91 to 94

per cent. During the first half of the 10<sup>th</sup> century, the dinar in Palestine was set at 93 per cent of fineness (Brill, 1959).

#### 2.7.5 Facilitating the Velocity of Money

The policies and measures adopted during the early Islamic era had a significant impact on the velocity of money. These include the prohibition of hoarding of coins (Kant) and swapping one debt with another (Kali-bi-Kali), uncertainty (gharar) and gambling (maisir) (As Sadr; 2000). Velocity of money is also known as velocity of circulation of money. It is defined as ratio of the nominal Gross Domestic Product (GDP) over broad money either including or excluding foreign currency deposits (Broeck, Krajnyak and Lorie, 1997:6)

##### 2.7.5.1 Prohibition of Hoarding of Coins (Kant)

Hoarding is forbidden in Islam as it is clearly stated in the Holy Quran (Qur'an, 9: 35). The rationale for this is that hoarding is considered reducing the circulation of money in the market and creating artificial demand for it. The prohibition of hoarding affects the velocity and stabilizes the value of money (As Sadr; 2000: 212). *Zakah* on gold, silver and saving was levied to prevent hoarding of wealth and to motivate owners in investing and circulating their wealth.

##### 2.7.5.2 Elimination of *Riba*

Interest rate is the main mechanism in the conventional monetary policy, but in the Islamic monetary policy *riba* or interest rate is the main source of injustice. Before Islam, most customary use of saving was for earnings *riba*, or usury loan either for trading or consumption. The moneylender would demand loan to be repaid with an extra amount. Another type of usury was transaction usury, where an exchange of goods or commodity was done for more than its original amount (As Sadr, 2000: 212).

This practice was eliminated gradually through the revelation of the four verses in the Qur'an. The first verse in (Qur'an, 30: 39) emphasizes that contributing to charity is better than practicing *riba*. This indicates the objective of providing loans in Islam is not to gain profit although it is allowed and legitimate. The emphasis is to do charity which will not only help the poor and needy but the reward of good deeds as an

investment for life in the hereafter (*akhirah*). In the subsequent verse in the Qur'an (4: 161), it is mentioned that those taking usury will receive severe punishment.

The types of punishments for practicing *riba* are also mentioned in various *hadith* mainly in the Shahih Bukhari and Shahih Muslim. The third revelation in (Qur'an, 3: 132) commands the prohibition of practicing *riba al-fadhl* (doubling and multiplying).

The fourth and final revelation states (Qur'an, 3: 275-280) that *riba* is forbidden, trade is permissible, and those still practicing *riba* will be deprived of the blessing and rewards that otherwise given for charity activities. The practitioners of *riba* are considered as declaring war against Allah unless they repent. The final revelation on *riba* also visualizes the punishment for the person practicing *riba* in the hereafter, permissibility of trading and the importance of doing charity. The essence of the prohibition of *riba* is to avoid oppression (*zulm*) and to ensure justice in the society.

#### 2.7.5.3 Prohibition of Swapping Debt with another Debt (*Kali-bi-Kali*), Uncertainty (*Gharar*) and Gambling (*Maisir*)

*Kali-bi-Kali* is neither money nor commodity delivered at the time of contract. This practice is prohibited because a portion of the savings can be used for speculation in the markets. By preventing it, savings can be diverted to production of tangible commodities and services and reduce speculation for gold, silver and other valuable assets (As Sadr, 2000: 214). The prohibition of *Gharar* is stated in the Al-Quran as:

O you who believe! Eat not up your property among yourselves unjustly except it be a trade amongst you, by mutual consent. And do not kill yourselves (nor kill one another). Surely, Allah is Most Merciful to you (Qur'an, 4: 29)

It is also mentioned in a number of *hadiths* narrated by Muslim, Ahmad, Abu Dawud, Al-Tirmidhi, Al-Nasa'i, Al-Darami and 'Ibn Majah. The *hadith* particularly narrated by Abu Hurayra highlights that the Prophet (*pbuh*) prohibits the "pebble sale and the *gharar* sale" (El Gamal, 2001: 2).

There are a number of other *hadith* that forbid *gharar* either by name, or by specifying one or more of its instances for example, selling 'the birds in the sky or fish in the water', 'the catch of the diver', 'unborn calf in its mother's womb', 'the

sperm and/or unfertilized eggs of camels', etc. *Gharar* is a sophisticated concept that covers certain types of non-permissible uncertainty in a contract. It is an exchange in which one or more parties stand to be deceived through ignorance of an essential element of the exchange. The concept of *gharar* in the modern economy can also be interpreted as zero sum game (El-Gamal, 2001:2). *Gharar* is divided into three types, namely excessive (*gharar al-kathir*) which vitiates the transaction, minor (*gharar yasir*) which is tolerated and (moderate), *gharar mutawassit*) which falls between the other two categories. Any transaction of excessive risk, can be classified as forbidden *gharar* (Razali,2012).

Besides *gharar*, the prohibition of gambling is also mentioned in the Qur'an (2: 219; 5: 91). Gambling is prohibited because it is based on luck, and it creates a win-lose situation, which also involves uncertainty and high risk. Although in capitalism, high risk gives a high return, it may not necessarily be true. Even banks are also not willing to lend money for any extraordinary risky projects despite that in theory high risk is associated with high return.

## 2.8 END OF THE BIMETALLISM COINAGE SYSTEM

Since the early period of the Islamic history, the Islamic coinage had been widely used as a medium of exchange and to finance the international trade. However, between the 17<sup>th</sup> and 18<sup>th</sup> Century, the monetary system became unstable, which led to the end of bi-metalism coinage system during the Ottoman Empire.

Among other factors that contribute to the failure of coinage monetary system includes demonetization of the *kurush* coin silver content. For example, in 1700 CE, the silver content was 79 per cent, while in 1850 CE, it was only 5 per cent silver content of the *kurush* coin (Pamuk, 2002).

During the Ottoman Empire, there was a dual monetary system which used foreign and domestic currencies, and the regulation of exchange rates was dominated by the European currencies. This led to the acceptance of foreign currencies compared to the local currencies.

The Ottoman Empire faced a deficit on the balance of trade. There was a sizable monetary inflow of silver from the Ottoman Empire to Egypt but a scarcity of mint

and supply of precious metals to finance the international trade. The scarcity resulted from the lack of metal coinage in the currency circulation and in turn, the high price of gold and silver had led to higher cost of minting the gold and silver coins.

The bad quality of coinage had made it uncompetitive compared to the European mints and incurred extra costs to the government. Three factors were believed to dissociate the values of the coins namely the intrinsic value of the coins, legal value set by the state and market value based on the exchange rate. The gap between legal and market value was between 10 to 15 per cent on average. It was about 100 per cent when there was a speculation. This made the monetary system unstable.

The lack of smaller coins also affected business transactions. Coins were based on weight, and they did not come in small sizes. Gold and silver were exceedingly heavy and it was difficult to transport, carry and store. The proportional increase in the costs of production and rise of foreign currency rates resulted from the lack of stable monetary standard. Hoarding of gold and silver coins was the consequence of the lack of coin supply to finance the growing international trade. In 1860, among the European countries, Britain was the first to abandon the bimetallism system. As an alternative to the gold and silver money, paper money was proposed as a medium of exchange (Alleaume, 2002)

Several measures were taken to restore confidence in the market during the end of the Ottoman Empire. This was to ensure the costs and improve the production of gold and silver coins. The measures taken were (Alleaume, 2002:213):

- (i) setting the tariff calculated on internal costs of coinage;
- (ii) choosing most of the economical method separating gold from silver coin;
- (iii) using most accurate process in testing materials;
- (iv) improving weight and weighing equipment or methods;
- (v) making alloys at the required value without silver being put in gold coin and gold being put in silver coin;
- (vi) coining economically and accurately;
- (vii) retaining control over issuing; and
- (viii) re-melting to get rid of the substandard coins from the market.

Despite taking several measures, the system failed to sustain, and the Islamic dinar was driven out from the circulation and as the international currency at that time.

## 2.9 DELIBERATIONS ON ISLAMIC MONETARY POLICY

The modern Muslim scholars who contributed to the discussion on monetary policy in Islam include Siddiqi (1981), Ariff (1981), Khaf (1981), Chapra (1981, 1985, 1996), Uzair (1981) and Ahmad (1981), Al Jarhi (1981), Ahmad (1983), Khan and Mirakhor (1987, 1994), Choudry (1997), Choudry and Mirakhor (1997), Anjum (2007), Toutounchian (2009) and Sari and Mirakhor (2012).

Ahmed (2008) outlined the functions of the Central Banks in Islamic economics which remained the same as in the modern economy and supported the role of fractional reserve system as well as credit creation under the Islamic economics. Among other conventional instruments suitable for Islamic economy are outlined in Table 2.4.

While Chapra (1985) agreed that the functions of the Central Bank remained the same as in the conventional system, he added another function of the bank in Islamic economics. It was the need to ensure socioeconomic justice and equitable distribution of income and wealth (Chapra, 1985:34). Chapra adopted the existing quantitative instrument such as statutory reserve requirement, credit ceilings, moral suasion, but proposed equity based instruments for open market operations and profit and loss sharing ratio to replace the bank rate policy (Chapra: 1996:23).

Table 2.5: Suitability of Conventional Instruments to the Islamic Economics

Method of Credit Control	Suitability to Islamic Economics
Legal Reserve Ratio	Suitable
Bank Rate Policy	Unsuitable
Open Market Operations	Modification Necessary
Credit Ceilings	Suitable
Selective Credit Control	Suitable
Lender of Last Resort	Modification Necessary
Issue of Directives	Suitable
Moral Suasion	Suitable

Source: Ahmed (2008)

Choudhry and Mirakhor (1997) proposed using the equity-based government securities as the indirect instruments of monetary control with imposition of the bank credit ceiling, and statutory liquidity ratios. In addition, Toutounchian (2009) suggested the integration of money and banking based on Islamic principles into the capitalism system.

Sari and Mirakhor (2012) postulated using risk sharing instruments<sup>7</sup> namely the equity instruments as a substitute of monetary policy in Malaysia such as equity papers to add to household deposit, government issuing equity papers to raise financing and the Central Bank to issuing equity papers to conduct open market operations. The suggestion was not to make major structural changes or infrastructural changes or to reform the conventional system but to provide an alternative of *Shari'ah* compliance monetary policy framework for Malaysia (Sari and Mirakhor, 2012). However, it may be workable in the banking system but may not be suitable for non-bank financial institutions. In a nutshell, the debate is still on-going in this field and no exact model has been followed. The issue of credit creation and fractional reserve has remained as it is even after the *Islamization* of the financial system.

Most contemporary scholars deliberated about the alternative interest free banking system including the functions of the Central Banks in the Islamic economics. However, the suggestions were within the existing framework of the commercial banks and the Central Bank in the capitalist system. One approach was the *Islamization* of the banking and financial system through utilizing the existing instruments of the conventional system monetary policy.

The thinking and model proposed were still within the framework of the banking system. Most of the contemporary Islamic scholars recommended some modifications to the existing structure because their understanding on the definition and concept of the monetary policy covered the roles, functions, tools and instruments of the Central Banks. On the other hand, the Islamic monetary policy shall not be limited to the function of the central banks and its definition, concept, and meaning in broader context including the financial and non-bank financial institutions.

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<sup>7</sup> Equity based instruments is to promote for Islamic finance product to be priced independently from conventional system. While Equity Papers is to complement households deposit. The Central Bank could issue Equity Papers to conduct open market operations (OMO) or Government to issuing Equity Papers to raise financing (Sari and Mirakhor, 2013).

Most literature on Islamic finance and banking is mainly on *Shari'ah* compliant products and the development of new products according to the *Shari'ah* principle. There is still lack of research interest in the field of Islamic monetary policy from the Islamic point of view, mainly in the monetary transmission mechanism (Al-Wosabi and Abdul Majid, 2009)

Currently, none of the modern scholars deliberate on the guiding principles of monetary policy in Islam and how the monetary policy was implemented during the time of Prophet Muhammad (pbuh) during whose time the Central Bank and commercial bank did not exist. The only monetary institution at the time of the Prophet was the Treasury (*baitul mal*) which executed three main functions. The functions were to collect taxes such as *jizya* for the government expenditures, to distribute *zakah* money as payment to people under the poverty line and to build infrastructure using *waqf* property. Regardless of the fact that the system was not complicated as the modern economy, it worked during that time. There was no issue of credit creation and the fractional reserve ratio because money itself was the commodity money, *i.e.* gold where the value of the money was based on weight and content of the gold rather than its face value.

## 2.10 CONCLUSION

There are differences between the conventional monetary policy and Islamic monetary policy. While the former is based on the capitalist ideology to maximize the wealth of shareholders and relate to functions of the central bank, the latter is based on revealed knowledge of Islam. The Islamic monetary policy, hence, is divided into two sectors: namely the commercial and social sectors. The conventional monetary policy is silent about its function on the social sector. However, it is explicitly mentioned under the principles of the Islamic monetary policy, as Islamic monetary policy cannot be implemented in isolation, and is tremendously linked and related to other principles of *Shari'ah*. We will achieve the objective of *al-maqasid al-shari'ah* if both the commercial and social sectors are implemented hand in hand. Table 2.5 shows the summary of the differences between the conventional and Islamic monetary policy.

Table 2.6: Summary of the Differences between Monetary and Islamic Monetary Policy

Item	Monetary Policy	Islamic Monetary Policy
Definition	The activities of the Central Bank in monitoring money supply and inflation through adjusting the interest rates	The guiding principles for economic and business activities ( <i>muamalah</i> ) plus the activities of the Islamic banks
Origin	Capitalism	Al-Quran and Al-Hadith
Philosophy	To maximize wealth of the shareholders	Wealth belongs to God, and human beings are vicegerent of God to manage wealth
Objectives	Price stability, monetary stability, full employment and optimum rate of economic growth.	Price stability, monetary stability, full employment and optimum rate of economic growth plus elimination of <i>riba</i> (interest), <i>gharar</i> (doubt) and <i>maisir</i> (gambling and speculation); Socioeconomic justice and equitable distribution of income.
Instruments	Open Market Operation Reserve Requirement Credit Ceilings Selective Credit Control Currency Board Moral Suasion	Modified Open Market Operation Reserve Requirement Credit Ceilings Selective Credit Control Currency Board Moral Suasion
<i>Shari'ah</i> Compliant	Not required	Required

Source: Author's own.

## CHAPTER 3

### **MALAYSIAN MONETARY POLICY AND ISLAMIC FINANCIAL INSTRUMENTS AND OPERATIONS: AN INTRODUCTION**

#### 3.1 INTRODUCTION

Malaysia is relatively a small open economy. In the early 1970s, the government implemented the New Economic Policy (NEP) to distribute income and wealth among the major races in Malaysia, namely the Malay, Chinese and Indian. The policy was implemented from 1971 to 1990. The main objectives of the NEP were to eradicate poverty and ensure equal distribution of wealth and income among the societies, within which 30 per cent of the equity was targeted for *Bumiputra* or indigenous people mainly the Malays at the end of the policy period (Tori,1997).

Within the NEP policies, rapid economic growth in line with industrial transformation took place in early 1970s and in 1980. At that time, Malaysia shifted its policy from an agro-based economy to the manufacturing industry. The manufacturing sector was focused on industrial activity mainly in the area of electric and electronic (E&E), chemical and petrochemical and automotive. Consequently, Malaysia's GDP grew at an annual average rate of 10.9 per cent from 1970 to 2011, while the annual GDP growth had been positive except for the year 1971, 1975, 1985-86, and 2001. The progressive economic growth indicated that Malaysia was able to develop its economy progressively (Choong, 2003).

The other policies that contributed to the economic growth included prudent monetary policy, and control on the growth of its money supply and inflation. Previous studies conducted by Schumpeter (1912), Robinson (1952), Romer (1990), Levine (1997) and Luintel and Khan (1999) reveal that there is a significant relationship between financial development and economic growth (Choong, 2003). Undoubtedly, the financial sector is also the backbone of the economic growth in Malaysia. However, one important area in the financial sector is the monetary policy. Prudent measures and effective way of conducting monetary policy may bring better results in achieving its objectives.

This chapter, hence, briefly describes the monetary policy in Malaysia from 1970 until 2011, which will also examine the controllability and reliability of the monetary policy in a dual banking system. The chapter also provides a discussion on the Islamic financing instruments. Altogether, the material presented and discussed in this chapter is expected to provide a better contextualisation for the empirical chapters.

### 3.2 MALAYSIAN FINANCIAL SYSTEM

As regards to Malaysian financial environment, it should be noted that in 2012, Malaysia ranked 18<sup>th</sup> out of 60 countries in the Financial Development Index. Malaysia ranked 3<sup>rd</sup> for currency stability and 10<sup>th</sup> for banking stability. Malaysia also ranked no 2<sup>nd</sup> for ease of access to credit, 6<sup>th</sup> for financing through equity market and 7<sup>th</sup> for ease of access to loans (World Economic Forum, 2012).

Malaysia is the leader and at the highest rank (1<sup>st</sup>) for local currency corporate bond issuance to GDP and for domestic financial sector liberalization (World Economic Forum, 2012). With regards to ease of access to loans Malaysia ranked 7<sup>th</sup> and 2<sup>nd</sup> for ease of credit. This indicates that the transmission of monetary policy is done primarily through the lending channel followed by the credit channel.

Before discussing the Malaysian monetary policy, it is important to understand the structure of the Malaysian financial system. It is divided into three sections namely financial markets, the banking sector and non-bank financial intermediaries. The financial markets consist of money market and foreign exchange market, capital markets, derivatives markets and offshore markets. While BNM is in-charge of the money matters, foreign exchange, Malaysian Government Securities and Labuan International Offshore Centre, the Securities Commission in collaboration with BNM is mutually responsible for monitoring private debts.

The banking system comprises the Bank Negara Malaysia (BNM) or the Central Bank of Malaysia, banking institutions and financial organisations which include discount houses, the representative offices of foreign banks and offshore banks in the Labuan Offshore Financial Centre (LOFC). The non-bank financial intermediaries, on the other hand, comprises the Provident and Pension Funds, Insurance and Takaful companies, development financial institutions, savings institutions, unit trusts and

property trusts, and other non-financial institutions. Table 3.1 shows the breakdown of the financial institutions in Malaysia as of 2011.

Table 3.1: The Number of Financial Institutions

Institutions	Local	Foreign	Total	Percentage of Local Banks (per cent)
Commercial Banks	6	19	25	24
Investment Banks	15	-	15	100
Islamic Banks	10	6	16	63
Total	31	25	56	55

*Source:* Bank Negara Malaysia Monthly Statistical Bulletin (2012)

Figure 3.1 shows the structure of the financial markets in Malaysia and Figure 3.2 shows the banking and non-bank financial institutions in Malaysia. Commercial banks, merchant banks, investment banks, finance companies, discount houses and the Islamic banks are regulated by BNM. As of 2011, there were 56 financial institutions, 31 local and 25 were foreign owned banks.

### 3.3 ROLE AND FUNCTIONS OF THE BANK NEGARA MALAYSIA (BNM)

BNM is governed by the Central Bank of Malaysia Act 1958. The Act has been amended many times and repelled by the Central Bank Banking of Malaysia Act 2009. There are four core functions of the BNM as described by the Central Bank Act: to maintain price stability, to promote high and stable growth rate, to promote a stable monetary system and to ensure stability of profit and exchange rate (Ismail, 2010).

The governing law of BNM includes the Exchange Control Act 1959, Islamic Banking Act 1983, Takaful Act 1984, Money Changing Act 1988, Banking and Financial Act (BAFIA) 1989, Anti-Money Laundering and Anti-Terrorism Financing Act 2001, Development Financial Institutions Act 2002, Payment Systems Act 2003 and the Central Bank Banking of Malaysia Act 2009 (Amended from 1958 Act).

Figure 3.1: The Financial Markets of Malaysia

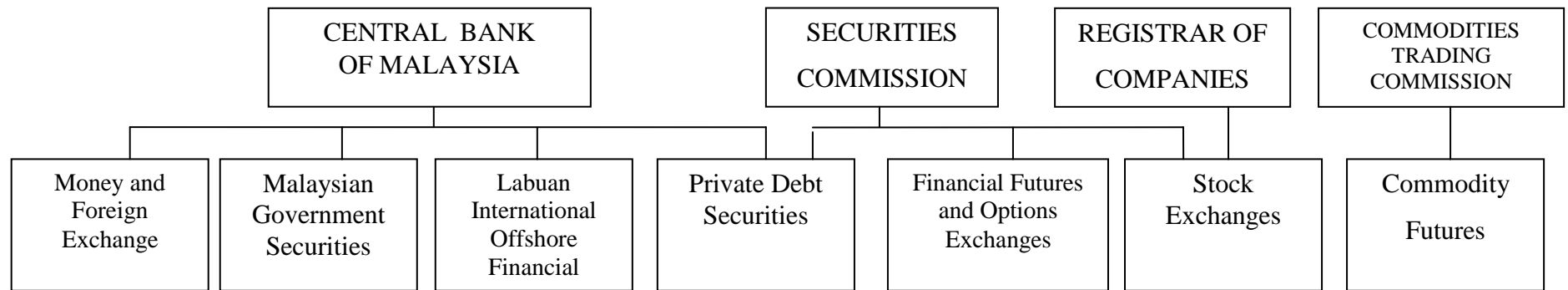
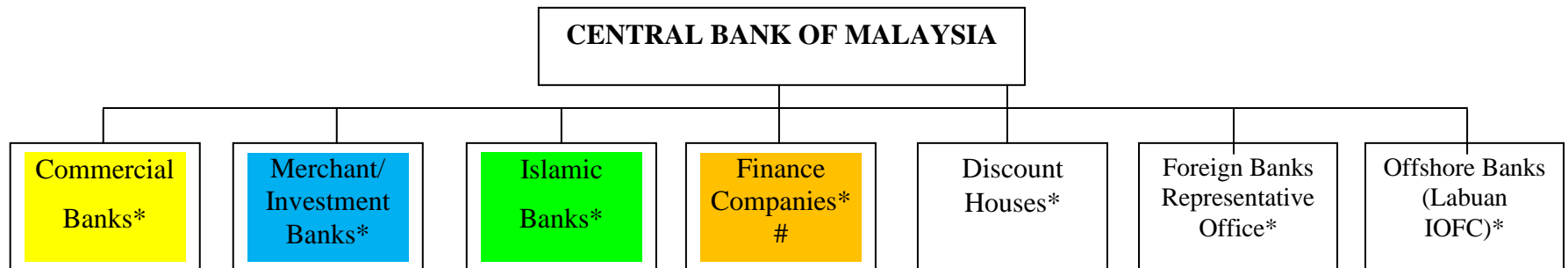
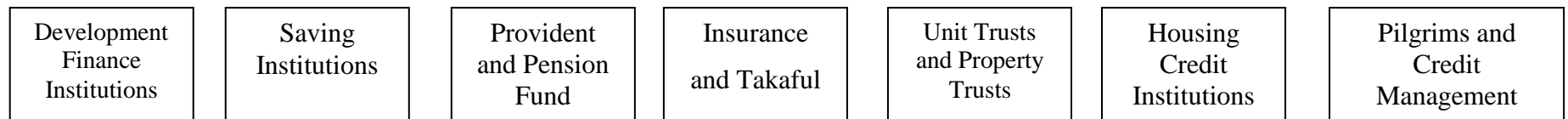


Figure 3.2: The Banking and Non-Bank Financial Institutions in Malaysia



The Non-Bank Financial Institutions



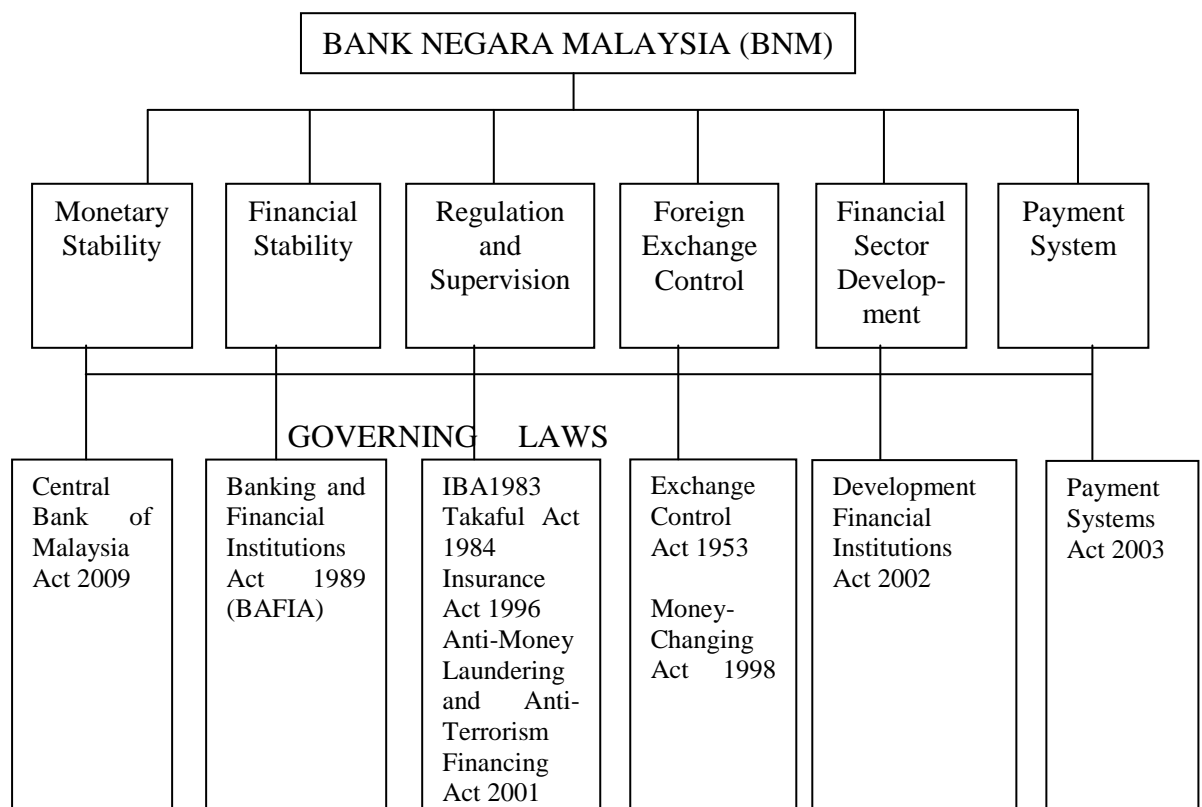
Notes: (\*) Regulated by the Central Bank of Malaysia; (#) In 2006, Finance companies absorbed by Commercial Banks.

Source: Azali (2000:19)

It should be noted that monetary policy in Malaysia is implemented by the BNM, which was established on 26<sup>th</sup> January, 1959. In 1960, the Malaysia Stock Exchange (equity market) and Malaysian Government Securities were formed. In 1963, several discount houses were incorporated and in 1972, Malaysia adopted the US dollar as the intervention currency.

In 1973, Malaysia and Singapore agreed to terminate the Currency Inter-changeability Arrangement (CIA) and the Stock Exchange Market (Monetary Authority of Singapore, 2000). In the same year there was a conversion from a fixed to a flexible exchange rate regime. In 1978, Malaysia deregulated the domestic interest rate wherein the Commercial banks were allowed to determine their lending and deposit rates (Ahmad, 2008, p. 406). As part of the continuous institutional development, in 1980s, private debt securities market was established. Figure 3.3 provides a summary of the Central Bank's roles and functions.

Figure 3.3: Role and Functions of the Bank Negara Malaysia



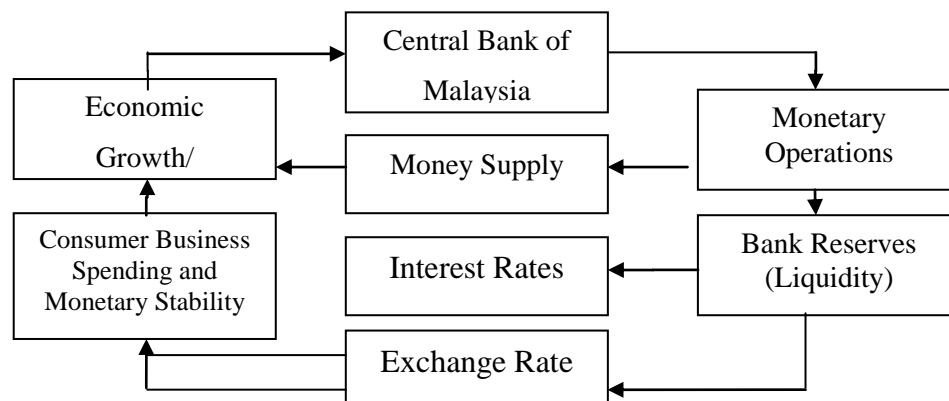
Source: Author's Illustration based on 'The Bank Negara Malaysia and Financial System in Malaysia' (1999)

In 1984, the first Islamic Bank of Malaysia was established under the Islamic Bank Act (IBA) 1983. In the same year, Base Lending Rate (BLR) was introduced for the conventional and Islamic Bank. In 1989, there was an actual splitting of Malaysia Stock Exchange and the Singapore Stock Exchange and the International Offshore Financial Centre was established in Labuan in Sabah, East Malaysia. In the following year, the BLR requirement was abolished, and as a result, each bank was allowed to determine its own BLR (Abdul Majid, 2004).

After ten years of establishing the Islamic banks, in 2004, foreign and domestic commercial banks, merchant banks and investment banks were allowed to open up a 'window' (branch/subsidiary/unit) of the Islamic banking scheme. The reasons for allowing the conventional banks to offer Islamic windows were to increase the number of players and competition, establish the fastest way to disseminate the Islamic banking operations nationwide, optimise existing banking infrastructure, resources and network, ensure high level of sophistication in terms of products and services and to achieve high economic of scales (Mokhtar and Al-Habsi, 2008).

As regards to the operations of the central bank, in theory, the Central Bank's monetary policy could affect the growth of inflation and economic activity because the Central bank controls the supply of money and liquidity by setting the short-term interest rate in the money market and determining the level of statutory reserve requirement (see: Figure 3.4)

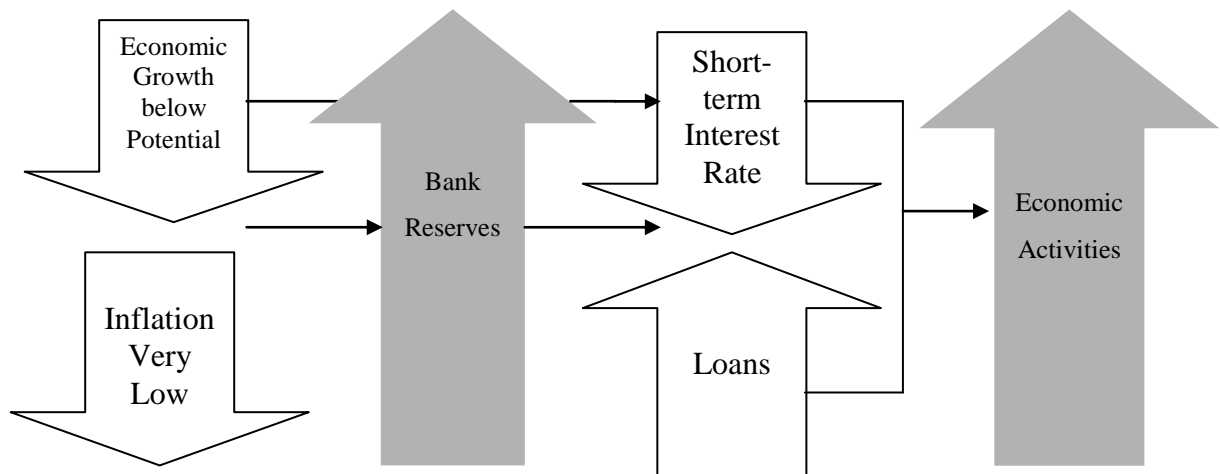
Figure 3.4: How Bank Negara Malaysia Monetary Policy Affects the Economy



Source: BNM (2003)

BNM, therefore, could influence the activity of the economy by expanding or contracting the monetary policy. When BNM wants to stimulate the economy, it may increase the bank reserves and reduce the short-term interest rates. As depicted in Figure 3.5, this would stimulate the economy where more credit will be available in the money market.

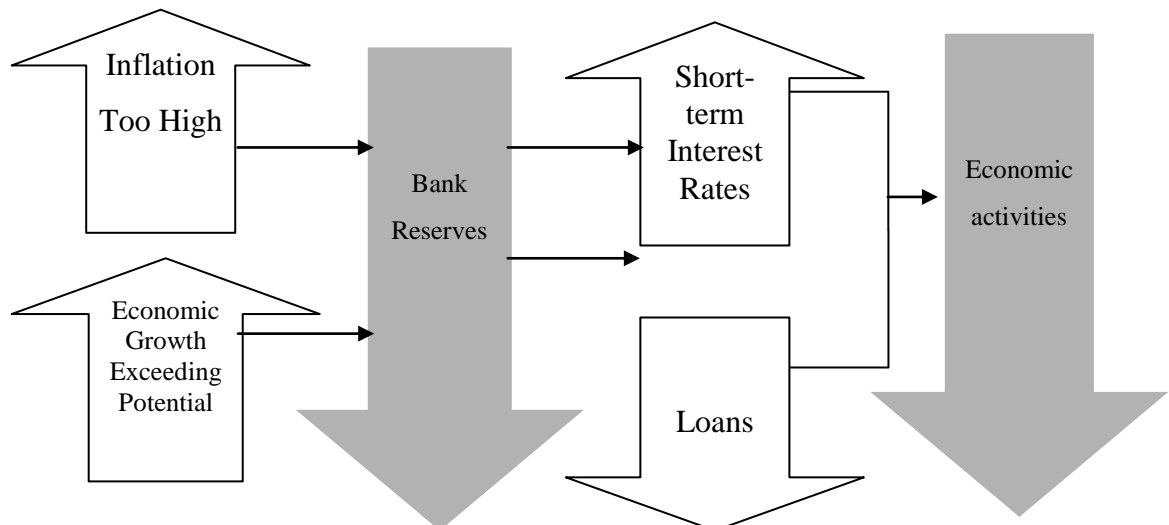
Figure 3.5: When Bank Negara Wants to Stimulate the Economy



Source: BNM (2003)

When Bank Negara wants to contract the economy, it may increase the short term interest rate and reduce the bank reserves. As can be seen in Figure 3.6, this will result in contraction of loan supply in the money market and can reduce economic activities.

Figure 3.6: When Bank Negara Wants to CONSTRAIN the Economy



Source: BNM (2003)

### 3.4 AN OVERVIEW OF MALAYSIA MONETARY POLICY

As mentioned earlier in 1978, Malaysia liberalized its domestic interest rates where each bank was permitted to determine their own interest rate (commercial rates). Prior to 1987, each financial institution computed their cost of funds and determined the Base Lending Rate (BLR) after BNM decided the amount of the Reserve Requirements, Liquidity of Assets and Overhead. Starting from the 1<sup>st</sup> September 1987, computation of the BLR was set based on the BLR of the 2 lead banks with an additional 0.5 per cent.

Effective from the 1<sup>st</sup> February 1991, the BLR rates were calculated after taking into account the costs of funding, staff, overhead and profit margin of 0.25 per cent. The computation of BLR at that time was reasonable because it was realistic and based on the actual cost of funds: it was not set merely based on interest rates in the market or used by the other banks. After 1995, the BNM interbank rates were added in the formula average three months of and in September of 1998, BNM interbank rates were replaced with the BNM intervention rate. Table 3.2 shows the computation of the BLR from year 1983 to 1998.

Table 3.2: Computation of Commercial Banks' Base Lending Rate (BLR)

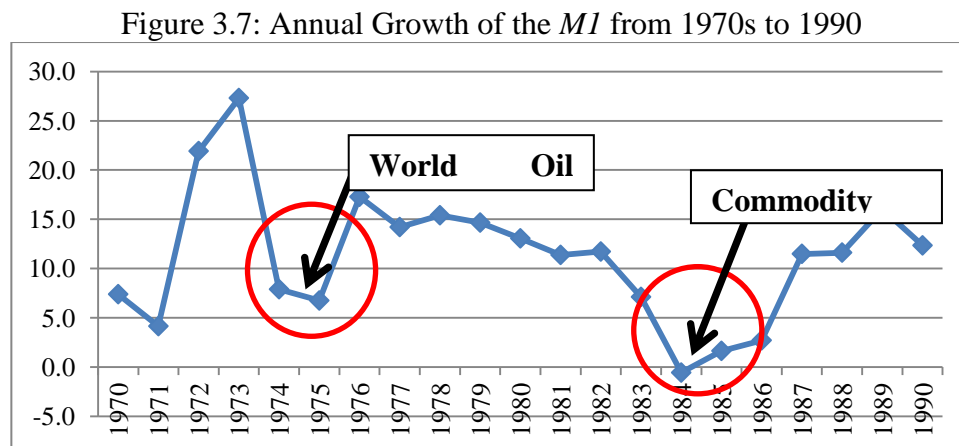
Date	Computation of BLR for Commercial Banks
1 Nov 1983	Cost of Funds minus Statutory Reserve, liquid assets and overhead
1 Sept 1987	BLR of the two lead banks + 0.5 per cent
1 Feb 1991	Funding costs + Staff Cost + Overheads + Profit Margin (0.25 per cent)
Nov 1995	$\frac{\text{Average 3 month interbank} \times 0.8)^2 + 2.5 \text{ per cent}}{1\text{-SSR}}$
Sept 1998	$\frac{\text{Intervention rate} \times 0.8)^2 + 2.5 \text{ per cent}}{1\text{-SSR}}$

Source: BNM (1999)

Before 1978, the Malaysian monetary policy strategy was towards monetary targeting in which monetary base was used to control money supply and the ultimate target was to control the level of output, unemployment and prices. Basically, Malaysia's monetary policy evolved from the monetary targeting prior to 1990 to interest rates targeting after mid-year of 1990s. After the Asian financial crisis in 1997, the monetary policy changed towards a more market based monetary policy implementation procedures (BNM, 1999).

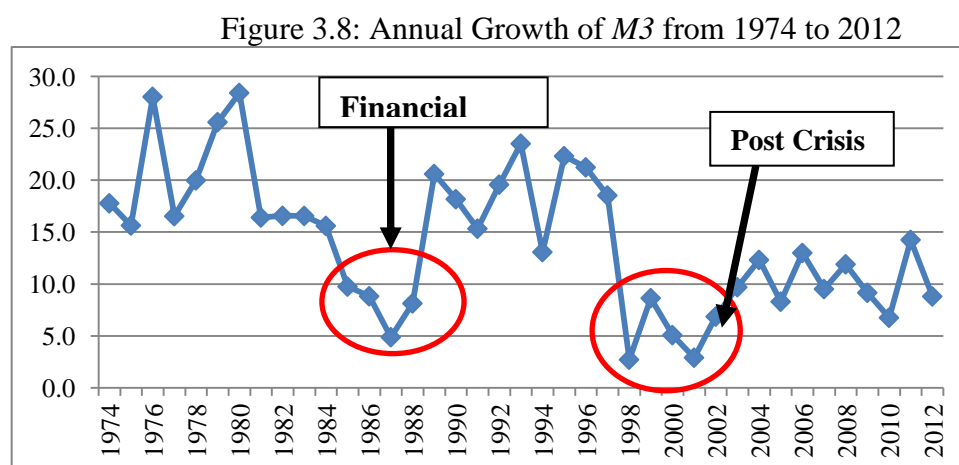
### 3.4.1 From Monetary Targeting to Interest Rates Targeting

Since 1970s and prior to 1987, *M1* was used as the policy target. As can be seen in Figure 3.7, after the financial liberalization in the early 1980s, the annual growth of the *M1* sharply declined due to the world oil crisis and in 1984 during the commodity crisis. Moreover, due to high volatility in the growth of *M1*, BNM shifted its policy from using *M1* to *M3* as the policy target.



Source: Compiled from the Bank Negara Malaysia Monthly Statistical Bulletin, 2012

In 1987, as shown in Figure 3.8, there was a sharp reduction in the monetary growth and again during the financial crisis in 1998 and post crisis in 2001. In mid-1990s, due to extreme volatility of the money supply as indicated by the growth of *M3*, reliability on monetary aggregates became less and BNM shifted the policy of monetary targeting towards interest rate targeting policy.



Source: Compiled from the Bank Negara Malaysia Monthly Statistical Bulletin, 2013

The reason that interest rates became the main targeting policy was the globalisation of the financial services which had influenced the economies to shift their policy towards using interest rates as one of the targeted strategy of the monetary policy. It should be noted that globalisation in the financial sector eroded the power of the monetary authority to formulate monetary policy based on domestic factors. Besides, it was difficult to predict money demand, and in 1992 and 1993 there was a large capital outflow from Malaysia. However, in the following year, a huge capital inflow streamed into Malaysia. After the Asian financial crisis, the monetary targeting strategy was not suitable due to extreme volatility of money supply growth of the *M3*, which made the strategy of monetary targeting unreliable (Cheong, 2005).

Monetary aggregates were also not suitable as the monetary policy intermediate target due to lagging indicator and lower quantitative predictor effect to predict inflation, consumption and investment. Subsequently, the authority opted for the interest rate targeting policy and Taylor rule was utilized to monitor the interest rate and inflation rate. Malaysia utilized the Overnight Policy Rate (ONR) as the monetary policy indicator of the banking system (Al-Wosabi and Abdul Majid, 2009).

Furthermore, there was a fundamental change in the structure of the economy and financing, where Malaysia became a hub for manufacturing activity. This had shifted the financing pattern from the Government Securities market to the Capital Market. Government securities market before this was seen as an inelastic market where the interest rates were fixed for funding. Meanwhile, the capital market and bank credit were sensitive to the movement of the interest rates.

The policy at that time was to reduce the size of the civil service where many of the agencies were privatised and handed over to the private sector in line with government privatization policy and the private sector as the main engine of growth. Nonetheless, BNM was still observing the movement of monetary growth, financing and credit growth besides setting the interest rate as the targeting policy (Bank Negara Malaysia, 1999).

Even though *riba* or interest rate is prohibited in Islam, due to globalisation and deregulation of the financial services in most of the economies in the world, interest rates became the prominent target in conducting the monetary policy. Indeed, it

became the main instrument not just in the Malaysian monetary policy but in many other countries.

Interest rate was preferred against the monetary aggregates, because monetary data were only available monthly while the interest rate data could be obtained daily. Meanwhile, other instruments such as reserve requirement was not preferred as an important measure because of the difficulty in forecasting the supply and demand of banks' liquidity and high volatility of capital flows (Bank Negara Malaysia, 1999).

### 3.4.2 Towards Market Based Monetary Policy

To enhance the monetary policy implementation, BNM outlined three main strategies which were to improve transparency, to increase trading, payment and settlement system and to provide sound rules of the banking institutions. Subsequently, two pronged strategies were employed to improve transparency through effective communication and systematic dissemination of information.

Since there was a risk involved in the financial sector, many market players were cautious and often affected by the policy changes. To avoid disruption in the market, BNM chose to be more transparent in providing information so the market players were more certain about the policy and could respond effectively when there was a change (Bank Negara Malaysia, 1999).

After the implementation of the selective exchange rate and capital control, the Malaysian economy was able to recover and BNM had the greater autonomy since the value of the Ringgit was fixed at RM3.80 against the US dollar. Before the crisis, BNM used three months interbank rates to reflect the stance of the monetary policy. However, there was uncertainty in the market that the changes in the rates were not due to the market forces but through government intervention.

In the early 1998, BNM, used three months intervention rates to reflect the direction of the monetary policy. For the first time, public was informed on a daily basis about the result of the daily liquidity forecast and tender operation. Before this, the information was not disseminated to the public on a regular basis (Bank Negara Malaysia, 1999).

Malaysia also subscribed to IMF Special Data Dissemination Standard which enhanced the time lag of releasing information. With the timely disclosure of the information, market players were able to respond fast and correctly to the policy direction. By doing this, BNM had decreased the issuance time of monthly statistical bulletin from six to four weeks.

To improve trading, payment and settlement system, measures taken included using scriptless trading and Real Time Gross Settlement System. To enhance the soundness of the banking institutions, a new liquidity framework to replace the liquidity requirement of the banks was introduced (Bank Negara Malaysia, 1999).

### 3.4.3 Monetary Policy and Money Supply

Money supply is one important tool to control prices and inflation and to ensure the stability of the economy. The money supply includes *M1*, *M2* and *M3*. The *M1*<sup>8</sup> is defined as currency in circulation as well as demand deposits, which refers to the notes and coins issued by BNM, which is less than the amount held by the commercial and Islamic banks. In addition, *M2* refers to *M1* and Total Narrow Quasi money (includes savings deposits, fixed deposits, negotiable instruments of deposits or NIDs), repos, foreign currency deposits and other deposits). Furthermore, *M3* refers to *M2* and the deposits placed with other institutions. These deposits denote the sum of deposits/interest bearing instruments (including SPI deposits and instruments) placed by the non-bank private sector with finance companies, merchant banks/investment banks and discount houses (excluding inter-placements among these institutions) (Bank Negara Malaysia, 2008).

### 3.4.4 Monetary Policy and Interest Rates

The Malaysian monetary policy is based on the conventional monetary procedure where interest rates and the money supply are used as one of the implementation

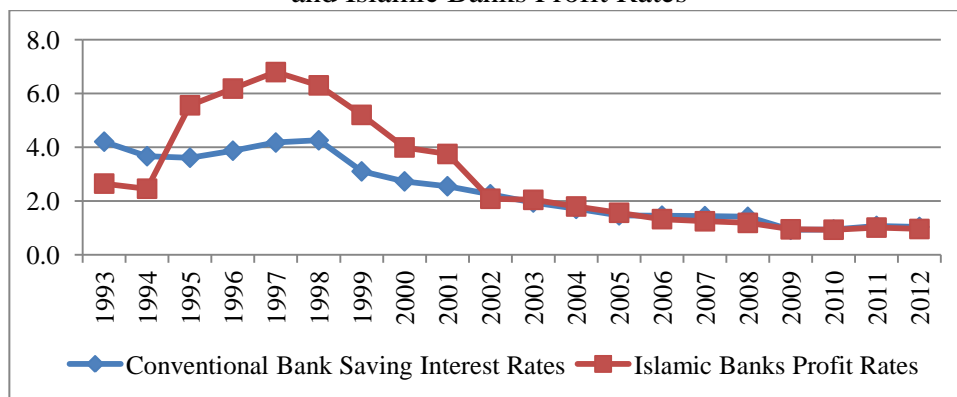
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<sup>8</sup> According to the Bank Negara Malaysia (Malaysian Central Bank), the *M1* defined as currency in circulation and demand deposits of the non-bank private sector while *M2* as *M1* plus quasi money. Quasi money is specified as savings and term deposits only. This definition is extended also towards Islamic intermediate aggregates namely Islamic *M1*. Where Islamic (*M1*) is defined as currency in circulation plus Islamic demand deposit, while Islamic *M2* as *M1* plus Islamic quasi-money (investment plus savings deposits held under Islamic banking scheme) (Kaleem and Isa, 2006,p.279-280).

instruments. Figure 3.9 shows that the interest rate of the conventional banks was relatively below 5 per cent from 1993 to 2012.

An Islamic bank was offering higher profit rates for saving account from 1993 until 2001. However, from 2002 onwards, profit rates of the Islamic banks were following the conventional banks' interest rates. As indicated in Figure 3.9, this was also supported by previous research that Islamic bank profit rates were pegged closely to the conventional deposit rates.

Figure 3.9: Annual Growth Rates of Conventional Bank Interest Rate and Islamic Banks Profit Rates

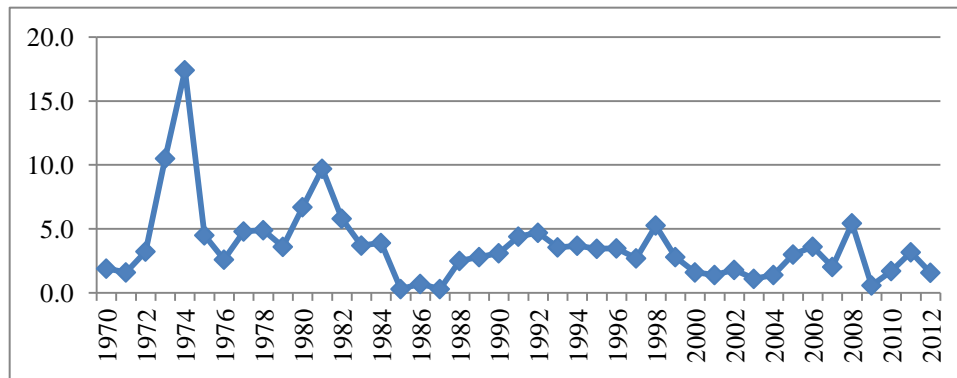


Source: Compiled from the Bank Negara Malaysia Monthly Statistical Bulletin, 2013

### 3.4.5 Monetary Policy and Inflation Rates

One goal of the monetary policy is to keep the inflation rate as low as possible. BNM through its monetary operations could affect the economic growth and inflation level by increasing or decreasing the bank's reserves which could in turn alter the bank's liquidity and money supply. Figure 3.10 shows that the inflation rate was higher than 15 per cent during the mid-1970s due to the oil crisis period. Furthermore, the inflation rate was below 10 per cent during the early 1980s when there was a downturn in commodity prices. Other than that, the inflation rates remained an average level of below 5 per cent.

Figure 3.10: Malaysia's Inflation Rate from 1970 to 2012



Source: Compiled from the Bank Negara Malaysia Monthly Statistical Bulletin, 2013

### 3.4.6 Monetary Policy and Exchange Rate

Malaysia's monetary policy before 1990's centred on monetary targeting, which aimed at maintaining price stability including the value of money. However, BNM did not directly use the exchange rate targeting policy to maintain the value of the Ringgit against other major currencies in the world. Instead, the strategy was to ensure fair value of Ringgit and avoid sharp reduction and high volatility of the exchange rates (Bank Negara Malaysia, 1999).

In 1997-1998, Malaysia was affected by the large capital outflows from the country and there was correspondingly high speculation in the Malaysian Ringgit market where the price of the Ringgit depreciated from \$1 USD against RM2.50 to \$1 USD against RM 4.20. As a result, even though interest rates were seen as the best targeted policy during the crisis, BNM was unable to influence the domestic interest rates (Bank Negara Malaysia, 1999).

To control the depreciation of the Ringgit, BNM made the right decision by setting the selective exchange control on 1st September 1998. The Ringgit value was fixed at RM3.80 against the \$1 US Dollar. And, to reduce speculation of the Ringgit market, BNM likewise set the capital control policy where Ringgit was not allowed to be traded in the overseas currency exchange market and only a maximum of RM10, 000 was permitted to be brought overseas.

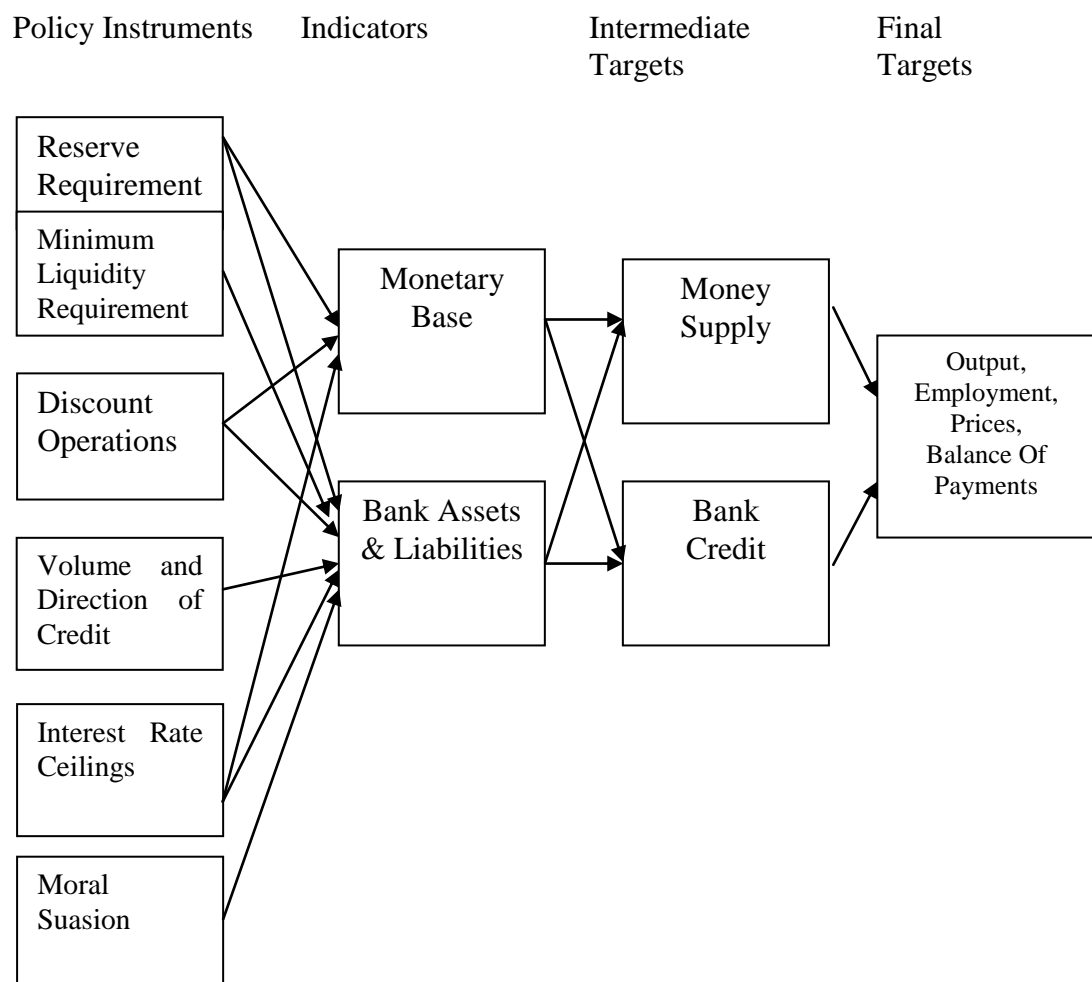
The policy option was able to suppress instability in the Ringgit market and as the control mechanism of large outflow of the capital. It was not the interest rates that were able to stabilize the value of the Ringgit but rather the selective exchange rate

control. In fact, at that time, BNM was unable to reduce the interest rates to avoid further contraction in the Malaysian economy (Bank Negara Malaysia, 1999).

### 3.5 MONETARY POLICY INSTRUMENTS

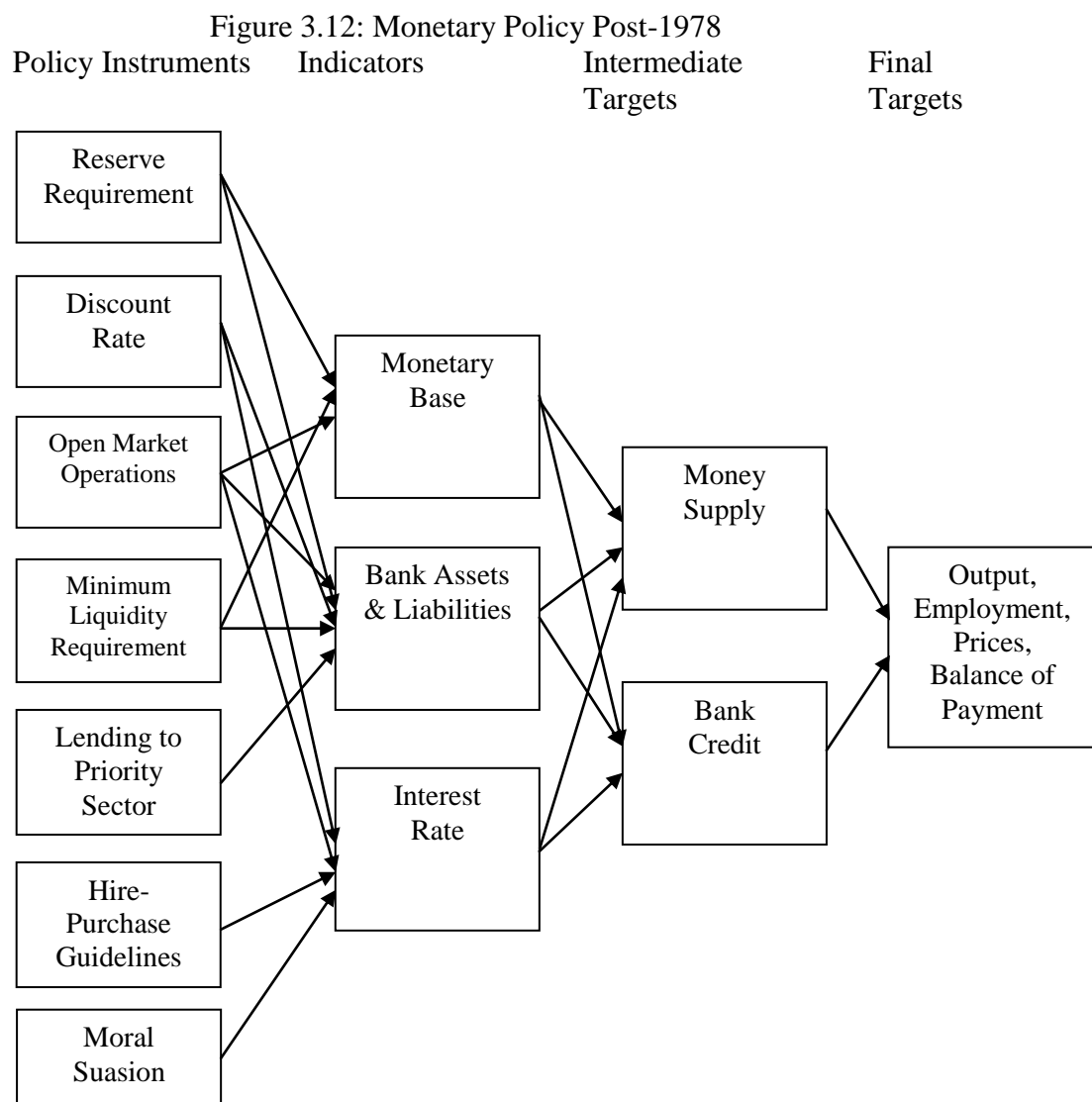
In Malaysia, as the experience showed, the BNM used five policy instruments to control money supply and bank credit creation process prior to 1978, which is summarised in Figure 3.11. The traditional conventional monetary policy instruments used included the Statutory Reserve Requirement (SSR), Minimum Liquidity Ratio (MLR), Volume and Direction of Credit (VDC), Interest Rate Ceilings (IRC), Discount Operations (DO) and Moral Suasion (Azali, 2000).

Figure 3.11: Monetary Policy Pre-1978



Source: Azali (2000)

The monetary policy instruments, indicators and targets after 1978 are shown in the Figure 3.12. The differences between the pre and post 1978 monetary policy were the inclusion of the open market operations (OMO) as a policy instrument and the use of interest rates as a policy indicator, which was used to change the size of the monetary base or high powered money or to change the structure of the public debt without changing the monetary base or to influence market interest rates (Azali, 2000). Reserve requirement, moral suasion and discount rate were retained as the policy instruments. Lending to the priority sector was also included as one of the policy instruments after 1978.



Source: Azali (2005:57)

### 3.6 ISLAMIC MONETARY POLICY INSTRUMENTS IN MALAYSIA

The Islamic Interbank Money Market (IIMM) was established on 3<sup>rd</sup> January 1994, as a short-term intermediary to provide a ready source of investment outlet based on *Shari'ah*-compliance principles (Bacha, 2008). The instruments in the Islamic Interbank Money Market include *Mudarabah* Interbank Investment (MII), *Wadiah* Acceptance, Government Investment Issue (GII), Bank Negara Monetary Notes-i (BNMN-i), Sell and Buy Back Agreement (SBBA), Cagamas Mudharabah Bonds (SMC), When Issue (WI), Islamic Accepted Bills (IAB), Islamic Negotiable Instruments (i-NI), Islamic Private Debt Securities (i-PDS), *Ar-Rahnu* Agreement-i (RA-i) and *Sukuk*<sup>9</sup> BNM *Ijarah* (SBNMI) (Dusuki,2005).

The '*Mudharabah* Interbank Investment' (MII) refers to a mechanism whereby a deficit Islamic banking institution can obtain investment from a surplus Islamic banking institution based on *mudharabah* principle. The period of investment is from overnight to 12 months. With regards to the rate of return, it is based on 1-year gross profit rate of investment. The profit sharing ratio is negotiable among both parties (Bank Negara Malaysia, 2010).

'*Wadiah Acceptance*' (WA) refers to a mechanism where Islamic banking institutions put their surplus fund with the Central bank of Malaysia based on the concept of *al-wadiah*. Nevertheless, the acceptor of funds is not obliged to pay any return on the account but may give a dividend paid or perceived as '*hibah*' (gift) (Shaikh,2009).

'Government Investment Issue' (GII) has been introduced because Islamic bank could not purchase or trade in the Malaysian Government Securities (MGS), Malaysian Treasury Bills (MTB) or other interest-bearing instruments. There has been a need for the Islamic banks to hold such liquid papers to meet the statutory liquidity requirements. To satisfy these requirements, a non-interest bearing certificate known

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<sup>9</sup> *Sukuk* is an Arabic word which literally means certificate. The word *Sukuk* translated as "Islamic bonds" and the nearest translation is "Islamic Investment Certificates" (Tahmoures, 2013). The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) defined *Sukuk* as certificates of equal value representing undivided shares in ownership of tangible assets, usufruct and services (El-Mosaid and Butti, 2014). *Sukuk* also defined as an asset-backed certificate which is structured in accordance with the *Shari'ah* and may be traded in the market. A *sukuk* represents the proportionate beneficial ownership in the underlying asset, which can be leased to a client to yield the return on the *sukuk* (Jobst,2007). For further understanding on *Sukuk* please refer to Chapter 1-the Origin of *Sukuk* in Islamic Finance in Dubai International Financial Centre *Sukuk* Guideline (2009).

as Government Investment Issues (GII) was introduced (Bank Negara Malaysia, 2012).

‘Bank Negara Monetary Notes-i’ (BNMN-i) is the Islamic securities issued by Bank Negara Malaysia as replacements to the Bank Negara Negotiable Notes (BNNN) to manage liquidity in the Islamic finance market. The maturity of these issuances has been lengthened from one year to three years. Further issuances of BNMN-i may be issued either on a discounted or a coupon-bearing basis depending on investors' demand (Bank Negara Malaysia, 2010).

‘Sell and Buy Back Agreement’ (SBBA) refers to an Islamic money market transaction entered by two parties in which the SBBA seller (seller) offers assets to the SBBA buyer (Buyer) at an agreed price. Subsequently, both parties enter into a separate agreement in which the buyer promises to sell back the said asset to the seller at the fixed price (Bank Negara Malaysia, 2010).

‘Cagamas Mudharabah Bonds’ (*Sanadat Mudarabah Cagamas-SMC* issued by Cagamas Berhad) was introduced on 1<sup>st</sup> March 1994 by the Cagamas Berhad to finance the purchase of Islamic housing debts from the financial institutions that provided Islamic home financing to the public. The SMC Bond structure has been adopting the concept of *mudharabah*, that is the bondholders and the Cagamas will be sharing the profits according to the agreed profit-sharing ratios (Bank Negara Malaysia, 2010).

‘When Issue’ (WI) is a transaction of sale and purchase of debt securities before the securities issued. The National Shari’ah Advisory Council in its meeting on 26<sup>th</sup> of February 2006, suggested that the WI, transaction must be allowed based on the permissibility of promise for sale and purchase transactions (Bank Negara Malaysia, 2010).

‘Islamic Accepted Bill’ (IAB) known as Interest-Free Accepted Bill (IAB), has been introduced to encourage and promote both domestic and foreign trade, by providing Malaysian traders with an attractive Islamic financing product. The IAB is formulated on the Islamic principles of *al-murabahah* (deferred lump-sum sale or cost-plus) and debt-trading (*bay al-dayn*) (Billah, 2006).

‘Islamic Negotiable Instruments’ (i-NI) covers two instruments namely Islamic ‘Negotiable Instruments of Deposit’ (i-NID) which refers to a sum of money deposited with the Islamic banking institutions and repayable to the bearer on a specified future date at the nominal value of i-NID and the declared dividend. The other instrument is known as the ‘Negotiable Islamic Debt Certificate’ (N-iDC). The transaction involves the sale of banking institution's assets to the customer at an agreed price on a cash basis. Subsequently the assets are purchased back from the customer at a principal value plus a profit and to be settled on an agreed future date.

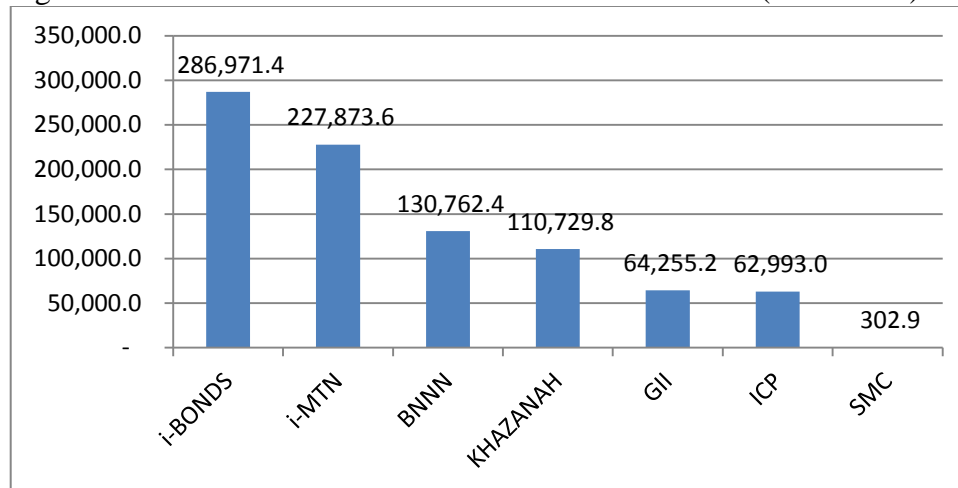
‘Ar-Rahnu Agreement-i’ (RA-i) is where the lender provides a loan to the borrower based on the concept of *qardul hasan*. The borrower will pledge its securities as collateral for the loan granted. However, in the event where the borrower fails to repay the loan on the maturity date, the lender has the right to sell the pledged securities and use the proceeds from the sale of the securities to settle the loan. If there is surplus money, the lender will return it to the borrower (Shaik,2009).

‘Sukuk Bank Negara Malaysia Ijarah’ (SBNMI) is based on *ijarah* or ‘sale and lease back’ concept. The proceeds from the issuance will be used to purchase Bank Negara Malaysia assets. The assets will then be leased to Bank Negara Malaysia for rental payment consideration, which is distributed to investors as a return to a semi-annual basis. Upon maturity of the lease tenure, BNM *Sukuk Berhad* will then sell the assets back to Bank Negara Malaysia at a predetermined price (Bank Negara Malaysia and Security Commission of Malaysia,2009)

Last but not least is the ‘Islamic Private Debt Securities’ (iPDS) are outstanding in the market issued based on the *Shari’ah* compliant concept of *al-bay bithaman ajil*, *murabahah* and *mudharabah*.

Figure 3.13 show the accumulated value of the Islamic Securities issued utilizing the instruments of modern Islamic monetary policy from 2001 to 2011. The highest amount issued was the GII, which amounted to RM642.5 million. The lowest value was SMC valued at RM 302.9 million.

Figure 3.13: Accumulated value of the Islamic Instrument (2001-2011)



Notes : i-BONDS=Islamic Bonds, i-MTN=Islamic Medium Term Notes, BNNN=bank Negara Negotiable Notes, GII=Government investment Issues, ICP=Islamic Commercial Papers, SMC=Sanadat Mudharabah Cagamas

Source: <http://iimm.bnm.gov.my>

### 3.7 APPLICATION OF ISLAMIC FINANCE INSTRUMENTS IN MALAYSIA

This section aims to describe how in practice Islamic financial instruments are applied by the Islamic banks in Malaysia. Some instruments like *al-bay bithaman ajil* is only applicable and implemented in Malaysia but not in others countries. This has created chaos in the system and many court cases were filed against the bank. The following section will describe theory and practice of the Islamic finance instruments in Malaysia and how some instruments are used as legal device (*hilah*) to justify that there are element of sale and purchase and not debt based contract although there are some element of *gharar*, customers sign the contract before they need cash, banks transfer the risk to the customers and in some cases, there is no change of ownership of the property to the customers.

#### 3.7.1 Al-Bay Bithaman Ajil (BBA)

*Al-bay bithaman ajil* (BBA) is a contract of sale and purchase for the financing of assets on a deferred and an installment basis with a pre-agreed payment period. The transaction price will include a profit margin. This contract is valid if the date of payment is set clearly. BBA is also known as *al-bay mua'jjal* and widely applied by the Islamic banks in Malaysia (Wahid, 2014).

The BBA is an extension of the cost plus profit (*murabahah*) contract, according to which buyers are provided with the benefit of deferred payment and the seller gets additional profit due to the sales of deferred price. *Murabahah* (which is normally for a short-term period) and BBA are mainly used in Malaysia for home financing (Mydin & Abdul Razak, 2005). However, *musharakah mutanaqisah* has become an alternative sales contract for home financing in Malaysia. In most cases, profit rates of the BBA of home financing and other long-term credit sales of the Islamic banks are higher than the conventional banks.

When a customer applies for a housing loan from the Islamic banks, often the Islamic banks benchmark the profit rates against the conventional bank interest rates. This move is endorsed by the *Shari'ah* scholars by justifying on the ground that the BBA contract does not involve *riba* because it is a sale contract and there will be no increment of the deferred payment price because the selling price is already fixed at a certain rate of return.

In theory, the sales concept is better than debt and loan, as it provides transparency in the contract. There is no element of *gharar* (uncertainty) when the customers know about the total paying price compared to buying through the conventional banks. However, the Islamic banks are not doing justice by determining the profit rate based on the conventional interest rates. If any customers call some Islamic banks in Malaysia and request for the home financing, they will be informed of the rate or return and the amount required as payment depends on the amount of the loan.

Rama (2010) conducted a study in comparing between interest rate mortgage and home financing based on diminishing partnership (*musharakah mutanaqisah*) principle in Malaysia. The result of the findings suggests that rental rates are lower than interest rates and vary according to the type and location of the properties. The study also found that there is a weak positive correlation between rental rates and interest rates and it was stable even during the financial crisis in year 1997 and 1998. The study also found that single story and condominium types of property have a strong correlation with interest rates. However, the study suggests that rental rate is used as an alternative to interest rate benchmarking for home financing because it reflects the market value of the property (Rama, 2010).

In Islam, there is no maximum amount of profit fixed for the seller. However, the selling prices should be fair, and it should be based on the market rate rather than calculation based on the conventional rates of interest.

### 3.7.2 *Ijarah*

In Malaysia, the application of *ijarah* includes *ijarah* financing, *sukuk al ijarah*, *musyarakah mutanaqisah* and *al-ijarah thumma al-bay*. The basic feature of *ijarah* is that it is an exchange of contract between parties, but it does not involve the transfer of ownership from the lessor to the lessee. However, there are two categories of *ijarah*; operating *ijarah* and finance *ijarah*. The former is that, at the end of the leasing period, the assets will not be transferred to the lessee, and it will still belong to the lessor. The latter is where at the end of the leasing period, the asset will be sold to customers at nominal prices (Othman, 2010).

In the context of Islamic banking, *ijarah* is defined as the process where the usufruct of the particular goods/product or property is transferred to another person in exchange of rental claim or payment. The distinguishing feature of the contract is that the lessor remains as the owner of the property at the end of the leasing period, where leasing period and renewal terms must be clearly stated. The lessor is also still liable on the leasing assets, the maintenance cost, damage and the premium cost (Mohd Shariff and Abdul Rahman, 2003).

In Malaysia, although *ijarah* is one of the modes of financing in Islam, in terms of legality, it is based on the Contract Act 1950 and Hire Purchase Act (HPA) 1967. For example, in the case of 'Tinta Press Sdn. Bhd. versus Bank Islam Malaysia Berhad', the decision was held by the Civil Court on the principles that even though the case was in relation to *ijarah* transaction, it was still applicable to the common law (Abdul Halim, 2012). This implies that even though the HPA 1967 is contrary to the principles of *Shari'ah* and silent about the *Shari'ah* matter, the law applied will be the English law by virtue of Civil Law Act 1956 (Hassan et al., 2012)

*Al-ijarah thumma al-bay* (AITAB) or known as *ijarah waiqtina* is one of the financing modes, which is widely used in Malaysia. There are two types of Islamic hire purchase contracts namely *al-ijarah thumma al-bay* (leasing ending with a sale) or *al-ijarah muntahiya bittamlik* (leasing ending with ownership). AITAB is used for

motor vehicle financing and *ijarah muntahiyya bittamlík* for corporate financing by some banks (Abdullah and Dusuki, 2004).

AITAB involves two types of contract: *al-ijarah* contract (leasing) and *al-bay* (sales) contract, where the financial institution appoints the customers as agents to purchase the vehicle required by the customers. The customer will be paying a deposit to the vehicle agent. Then the customer's application will be submitted by the car dealer to the financial institution for approval. Once the customers fulfil the eligibility, and the application is approved, the financial institution will pay the total selling price of the vehicle (excluding the deposit paid by customers) to the car dealers.

Subsequently, the financial institutions will lease back the vehicle to customers for a specific period of time with a fixed amount of monthly rental/leasing payment. At the end of the leasing period, the customers have the option to purchase the vehicle, and if the customers opted to purchase the ownership will be transferred to the buyer. In practice, lease and sale contracts will be signed up front as the financial institution does not want to take the risk and customers at an early stage needs to sign an agreement for buying the vehicle at the of the leasing period.

Basically, in Malaysia, AITAB is gaining popularity because only a few people can afford to buy cars on cash terms basis (Tag El-Din & Abdullah, 2007). Although there is some similarities with the hire and purchase contract under the Hire-Purchase Act 1967, there are some distinguishing elements in AITAB. The *Shari'ah* Advisory Council (SAC) in July 1997 decided that AITAB be allowed with certain conditions (Bank Negara Malaysia, 2010):

- (i) It shall consist of two contracts;
- (ii) The sale price at the end of the leasing period should be equivalent to the last rental amount of leasing;
- (iii) The customer must be appointed as an agent by the financial institution;
- (iv) The agreement shall include a clause on 'will purchase the vehicle' by the lessee at the end of the leasing period and the clause on redemption;
- (v) The payment of deposit for a vehicle by customers to the car dealer does not form a sale contract;

- (vi) The financial institution will be the owner of the assets and will bear ownership risk; and
- (vii) The lessee shall terminate the contract before entering into a new AITAB contract.

Again, in theory, the financial institution will be the owner of the asset but in practice the financial institution bears the risk because they hold the beneficial ownership but the asset or property is use by the lessor. For example, in the case of the motor vehicle, the customers will be paying road tax and insurance and bear the maintenance cost. However, in practice, banks will hold the beneficial ownership and the customer as the legal owner. The SAC meeting in September 2002 decided that the lessor is the owner of the *ijarah* asset although the lessor's name is not registered in the title and the lessee is only entitled to the usufruct of the asset. Since there is no separate law governing AITAB, it falls under the ambit of the Hire-Purchase Act (HPA) of 1967.

From the *Shari'ah* point of view, the lessor is the owner of the assets; nevertheless the cost of insurance, road tax and maintenance should be borne by the owner. However, in practice, AITAB agreement is bound to follow the HPA, 1967, where for the case of insurance, Section 26 (1), (a) and (b), (2), (4) and (7) of the HPA 1967 clearly states that the lessee has to bear the cost of insurance for the second year and onward although lessor is the owner of the assets.

### 3.7.3 Murabahah

*Murabahah* is one of the most prominent debt-based structured instruments, which is based on cost and principle, in which the financial institutions will buy goods or products and sell to the customer at a price, which includes a negotiated profit margin. In theory, the selling price must be negotiated and agreed by both parties. However, in reality, the selling price and calculation of the profit margin is determined by the financial institutions.

There are two types of *murabahah* that involves a sale: one is the sale-repurchase of the borrower's asset (short sale) or the purchase of the tangible asset by the financial institution from the third party on behalf of the customers and reselling it to the customer with the original cost price and a mark-up profit. Commodity *murabahah* is commonly used for issuing an Islamic credit card in Malaysia and for financing

contracts. It falls under the same generic category of *bay al-amanah* and comes from the main category of *uqudal-mu'awadhat* (exchange contracts) that covers all types of transactions including *sukuk* (Al Sayyed, 2010).

In *murabahah* sale, the profit margin is implicitly included in the selling price. This means that the profit margin is benchmarked against the interest rates. A criticism of *murabahah* is that when used excessively, it gives a fixed rate of return to the financial institution (Ayub, 2007). It should be noted that most financial institutions prefer *murabahah* financing because the rate of return is pre-determined, as it does not require much effort to evaluate and monitor compared to investment based financing, and the relative risk of default is low (Rosly, 2005). *Murabaha* is defference with Al-Bay Bithaman Ajil although both are deferred sales contract plus mark-up with profit margin. Among other main difference between *Murabaha* and BBA is that *Murabaha* is applicable on spot and deferred basis but BBA is only applied on deferred payment basis (BNM, 2010).

#### 3.7.4 Musharakah

*Musharakah* is a partnership or joint venture agreement where the lender not only provides the capital but also jointly contributes to managing a business project. All parties need to agree on the distribution of the profit ratio generated from the business activity. The partnership agreement can be terminated after a certain time of the period upon fulfilment of certain conditions. In the event of losses, all parties bear the loss in proportion of their shares in the project (Haron, Ahmad, & Planisek, 1994). There are three types of *musharakah* contracts: partnership contract (*shirkat al-aqad*), co-own (*shirkat al-milk*) and diminishing partnership or joint venture (*musharakah mutanaqisah*). *Shirkat al-aqad* is the riskiest contract because there is no guarantee of the capital repayment or profit payment (Yaakub, 2009). However, in practice, a profit in *musharakah* agreement is guaranteed, which eliminates the risk, where lower risk, lower liabilities and no responsibilities are preferred by the financial institutions in Malaysia.

#### 3.7.5 Mudarabah

*Mudarabah* is a profit sharing contract where financial institutions provide the capital as *rabb al-mal* and customers/entrepreneurs or *mudarib* provide the necessary

expertise and skills. Any distribution of profit is determined beforehand and in the case of losses, it is borne by the *rab al-mal*. However the *mudarib* has a defect (Nagaoka, 2010). Obviously, this type of contract is non-preferable to the financial institutions, and in Malaysia the total financing of *mudarabah* in the Islamic financial sector was 0.2 per cent in 2006, which decreased to 0.1 per cent in 2012. As mentioned above, both conventional and Islamic banks will avoid high risk and will reduce their liabilities and responsibilities.

### 3.7.6 Istisna'

*Istisna'* is an order to manufacture or to be manufactured or constructed where the manufacturer or contractor will deliver to the customer upon completion according to the agreed specification and price (either to be paid in advance or upon completion) between both parties (Muhammad & Chong, 2007). Although the goods or products are non-existent at the time of agreement of the contract, the contract is considered valid based on the principle of equity (*istihsan*) and the customary practice (*uruf*) (Nawawi, 1999). Among other conditions for *istisna'* include:

- (i) It is an obligation of the manufacturer or contractor to manufacture the goods or products or to construct and start the works. Any of the parties can cancel the contract after giving notice. However, once the works have started the contract cannot be cancelled without the agreement of both parties (Usmani (Mufti), 2005);
- (ii) The price is already determined at the time of conclusion of the contract, and it cannot be increased or decreased due to escalation of raw materials price or commodity price to avoid uncertainty (*gharar*);
- (iii) The manufacturer or contractor is not permitted to exclude liability of defects because *istisna* is a sale of goods or products to be delivered in the future, where the specifications are already clearly explained in the contract (Muhammad Al-Amine, 2001); and

- (iv) Quality, quantity, and specifications must be clearly defined without ambiguity. Otherwise, the contract may lead to a legal dispute (Haron & Shanmugam, 2001).

*Istisna'* in Malaysia amounted to RM 1.5 billion or about 0.7 per cent of total financing in the Islamic banking sector in 2011. However, in terms of value it increased about 187 per cent compared to total RM 509.3 million in 2006.

In addition to the above mentioned financial contracts, in Table 6.1, there are also other types of financing which include *qardhul hassan*, *al-bay inah*, *al-bay dayn* and *tawarruq* valued at RM 39.2 million or about 20 per cent of the total financing in 2011. There is no breakdown of the statistic regarding the percentage of this financing by the Islamic banks, but individually it appears in the annual report of the each Islamic bank.

### 3.7.7 Qardhul Hassan

*Qardhul Hassan* is a financing to help the customers with financial hardship by providing rebates to reduce the burden of repayment by the customers, which, in Islamic banking, refers to the zero-interest loan. The borrower is only required to pay back the amount borrowed. In some cases, a minimum administrative fee may also be charged to the borrower (Abidin, Alwi and Ariffin, 2011). It refers to a loan for people to Allah, where the reward for giving to loan to others will be compensated with good deeds by Allah in the hereafter (Anwar, 2003). In Malaysia, *qardhul hassan* financing is accepted by customers because of 'attitude', subjective norm and pricing (Amin *et al.*, 2010).

Qardul Hasan is a benevolence loan that customers are required to pay the principal amount without any obligations to pay additional amount (Zainal Abidin, Mohd Alwi and Mohd Arifin, 2011). However, in practice some Islamic banks do offer *qardhul hassan* loan but includes their profit rates for *qardhul hassan* loan to cover for the risk of default in payment by the customers. Below is a true case when researcher applied personal loan under the scheme of *qardhul hassan* from one of the Islamic banks in Malaysia with an amount of loan of RM50,000.00. The contract states that final payment will be about RM90,000.00 for a period of 10 years. The profit rates charge is 7 per cent annually. If the customers do not default in payment then the customers

will be paying only 70,000 at the end of the loan period. The difference of RM 20,000.00 will be considered as *ibra* (discount or rebate) by the banks for the *qardhul hassan* loan if the customers do not default in payment. In the event that, the customers have defaulted the payment, then they have to pay RM90,000.00 as the full amount the *qardhul hassan* loan. This example shows that although in theory *qardhul hassan* is a benevolence loan to pay principal amount without paying any additional amount but in practice bank was offering something else using the name of *qardhul hassan*. This was practice by one of the Islamic bank in Malaysia in 2003 and this type of contract was taken out from market in 2013.

To lower the risk of default in payment by the customer, the Islamic bank will add another condition to the customers. They will have to open an account with the Islamic banks and their income or salary or monthly earning need to be credited into that account. The Islamic bank will debit that amount for the monthly payment of *qardhul hassan* loan. This is practiced by one Islamic bank in Malaysia not only to secure payment, avoid default in payment by the customer but lower the risk to bear by the bank. In a nutshell, Islamic banks are not willing to take risk even for the *qardhul hassan* loan.

#### 3.7.8 Al-Bay Inah

*Al bay inah* is the immediate sale contract of an asset or property by the first party to a second party. A seller will sell the asset to a buyer on a cash basis. The seller will later buy back the same asset on a deferred payment, where the price is higher than the cash price. It can also be applied when a seller sells an asset to a buyer on a deferred basis. A seller will subsequently buy back the same asset on a cash basis at a price lower than the deferred payment price (Shaharuddin, 2012). For example, if a customer wants to apply a personal loan for RM10, 000, it will appear in the contract that Islamic banks sell a piece land with the mark-up price of RM 15,000. Then the customer will agree to buy that piece of land with a mark-up price of RM15,000. This means he has to pay RM 15,000 to the bank. In this case, since the customer wants cash and does not want to buy a piece of land, he will then immediately resell the piece of land to the bank with a discounted price of RM10,000.00.

After the buying back process, the bank will credit money to the customer's account with an amount of RM10,000.00. Since the customer has earlier agreed to buy the piece of land at a price of RM15,000.00, he or she now owes the bank RM 15,000.00 and the amount will be paid on instalment for a time period agreed by both parties. This type of transaction (selling of a same piece of land) is repeated for other customers who want cash from the Islamic banks. The transaction is not considered *riba* because it involves selling and buying. However, there is an element of uncertainty (*gharar*), where the same assets are utilized for the purpose of selling and buying back in order to provide cash to the customer. It should be noted that *al-bay inah* is widely used in personal finance in Malaysia.

### 3.7.9 Al- Bay Al-Dayn

*Al bay al-dayn* is a sale of payable right either to the debtor or to any third party for deferred payment or immediate payment (Rosly & Sanusi, 1999), which is only acceptable in Malaysia, and not by the jurists and practitioners in the Middle East. The SAC of Malaysia on 21st August 1996 passed a resolution to accept *al-bay al-dayn* as one approach to develop capital market instruments. The justification was that *al-bay al-dayn* fulfils the requirements of the sale contract. There is an offer and acceptance, contracting parties, commodity and price. *Al-bay al-dayn* used in Malaysia for a sale and purchase of trade documents such as bill of exchange and Bankers' Acceptance (Amin, 2007).

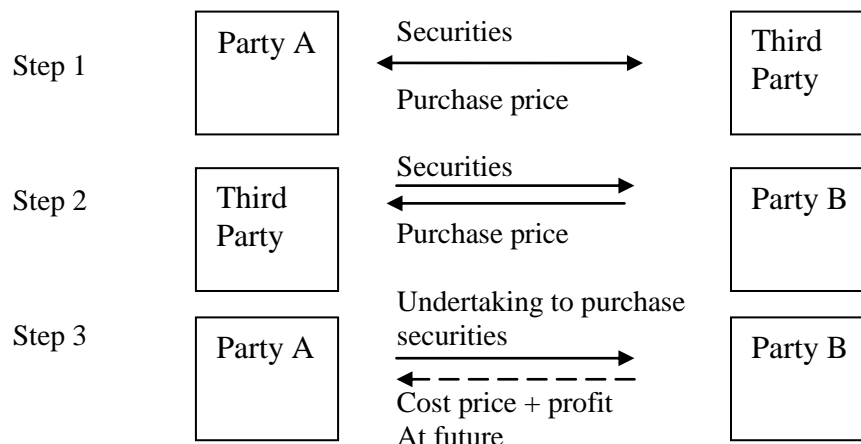
### 3.7.10 Tawarruq

*Tawarruq* is a sale contract when someone needing cash buys an item on credit and re-sells the same item or assets or property to a third party at a price lower than the original buying price (Hosen and Nahrawi, 2012). Basically, *tawarruq* mechanism is similar to *al-bay inah*. The main difference is that *al-bay inah* involves two parties while *tawarruq* involves third parties.

There are two types of *tawarruq* namely classical *tawarruq* (*al-tawarruq al-fardi*) and organized *tawarruq* (*tawarruq al-munazzam*). Classical *tawarruq* is the purchase of a commodity owned by the seller for deferred payment, and the buyer resells the commodity to another party to acquire cash (*al-wariq*). On the other hand, the organized *tawarruq* is a transaction when a customer (*mustauriq*) buys commodities

from the local or international market at deferred price. Subsequently, the *mustauriq* will appoint a financier, or through an agent, the *mustauriq* rearranges the sale transaction usually at a lower price (Mihajat, 2010). The example of organized *tawarruq* transaction is illustrated in Figure 3.14 below.

Figure 3.14: Example of Organized *Tawarruq*



Source: International Islamic Financial Market, IIFM, 2010, p.20 in Kahf and Hamadi, 2014;p.115.

In April 2009, the Organization of Islamic Countries (OIC) Council of Fiqh Academy decided that organized *tawarruq* and reverse *tawarruq* were not permissible because they are deceptive and deceitful way to get cash for deferred price payment (Khan S. H., 2009). Except for *qardhul hassan*, the *bay inah*, *bay al-dayn*, and *tawwaruq* are controversial contracts practiced by the Islamic banks in Malaysia. Out of 17 banks in Malaysia in 2010, about 15 banks offered personal financing based on the principle of *al-bay inah* and *tawarruq* (Ab Rahman, Mohammad, & Mohd Salleh, 2010). Organised *tawarruq* was also widely used for the application of Islamic credit card in Malaysia.

### 3.8 SUMMARY

This chapter aimed at summarising and providing a brief on the monetary policy and outcomes with the objectives of locating context of the empirical analyses of the following chapters. The chapter, therefore, provided an overview of the monetary policy mechanism and operations in relations to policy, application of the Islamic finance instruments in theory and practice. In doing so, it describes the implementation and changes of monetary policy in Malaysia, issues in application of

the Islamic finance instruments by the Islamic banking system in Malaysia to render an initial understanding in the nexus between monetary policy (in a conventional sense) and Islamic financing instruments. The following chapter builds on this chapter by discussing the developments and trends in Malaysian Islamic banking by presenting various aspects including its performance.

## CHAPTER 4

### MALAYSIAN ISLAMIC BANKING: DEVELOPMENTS AND TRENDS

#### 4.1 INTRODUCTION

Malaysia is one of the countries that support the development of modern Islamic banking system through specific government policies, which as a sector, has shown an unprecedented performance since the establishment of first Islamic bank in 1984. This chapter, hence, describes the performance of Islamic banking industry in Malaysia, from 1984 to 2012. It should be noted that Malaysia is one of the countries that practice a dual banking system, where Islamic banks and conventional banks operate together under same monetary policy and regulation.

As part of the institutional development, it should be stated that as of December 2012, 16 Islamic banks were registered in Malaysia. Table 4.1 summarises the longevity and status of the existing Islamic banks in Malaysia as of 2012.

Table 4.1: List of the Local and Foreign Islamic Banks in Malaysia

Islamic Banks	Status	Year of Establishment
Bank Islam Malaysia	Local	1983
Bank Muamalat Malaysia	Local	1999
CIMB Islamic Bank	Local	2003
Hong Leong Islamic Bank	Local	2005
Kuwait Finance House (Malaysia)	Foreign	2005
RHB Islamic Bank	Local	2005
Affin Islamic Bank	Local	2006
Al Rajhi Banking & Investment Corp. (Malaysia)	Foreign	2006
AmIslamic Bank	Local	2006
Asian Finance Bank	Foreign	2007
Alliance Islamic Bank	Local	2008
HSBC Amanah Malaysia	Foreign	2008
Maybank Islamic	Local	2008
OCBC Al-Amin Bank	Foreign	2008
Public Islamic Bank	Local	2009
Standard Chartered Saadiq	Foreign	2009

*Source:* Compiled from Bank Negara Malaysia website ([www.bnm.gov.my](http://www.bnm.gov.my))

Of the total number of banks, 10 banks were local and the remaining 6 were foreign. Out of these 16 Islamic banks, only 2 are full-fledged, namely Bank Islam Malaysia *Berhad* (BIMB) and Bank *Muamalat* Malaysia. The remaining banks are either ‘windows’ or subsidiaries of the local and foreign conventional banks operating under the concept of the Islamic Banking Scheme (IBS) or ‘*Skim Perbankan Islam*’ (SPI) which was introduced in 1994.

The first Islamic bank, the Bank Islam Malaysia *Berhad* (BIMB), was established in 1983, which had been the only full-fledged Islamic Bank for 16 years until the second Islamic bank known as the Bank *Muamalat* Malaysia in the year 1999 was instituted. However, to encourage competition in the market and to increase the number of players without establishing new Islamic banks, Bank Negara Malaysia (BNM) allowed the conventional banks to offer Islamic banking products and services through a subsidiary or branch under the concept of IBS.

This chapter, hence, discusses the trajectories of developments in Islamic banking in Malaysia over the years and also presents initial empirical findings in relations to its performance.

## 4.2 MILESTONES OF ISLAMIC BANKING IN MALAYSIA

The principles of Islamic finance were implemented for the first time in Malaysia through the establishment of the Pilgrims Saving Account Corporation in 1963. In 1969, it was renamed the Pilgrims Management and Fund Board or *Lembaga Urusan Tabung Haji* (LUTH). Among other objectives of LUTH was to keep saving for Muslims who intend to perform *hajj* at Mecca. (J.D. Perry and Rehman, 2011).

Once they had enough saving, arrangements would be made for the depositors to perform *hajj* for the year they had been selected. The LUTH did not pay any interest rates to the depositors but invested some of their money and return them as *hibah* or dividend at the end of the year. It should be noted that LUTH has not been functioning as a bank, even though it is similar to the extent that they need to keep saving and managing the depositors’ money. Thus, it should be considered as a socially responsible investment institution or as a saving agency.

Muslims in Malaysia did not only require saving keeping function without interest payment, but also financing and loans for activities such as business setup, business expansion, mortgage loans, car loans, and personal loans. Since LUTH activity is limited to saving keeping function for the purpose of performing *hajj*, there has always been a high demand in Malaysia for a financing and loan without charging interest or *riba*.

In 1980, the *Bumiputera* National Congress highlighted to the Government the need to establish an Islamic bank, which could provide financing and loans without *riba*. Subsequently, in July 1981, the Malaysian government formed a National Steering Committee to study the feasibility of setting up an Islamic bank in Malaysia. In March 1983, Bank Islam Malaysia Berhad (BIMB) was established with an authorised capital of RM500 million under the Islamic Banking Act 1983. Among other facilities provided by the Islamic banks at that time were deposits, financing and investment and other services.

With regards to deposit, the current account and savings account were based on the principles of *al-wadiah*, without payment of interest rate. The investment account deposits adopted the principles of *mudharabah*, which allows the payment period from one (1) month to more than five (5) years. Moreover, banks were not obliged to pay any fixed amount of profit on money invested by the depositors. In terms of financing and investment, the principles of *mudarabah*, *musharakah*, *al-bay bithaman ajil* and *ijarah* were implemented in project financing, while *al-wakalah*<sup>10</sup>, *al-murabahah* and *al-musharakah* were used in trade financing. Other services provided by the Bank Islam included remittances and transfers, transactions in foreign currencies and the sale of travellers' cheques which were also provided by other conventional banks in Malaysia (Bank Islam Malaysia Berhad, 1994: 22).

Since the activity of Bank Islam Malaysia (BIMB) was limited to banking, in 1984, it was allowed to offer products and services of Islamic Insurance (*takaful*) through the establishment of its subsidiary company known as Syarikat Takaful Malaysia. The BIMB launched two other subsidiary companies for leasing and operating as an

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<sup>10</sup> Al-Wakala refers to agency or a delegation of a duty to another party or agency for specific purposes and specific conditions. Under this concept, the bank acts as the customers' agent in completing the financial transaction. As an agent, the bank will be paid a certain amount of fee for their services (Bank Negara Malaysia, 2013).

agency, namely Al-Ijarah Sendirian Berhad with RM1 million paid capital and Al-Wakalah Nominees Sendirian Berhad with paid up capital of RM25, 000.00.

The establishment of the first Islamic insurance company, leasing (*ijarah*) and agency (*wakalah*) companies was another move to complement the products and services offered by the modern Islamic finance industry in Malaysia. For about 16 years, there was only one Islamic bank even though initially BIMB made some losses; subsequently it made a substantial amount of profit after *zakah* and tax (Table 4.2).

Table: 4.2: Profit and Loss After Zakah and Tax  
of Bank Islam Malaysia Berhad from 1984 to 1993

Year	Profit and Loss of Bank Islam Malaysia Berhad(RM million)	Change (per cent)*
1984	(1,770,368)	-
1985	148,741	-108.4
1986	2,186,000	1370.0
1987	942,718	-56.8
1988	2,971,000	215.2
1989	5,184,000	74.4
1990	6,896,000	33.0
1991	8,377,000	21.5
1992	9,145,000	9.2
1993	17,535,000	91.7

Note: (\*) Author's calculation

Source: Compiled from Annual Report of Bank Islam Malaysia Berhad (1984-1993)

The profit made by the single Islamic bank became a benchmark for the contemporary Islamic banking industry and this motivated the conventional banks to persuade the government to allow conventional banks to offer Islamic banking products and services.

In March 1993, the Government through the Central Bank of Malaysia (Bank Negara Malaysia-BNM) introduced 'Interest Free Banking Scheme' (IFBS) through the local conventional banks. Three banks namely Malayan Banking Berhad (Maybank), Bank Bumiputra Malaysia Berhad (BBMB) and the United Malayan Banking Corporation (UMBC), known as the Sime Bank and later RHB Bank were selected as the pioneers to offer products and services under the scheme.

The decision to permit IFBS in the conventional banks was to increase competition in the market and progressively liberalize the industry. However, it posed a challenge and a threat to the single Islamic bank. From the regulatory point of view, it was the

most efficient and effective policy to increase the number players in the industry within a short period of time at low cost (Bank Negara Malaysia, 1994). From the industry perspective, the Government's decision was a right move to break the monopoly in the industry and increase competition. However, from the Islamic banker's point of view, it created confusion among the general public. People felt that when the conventional banks were allowed to offer products and services of the Islamic banking, then there was no point, as there were no differences between Islamic and conventional banks.

The immediate effect of the decision was that BIMB's cost of funding increased due to stiff competition from the conventional banks and the depositors' changing behaviour. They preferred to transfer their deposits to conventional banks when Bank Islam offered the lowest rate of return for saving and investment accounts. The Islamic bank's operation was affected as depositors were influenced by the economic and financial variables rather than by their religious belief. The Islamic bank and the windows became sensitive to the movement of the interest rates offered by the conventional banks as claimed by Haron and Wan Azmi (2006).

Similarly, the Islamic banking scheme could not cater for the lower income groups, particularly those who are not credit worthy. In order to help them to gain access to the Islamic financing, in August 1993, the government introduced the first Islamic pawning scheme (*ar-rahnu*) under the Cooperative Bank of Malaysia or Bank Kerjasama Rakyat Malaysia (Bank Rakyat).

To facilitate the Islamic banking industry, in January 1994, the government launched the first Islamic Interbank Money-Market (IIMM). The main objectives of IIMM were to provide short-term funding to Islamic financial institutions and as outlets for *Shari'ah-based* investment, to serve as a channel of monetary policy transmission and to match the funding requirements more efficiently and effectively (<http://iimm.bnm.gov.my>).

In 1995, the Association of Islamic Banking Institutions (AIBIM) was formed as the sole body to channel views and feedbacks from the industry players and practitioners to the government. As part of the institutional developments, in May 1996, Shari'ah Advisory Council (SAC) of the Securities Commission was established to explore the feasibility of developing an Islamic Capital Market in Malaysia. In May 1997,

National Shari'ah Advisory Council (SAC) was recognised as the highest authority in Malaysia to formulate Islamic law pertaining to the governance of the Islamic banking, *takaful*, and any other Islamic financial business and services which were under the jurisdiction of the Bank Negara Malaysia (BNM).

The functions and role of SAC were strengthened through the amendment of Central Bank of Malaysia Act (CBM), 2009. SAC was granted power as the sole authoritative body over individual *Shari'ah* Advisory Board at the banks and other institutions. In the event of any contrary, SAC decision would prevail; and therefore, the Court and arbitrators were required to refer to the ruling of the SAC for any proceeding related to Islamic finance, Islamic banking and any other Islamic financial business proceeding and such decision of the SAC should be binding ([www.bnm.gov.my](http://www.bnm.gov.my)).

The decision to establish SAC at the national level was the right move to streamline the Islamic laws and *fatwas* and to avoid banks applying different *fatwas*. The intention was to facilitate the industry players to refer any contradiction or confusion among the *Shari'ah* Advisory Board directly to the SAC. To avoid confusion among the industry players and the general public, in December 1998, the term Interest Free Banking Scheme was replaced with the term of Islamic Banking. In January 1999, Islamic Banking Unit (IBU) was upgraded to an Islamic Banking Division. Furthermore, to enhance competition in the industry, in April 1999, the second full-fledged Islamic Bank was established known as Bank *Muamalat* Malaysia Berhad.

In 2000, Bank Negara Malaysia (BNM) introduced 'Tradable Government Investment Issue', 'Wadiah Acceptance' and 'BNM Negotiable Notes' as *Shari'ah* compliant instruments to facilitate Islamic Inter-Money Market (IMM). To ensure adequate skills and human resources in Islamic finance and banking, BIMB Institute of Research and Training was upgraded as the Islamic Banking and Finance Institute of Malaysia (IBFIM) in 2001.

In November 2002, Islamic Financial Services Board (IFSB) was established and Malaysia became the Secretariat. The primary objective of the IFSB was to issue global prudential standards and guidelines for the Islamic finance and banking, capital market and *Takaful* industry. IFSB was also expected to undertake research and coordinate initiatives on industry related issues including organising seminar and conferences for the industry players particularly the regulators and stakeholders.

In 2003, the first Islamic asset-backed bond was issued based on the *al-bay bithaman ajil* principle (BBA) valued at RM986 million. After about 20 years of the Islamic banks establishment, in 2004, the Government liberalized the Islamic financial industry by issuing three new licences to the foreign Islamic banks: Kuwait Finance House, Al *Rajhi* Investment Bank and Saudi and Qatar Investment Group and allowed them to operate in Malaysia. This move was to enhance competition in the market by providing indigenous players the opportunity to operate within the same playing field with international players.

In 2005, BNM introduced Product Approval Repository System (PARS). The objectives were to mitigate risk during the product development, improve the time-to-market for financial institutions, introducing new products and to ensure that products were developed, targeted for the right market and consumer segment ([www.bnm.gov.my](http://www.bnm.gov.my)). In the same year, Kuwait Finance House started its operation as the first foreign Islamic bank in Malaysia.

To allow for a healthy competition in the *takaful* industry, in 2006, BNM issued four new licences for *takaful* operation. Two conventional banks namely Affin Islamic Bank and EONCAP Islamic Banks started their operations in 2006. A year later, Asian Finance Banks started their operation as one of the foreign Islamic banks. In 2008, four conventional banks started Islamic banking operation through their subsidiaries namely, the Alliance Islamic Bank, HSBC *Amanah* Malaysia, *Maybank* Islamic and OCBC Al-Amin. In 2009, two conventional banks commenced their Islamic banks operation namely Public Islamic Bank and Standard Chartered *Saadiq*.

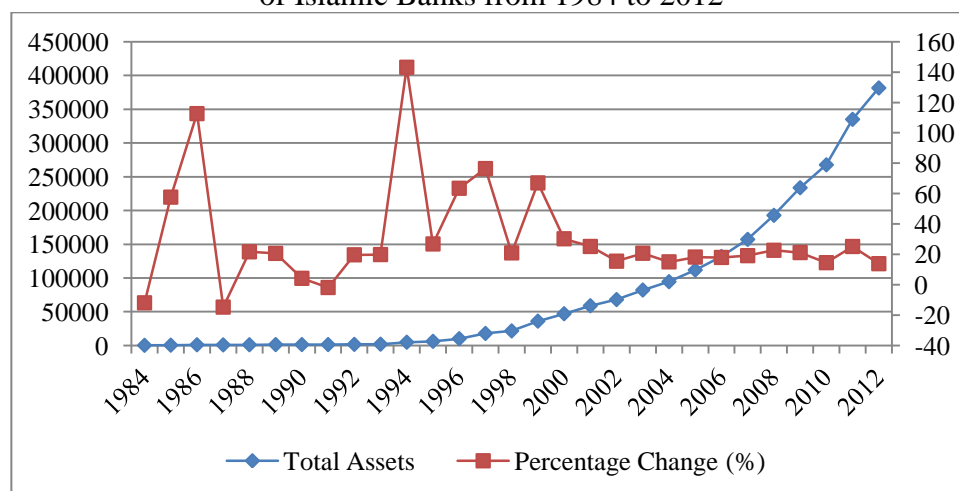
From 1963, after the establishment of the LUTH, the Islamic finance industry direction was moving towards to the commercial sector by applying principles of Islamic finance to the banking sector including *takaful* business. However, in a critical perspective, the focus and policy measures has been more on *tijari* sector (commercial), namely banking sector and not much effort and measures was formulated to enhance the *ijtimai*’ sector (social) non-bank financial institutions.

### 4.3 ISLAMIC BANKS ASSETS

In 1984, the total asset of the Islamic banks was RM 326 million, where there was only one Islamic bank. In 2012, there were 16 Islamic banks and the total assets were valued at RM 381,429.2 million with an annual average growth rate of 23 per cent. Despite the fact that growth rates of the assets of Islamic banks were exceedingly high in 1986 and 1994, it could not be compared to the total industry growth rate because there was only one bank at that time.

Even though, the total assets of Islamic banks increased throughout 1984 to 2012, the average growth rate of the Islamic banks aggregate assets was growing slightly more or less than 20 per cent over 2000, as depicted in Figure 4.1. It should be noted that the assets of Islamic banks increased after the decision of the Bank Negara Malaysia in 1994 to permit the conventional banks to offer products and services of Islamic banks through their subsidiary or branch.

Figure 4.1: Total Assets and Percentage Change of Islamic Banks from 1984 to 2012



Source: Compiled from Bank Negara Malaysia Monthly Statistical Bulletin, 2013.

The comprehensive data of the Islamic banking industry was accessible only from 2006 onwards. Therefore, the following discussion is based on data from 2006 to 2012. As can be seen in Table 4.3, in 2012, financing and advances comprised 61 per cent of the total assets of the Islamic banking industry compared to 55.6 per cent in 2006. The annual average growth rate was 23.6 per cent. The second higher amount of assets in 2012 was in the form of Government Securities (17.3 per cent) followed by amounts payable by other banks in Malaysia.

Table 4.3: List of the Total Assets of the Islamic Banks from 2006 to 2012

Assets	2006 (RM million)	Percentage of Total Assets in 2006	2012 (RM million)	Percentage of Total Assets in 2012	Annual Average Growth Rate (per cent)*
Financing and advances <sup>2</sup>	73,368.10	55.6	232,805.40	61.0	14.10
Amounts due from other banks in Malaysia	34,934.51	26.5	50,423.52	13.2	3.00
Malaysian Securities	14,928.90	11.3	65,922.40	17.3	4.00
Statutory reserves with Bank Negara Malaysia	2,616.70	2.0	9,251.50	2.4	0.60
Outside Malaysia	1,890.70	1.4	6,245.00	1.6	0.40
In Malaysia <sup>3</sup>	1,594.10	1.2	4,112.00	1.1	0.20
Negotiable instruments of deposit held	1,560.20	1.2	8,442.20	2.2	0.50
Fixed assets	500.50	0.4	1,378.00	0.4	0.10
Cash	359.20	0.3	944.10	0.2	0.10
Outside Malaysia	79.00	0.1	1,803.70	0.5	0.10
Balances with Bank Negara Malaysia	72.00	0.1	100.80	0.0	-
Other deposits placed and reverse repos <sup>1</sup>	4.70	0.0	0.50	0.0	-
Total Assets	131,908.60	100.0	381,429.20	100.0	23.00

Notes: (\*) Author's calculation; 1 excludes financing sold to Cagamas with recourse; 2 comprises RM fixed deposits placed with domestic banking institution and domestic non-bank financial institution, Islamic banking scheme RM deposits placed with domestic banking institution and RM reverse repo.

Source: Compiled from *Bank Negara Malaysia, Monthly Statistical Bulletin*, 2013.

#### 4.4 ISLAMIC BANKS' CONSTITUENTS OF CAPITAL

In 2006, the total constituents of the Islamic banks amounted to RM27.7 million. As depicted in Table 4.4, the total capital of the Islamic banks grew at a negative annual growth rate of 15.8 per cent from 2006 to 2012. The core capital and capital base increased at an annual average growth rate of 17.7 per cent and 15.4 per cent respectively. The negative annual growth rate of the risk weighted capital ratio, and core capital ratio indicated that the Islamic banks were able to manage their risk portfolios.

Table 4.4: Constituents of Capital of Islamic Banking from 2006 to 2012

Constituents of Capital	2006 (RM Million)	2012 (RM million)	Annual Average Growth Rate (per cent) *
Core Capital	10,569.50	23,640.4	17.7
Tier-2 Capital	3,309.50	5,824.1	10.9
Capital Base	13,856.60	28,815.0	15.4
Investment in subsidiaries and holdings in other banking	22.5	103.16743	51.2
<i>Total Capital</i>	<i>27,757.90</i>	<i>58,382.67</i>	<i>15.8</i>
Total Risk Weighted Assets <sup>1</sup>	80,835.60	202,123.7	21.4
Risk-Weighted Capital Ratio (per cent)	17.1	14.3	-2.3
Core Capital Ratio (per cent)	13.1	11.7	-1.5

Notes: (\*) Author's calculation; <sup>1</sup> Total Risk-Weighted Assets, Risk-Weighted Capital Ratio and Core Capital Ratio include market risk factor

Source: Compiled from Bank Negara Malaysia, Monthly Statistical Bulletin, 2013.

#### 4.5 THE CAPITAL AND LIABILITIES OF ISLAMIC BANKS

The total capital and liabilities of the banking industry amounted to RM1.9 billion in 2012 compared to RM1.09 billion in 2006. The amount of aggregate capital and liabilities of the banking industry grew at an annual growth rate of 9.5 per cent from 2006 to 2012. At the same time, the total capital and liabilities of conventional bank grew at an annual average rate of 7.2 per cent.

Table 4.5: Total Capital and Liabilities in the Banking Industry in 2012

Capital and Liabilities	2006	2012	Annual Average Growth Rate
	RM million	RM million	(per cent)*
Commercial Banks	954,011.1	1,473,818.3	7.8
Investment Banks	65,101.80	62,246.6	-0.6
<i>Total Conventional Bank</i>	<i>1,019,112.87</i>	<i>1,536,064.9</i>	<i>7.2</i>
Islamic Banks	73,801.60	373,159.3	57.9
Islamic Banking Scheme (IBS)	58,107.00	8,269.8	-12.3
<i>Total Islamic Banking</i>	<i>131,908.60</i>	<i>381,429.2</i>	<i>27.0</i>
<b>TOTAL BANKING SYSTEM</b>	<b>1,151,021.47</b>	<b>1,917,494.10</b>	<b>9.5</b>

Note: (\*) Author's calculation

Source: Compiled from Bank Negara Malaysia, Monthly Statistical Bulletin, 2013.

However, the rate was lower than the Islamic banking system which grew at a rate of 27 per cent for the past five years. As can be seen in Table 4.5, the highest amount of growth rate was for Islamic banks which grew at an annual average rate of 57.9 per cent, even though the IBS grew at a negative rate of 12.3 per cent. This also indicates that full-fledged Islamic banks in Malaysia were more popular than IBS despite the fact that IBS had a greater number.

Table 4.6: Capital and Liabilities of the Islamic Banking in 2006 and 2012

Capital & Liabilities	2006			2012			Annual Average Growth Rate (per cent)*
	Islamic Banks	IBS	Total Islamic Banking	Islamic Banks	IBS	Total Islamic Banking	
Total deposits	58,470.30	40,713.40	99,183.70	301,537.30	4,919.20	306,456.50	29.9
Deposits under the New Investment Fund <sup>2</sup>	58.20	269.80	328.00	820.00	-	820.00	21.4
Special Deposits Account	0.20	0.60	0.80	0.20	-	0.20	-10.7
Capital reserves <sup>1</sup> and	5,992.50	5,567.00	11,559.50	24,912.40	1,757.50	26,669.90	18.7
Amount due to banks in Malaysia	1,545.80	3,055.30	4,601.20	19,203.10	938.60	20,141.70	48.2
Total Miscellaneous Borrowing, Debt and Liabilities	7,118.10	8,769.00	15,887.00	21,600.10	653.70	22,253.80	5.7
Amount Due Outside Malaysia	674.90	2.30	677.20	6,055.30	0.90	6,056.20	113.5
Bankers acceptances outstanding	970.80	264.10	1,234.90	1,470.60	-	1,470.60	2.7
Bill Payable in Malaysia	155.10	101.80	256.90	717.20	50.70	767.90	28.4
Total Capital and Liabilities**	73,801.60	58,107.00	131,908.60	373,159.30	8,269.80	381,429.20	27

Notes: (\*) Author's calculation; <sup>1</sup> From December 1996 onwards includes current unaudited unadjusted profit/loss; <sup>2</sup> Total deposits include government deposits placed with the commercial banks for the purpose of financing new projects (manufacturing, agriculture, mining and tourism) and under the New Investment Fund which includes deposits for loans to hawkers and petty traders. As of April 1997, also include Housing Development Account deposits and other RM Eligible-Liabilities-Exempt deposits; (\*\*) Total Capital and Liabilities amount excluding the value of Deposit under the New Investment Fund, Special Deposit Account, Bankers Acceptance outstanding and bill payable in Malaysia

Source: Compiled from *Bank Negara Malaysia, Monthly Statistical Bulletin*, 2013.

Of total capital and liabilities of the Islamic banking industry, aggregate deposit was the highest in terms of value of the liabilities. As depicted in Table 4.6, the amount due outside Malaysia grew at an annual rate of 113.5 per cent. In terms of value, the amount due outside Malaysia was relatively low compared to the amount due in Malaysia. The higher annual average growth rate of the amount due outside Malaysia

indicates a growing number of demand deposits, general investment deposit, special investment deposit and savings deposits in foreign currency managed by the Islamic banks.

#### 4.6 FINANCING OF THE ISLAMIC BANKS

As for the financing of Islamic banks, the total financing of Islamic banks grew at an annual average rate of 7.2 per cent from 1984 to 2012.

Table 4.7: Financing of Islamic Banking against Banking System in 2006 and 2012

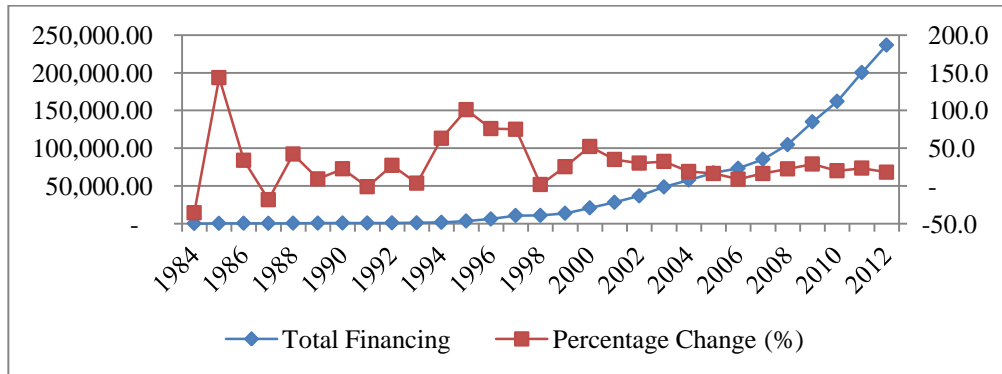
Financing	2006 (RM millions)	2012 (RM millions)	Annual Growth Rate (per cent)*
Commercial Banks	546,024.6	865,353.2	8.4
Investment/Merchant Banks	7,507.9	6,420.9	-2.1
<i>Total Conventional</i>	<i>553,532.5</i>	<i>871,774.2</i>	<i>8.2</i>
Islamic banks	39,481.5	236,230.6	71.2
Islamic banking scheme (IBS)	38,832.6	399.8	-14.1
<i>Total Islamic Banking</i>	<i>78,314.1</i>	<i>236,630.4</i>	<i>28.9</i>
TOTAL BANKING SYSTEM	631,846.6	1,108,404.6	10.8

Notes: (\*) Author's calculation

Source: Compiled from Monthly Statistical Bulletin, Bank Negara Malaysia, 2013

As can be seen in Table 4.7, in overall, the total financing of the banking system grew at an annual growth rate of 10.8 per cent and conventional banks' total financing grew at an annual rate of 8.2 per cent from 2006 to 2012. The total financing of the Islamic banking industry grew at an annual growth rate of 28.9 per cent. From 1984 until 2012, financing of Islamic banks grew at an annual average rate of 71.2 per cent. However, the Islamic banks' market share of financing was under 22 per cent in 2012 compared to the conventional banks. Despite the fact that the Islamic banks grew at a higher rate, the conventional banks remained dominant in the industry due to various reasons. Figure 4.2 shows that the percentage change of the total financing of Islamic banks was high in 1985 and 1997 because in 1985 there was a commodity crisis and in 1997 a currency crisis. During the time of crisis more financing was required to boost the economic growth. Overall, the financing of the Islamic banks was 50 per cent since 2000 until 2012.

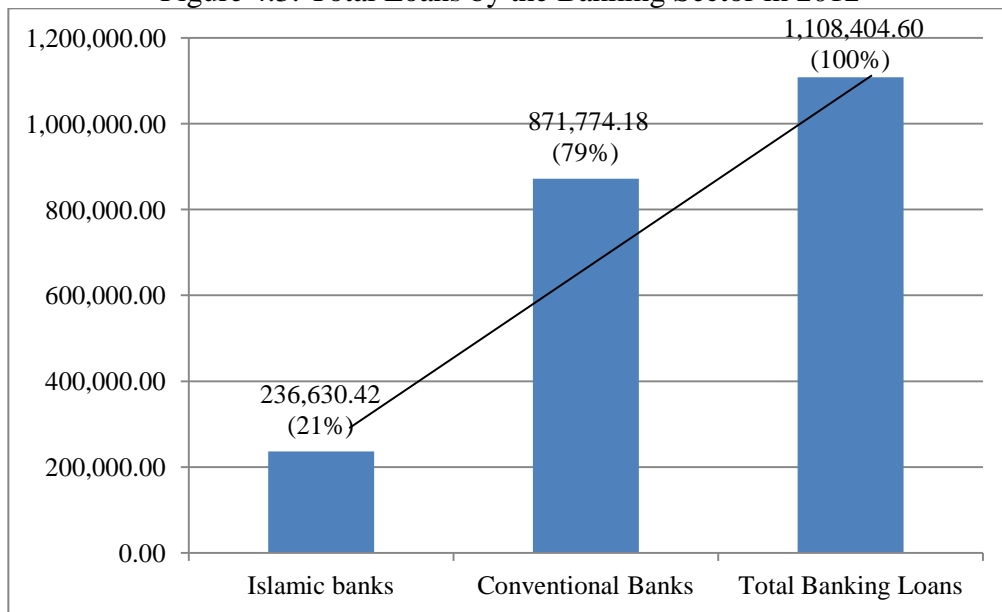
Figure 4.2: Total Financing and Annual Growth Rate from 1984 to 2012



Source: Compiled from Bank Negara Malaysia, Monthly Statistical Bulletin, 2013.

Figure 4.3 shows that in 2012, the total loans in the banking industry amounted to RM1.108 billion. The conventional bank's market share amounted to RM871.7 million (79 per cent) and total loan by the Islamic banks amounted to RM 236.6 million (21 per cent).

Figure 4.3: Total Loans by the Banking Sector in 2012



Source: Compiled from Bank Negara Malaysia, Monthly Statistical Bulletin, 2013

As regards to the breakdown of the financing areas, as can be seen in Table 4.8, the highest amount of financing of the Islamic banks was for purchasing of other than passenger cars valued at 58.8 million in 2012. The financing for purchasing of passenger cars was at 23.6 per cent. However, the percentage shares for purchasing of passenger cars decreased by 10.4 per cent from 34.0 per cent in 2006 to 23.6 per cent

in 2012. The Working capital financing decreased by 1 per cent from 22.8 per cent in 2006 to 21.8 per cent in 2012.

As depicted in Table 4.8, financing of personal loan grew by 4.7 per cent followed by financing of purchasing securities by 4.5 per cent. Despite the fact that financing of purchasing vehicles other than passengers cars increased by 25 per cent, in terms of value it was still small compared to financing for purchasing passenger cars, working capital and purchase of residential property.

Table 4.8: Financing and Investment of Islamic Banks  
by Purpose from 2006 and 2012

Purpose of Financing	2006 (RM millions)	Percentage of Total Financing 2006	2012 (RM millions)	Percentage of Total Financing in 2012	Annual Average Growth Rate (per cent)*
Purchase of passenger cars	26,607.00	34	55,887.4	23.6	3.4
Working capital	17,834.90	22.8	51,586.2	21.8	3.1
Purchase of residential property	17,110.60	21.8	48,349.0	20.4	2.9
Personal use	5,327.30	6.8	27,181.4	11.5	1.6
Other purpose	3,918.10	5	12,256.3	5.2	0.7
Purchase of non-residential property	2,970.50	3.8	13,766.8	5.8	0.8
Construction	1,682.40	2.1	7,371.8	3.1	0.4
Purchase of fixed assets other than land and building	885.4	1.1	2,433.0	1.0	0.1
Purchase of securities	790.9	1	13,049.8	5.5	0.8
Purchase vehicles other than passenger cars	620	0.8	58,839.1	24.9	3.6
Credit card	549.2	0.7	1,780.9	0.8	0.1
Purchase of consumer durables	17.8	0	16.2	0.0	0.0
<i>Total Financing</i>	<i>78,314.10</i>	<i>100</i>	<i>236,630.4</i>	<i>100</i>	<i>14.3</i>

Note: (\*) Author's calculation

Source: Compiled from Monthly Statistical Bulletin, Bank Negara Malaysia, 2013

With regards to the financing of Islamic banks by sectors, as depicted in Table 4.9, in 2012, financing and investment on the households recorded the highest value and the percentage share was more than 62 per cent, followed by the agro-based manufacturing, and education and health related sectors valued at RM14 million. The financing of mining and quarrying activities recorded the highest annual average growth rate of 359.9 per cent, followed by education, health and others (256.6 per

cent), and real estate (101.4 per cent) However, in terms of value, financing value of mining and quarrying activity remained small compared to other sectors.

Table 4.9: Financing of Islamic Banking by Sectors in 2012

Financing by Sectors	2006 (RM millions)	Percentage of Total Financing in 2006	2012 (RM millions)	Percentage of Total Financing in 2012	Annual Average Growth Rate (per cent)*
Household sector	50,339.60	64.3	147,120.6	62.2	27.5
Manufacturing (including agro-based)	8,379.50	10.7	14,691.9	6.2	10.8
Wholesale & retail trade, and hotels & restaurants	3,885.30	5	9,768.6	4.1	21.6
Construction	3,362.40	4.3	10,240.1	4.3	29.2
Finance, insurance and business activities	3,105.90	4	12,881.8	5.4	45.0
Primary agriculture	2,996.50	3.8	5,099.4	2.2	10.0
Other sector n.e.c.	2,320.00	3	2,607.4	1.1	1.8
Transport, storage and communications	1,585.30	2	6,700.2	2.8	46.1
Real estate	1,250.60	1.6	10,130.5	4.3	101.4
Education, health and others	740.6	0.9	14,045.8	5.9	256.6
Electricity, gas and water supply	300.5	0.4	2,089.6	0.9	85.1
Mining and quarrying	47.9	0.1	1,254.6	0.5	359.9
<i>Total financing</i>	<i>78,314.10</i>	<i>100</i>	<i>236,630.42</i>	<i>100.0</i>	<i>28.9</i>

Note: (\*) Author's calculation

Source: Compiled from Monthly Statistical Bulletin, Bank Negara Malaysia, 2013

In furthering the analysis, Table 4.10 demonstrates the distribution of Islamic bank financing according to the Islamic financial instruments As can be seen, in 2012, *al-bay bithaman ajil* was the most popular mode of financing which amounted to RM74.2 million, followed by *ijarah thumma al bay'* amounted to RM54.5 million, Others (RM50.1 million) and *murabahah* (RM40 million). *Musharakah* grew at the highest annual average growth rate (484.9 per cent) for the past seven years, but, the value of financing remained small compared to the *al-bay bithaman ajil* and *ijarah thumma al-bay*. As can be seen in Table 4.10, *murabahah* mode of financing increased from 6.8 per cent in 2006 to 16.9 per cent in 2012.

Table 4.10: Financing of Islamic Banking by Concept in Year 2006 and 2012

Financing Instrument	2006 (RM millions)	Percentage of Total Financing in 2006	2012 (RM millions)	Percentage of Total Financing in 2012	Annual Average Growth Rate (per cent)*
<i>Al-Bay Bithaman Ajil</i>	29,845.00	38.1	74,280.6	31.4	16
<i>Ijarah Thumma Al-Bay</i>	21,470.40	27.4	54,574.7	23.1	20.5

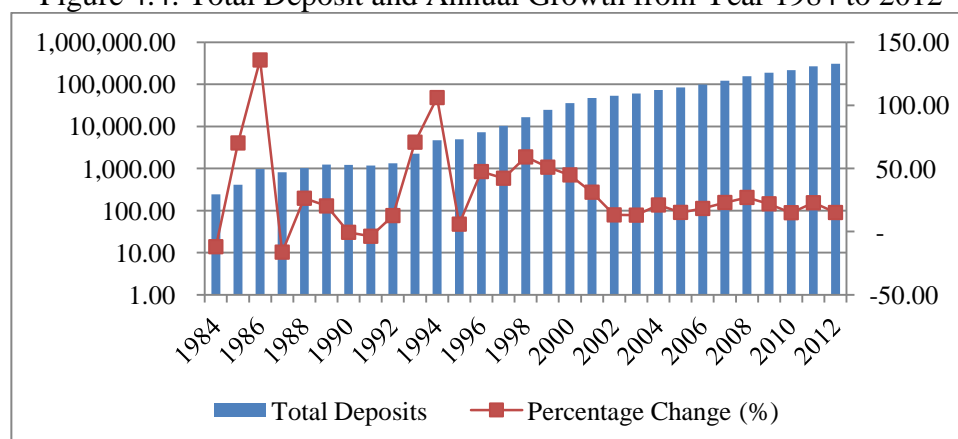
Financing Instrument	2006 (RM millions)	Percentage of Total Financing in 2006	2012 (RM millions)	Percentage of Total Financing in 2012	Annual Average Growth Rate (per cent)*
Others <sup>1</sup>	20,120.80	25.7	50,157.3	21.2	11.6
<i>Murabahah</i>	5,300.90	6.8	40,018.4	16.9	67.9
<i>Ijarah</i>	762.9	1	4,635.7	2.0	83.3
<i>Istisna'</i>	509.4	0.7	989.3	0.4	43.6
<i>Musharakah</i>	156.8	0.2	11,832.2	5.0	484.9
<i>Mudharabah</i>	147.9	0.2	142.2	0.1	17.3
<i>Total Financing</i>	<i>78,314.10</i>	<i>100</i>	<i>236,630.42</i>	<i>100.0</i>	<i>21.4</i>

Note: (\*) Author's calculation; <sup>1</sup> Other financing includes credit cards, staff financing, share margin financing Source: Compiled from *Monthly Statistical Bulletin, Bank Negara Malaysia*, 2013

#### 4.7 ISLAMIC BANK DEPOSITS

As regards to the trends in the total deposit of Islamic banks, as can be seen in Figure 4.4, it increased tremendously from 1984 to 2012. The highest percentage change was in 1986 and 1994. The lowest changes were in 1984, 1987 and 1991. The annual growth change was more volatile before 2002 and became relatively more stable after 2002 until 2012. The total deposits of the Islamic banking industry grew at an annual average rate of 37 per cent per year.

Figure 4.4: Total Deposit and Annual Growth from Year 1984 to 2012



Source: Compiled from *Bank Negara Malaysia, Monthly Statistical Bulletin*, 2013

In detailing the total deposits held in the Islamic banks, Table 4.11 shows that in 2012, the total deposit of the Islamic banking industry was valued at RM 612.9 million.

Table 4.11: Deposits of Islamic Banking by Holders in 2006 and 2012

Deposits by Holders	2006 (RM millions)	Percentage of Total Deposits in 2006	2012 (RM millions)	Percentage of Total Deposits 2012	Annual Average Growth Rate (per cent)*
Business enterprises	34,487.20	34.8	208,445.46	34.0	4.9
Financial Institutions	23,936.00	24.1	154,785.33	25.3	3.6
Individuals <sup>2</sup>	22,192.50	22.4	150,045.04	24.5	3.5
Government <sup>1</sup>	18,568.00	18.7	99,637.09	16.3	2.3
Total Deposits	99,183.70	100	612,912.92	100.0	14.3

Note: (\*) Author's calculation

Source: Compiled from Monthly Statistical Bulletin, Bank Negara Malaysia, 2013

In 2006, the highest amount of deposits came from business enterprises amounted to RM 34.4 million (34.8 per cent) followed by financial institutions (24.1 per cent) and individuals (22.4 per cent). In 2006 and 2012, deposits from the government sector were the lowest, valued at RM18.5 million 18.7 per cent) and RM 99.6 million (16.3 per cent) respectively. In 2012, the highest percentage of annual growth was the deposit from the business enterprises (4.9 per cent) followed by financial institutions (3.6 per cent) and individuals (3.5 per cent) as shown in Table 4.11. This indicates that the main contributors to the deposits of the Islamic banks were business enterprises, financial institutions, individuals. However, in terms of value, in 2012, the amount of deposits from individuals and financial institutions increased by 2.1 per cent and 1.2 per cent respectively.

With regards to the types of deposits held by the Malaysian Islamic banks, Table 4.12 shows that in 2012, in terms of deposits by holders, the highest types of deposits were RM Others (29.3 per cent) followed by RM General Investment Deposit (27.1 per cent), and RM Demand Deposit (17.8 per cent). The highest annual average growth rate was for FX General Investment Deposit (11,872 per cent) but in terms of value it was still inconsequential compared to RM General Investment Deposit.

Table 4.12: Types of Deposits of Islamic Banking in 2006 and 2012

Types of Deposits	2006 (RM millions)	Percentage of Total Deposits	2012 (RM millions)	Percentage of Total Deposits	Annual Average Growth Rate (per cent) *
RM General ID	37,303.50	37.6	83,076.28	27.1	17.5
RM Demand Deposit	20,430.80	20.6	54,660.38	17.8	23.9
NIDs** Issued	14,961.80	15.1	22,524.84	7.4	7.2

Types of Deposits	2006 (RM millions)	Percentage of Total Deposits	2012 (RM millions)	Percentage of Total Deposits	Annual Average Growth Rate (per cent) *
RM Special ID	11,876.10	12	23,788.15	7.8	14.3
RM Saving Deposit	11,096.00	11.2	26,988.07	8.8	20.5
RM Others	3,017.70	3	89,933.44	29.3	411.5
FX Others	401.3	0.4	3,207.06	1.0	99.9
FX Demand Deposit	94.4	0.1	793.42	0.3	105.8
FX General ID	1.3	0	1,081.66	0.4	11,872.1
FX Special ID	0	0	347.32	0.1	NA
FX Saving Deposit	0	0	55.85	0.0	NA
<b>TOTAL DEPOSITS</b>	<b>99,183.00</b>	<b>100</b>	<b>306,456.46</b>	<b>100</b>	<b>29.9</b>

Notes: (\*) Author's calculation; (\*\*) NID-Negotiable Instrument Deposit, ID-Investment Deposit.

Source: Compiled from Monthly Statistical Bulletin, Bank Negara Malaysia, 2013

#### 4.8 RATE OF FINANCING AND RATE OF RETURN TO DEPOSITORS

In providing further understanding as to the developments and trends in the Malaysian Islamic banking, this section presents analysis on the rate of financing and rate of return to depositors.

Table 4.13: Financing Rates and Return Rates by Islamic Commercial Banks  
for Investment and Saving Account from 2002 to 2012

Year	Investment Account Average Rate of Return during the Period (in months)					Savings Deposit Rate	Base Financing Rate <sup>1</sup>	Average Financing Rate <sup>1</sup>
	1	3	6	9	12			
2002	2.84	2.94	3.15	3.3	3.52	2.09	-	-
2003	2.69	2.77	3.04	3.22	3.48	2.05	-	-
2004	2.65	2.7	2.93	3.14	3.23	1.8	-	-
2005	2.54	2.65	2.84	3.03	3.28	1.57	-	-
2006	2.88	2.95	3.13	3.28	3.52	1.33	-	-
2007	2.88	3.07	3.24	3.41	3.7	1.25	-	-
2008	2.78	2.89	3.1	3.23	3.45	1.19	-	-
2009	2.24	2.34	2.51	2.63	3.01	0.95	5.68	6.64
2010	2.54	2.69	2.7	2.77	2.93	0.94	6.07	6.41
2011	3.00	3.05	3.12	3.22	3.25	1.02	6.52	6.31
2012	2.93	3.08	3.15	3.31	3.31	0.96	6.62	6.01

Note: <sup>1</sup> Data only available from January 2009

Source: Compiled from Monthly Statistical Bulletin, Bank Negara Malaysia, 2013.

As can be seen in Table 4.13, the highest rate of return for one year (twelve months) investment account in Islamic banks was in year 2007 (3.7 per cent) followed by 2002

(3.52 per cent) and 2006 (3.52 per cent ) respectively. The lowest rate of return of the investment account was 2.24 per cent in 2010. For saving deposit, the highest rate was 2.09 per cent in 2002 while the lowest was 0.94 per cent in 2010. The base financing rate increased by 0.94 per cent from 5.68 per cent in 2009 to 6.62 per cent in 2012. This indicates that the Islamic banks profit rate spread increased, which means the higher spread of Islamic banks reflects higher cost of funds and inefficiency of the Islamic banks.

As for the rate of return of the investment account, Table 4.14 shows that it was marginally lower than that offered by the Islamic commercial banks. The highest rate of return was at 3.48 per cent in 2006, 2007 and 2008. On the other hand, the lowest rate of return was in 2002 (1.08 per cent). Table 4.14 shows the rates of returns of the investment account offered by the Islamic investment banks from 2002 to 2012.

Table 4.14: Rates of Return of Investment Account of the Islamic Investment Banks from 2002 to 2012

Year	Investment Account Period (in months)				
	1	3	6	9	12
2002	1.08	2.95	2.93	3.40	2.16
2003	2.82	2.35	2.14	N/A	N/A
2004	2.89	2.81	2.59	0.25	1.79
2005	2.78	2.37	2.84	3.02	3.14
2006	3.39	3.14	3.41	3.36	3.48
2007	3.35	3.41	3.48	0.92	1.94
2008	3.48	3.48	3.39	2.33	1.81
2009	2.27	2.30	2.23	2.44	2.27
2010	2.61	2.64	2.66	2.72	2.77
2011	3.15	3.22	3.27	3.23	3.33
2012	3.08	3.09	3.12	3.17	3.34

Note: N/A = Not Available

Source: Compiled from *Monthly Statistical Bulletin*, Bank Negara Malaysia, 2013.

#### 4.9 ESTIMATING THE PERFORMANCE OF MALAYSIAN ISLAMIC BANKS THROUGH FINANCIAL RATIOS

In presenting further analysis on the development trajectories of Islamic banks in Malaysia, this section aims to present that analysis on the performance of Malaysian Islamic banks through ratio analysis. As part of financial ratio analysis, Risk Weighted Capital Ratio (RWCR) is an important component of capital ratio and the key indicator to measure bank's solvency and resilience (Le Lesle & Avramova,

2012: 4). The banks can increase their capital adequacy ratio by increasing the amount of regulatory capital held or decreasing the risk weighted assets (Das & Amadou, 2012: 3)

In Malaysia, RWCR was introduced in 1989 based on the Basel Committee on Banking Supervision (BASEL 1) Capital Adequacy Framework. The computation of the RWCR is as below:

$$RWCR = \frac{\text{Capital Base}}{\text{Credit Risk – weighted Asset (RWA)}^1 + \text{Large Exposure Risk RWA (for Equity Holdings)}^2 + \text{Market RWA}}$$

Notes: <sup>1</sup> For Investment Banks, the Credit RWA shall include Counterparty Risk RWA and Large Exposure Risk RWA for a single counterparty; <sup>2</sup>Large Exposure Risk RWA for Equity Holdings is as specified in the Bank's Guidelines on 'Risk-weighted Capital Adequacy Framework (Basel I–Risk-weighted Assets Computation)'

In June 2004, the Basel Committee on Banking Supervision issued the revised standards of the capital adequacy known as BASEL II. With regards to the Islamic banks, the capital adequacy framework was developed based on the BASEL II standards for institutions offering Islamic financial services and issued by the Islamic Financial Services Board (IFSB) in December 2005. It was implemented in the year 2008. The computation of the RWCR under the Basel II standard is as below:

$$RWCR = \frac{\text{Capital Base}}{\text{Credit Risk – weighted Asset (RWA)}^1 + \text{Large Exposure Risk RWA (for Equity Holdings)}^2 + \text{Market RWA} + \text{Operational RWA}}$$

Notes: <sup>1</sup>For Investment Banks, the Credit RWA shall include Counterparty Risk RWA and Large Exposure Risk RWA for a single counterparty; <sup>2</sup>Large Exposure Risk RWA for Equity Holdings is as specified in the Bank's Guidelines on "Risk-weighted Capital Adequacy Framework (Basel II – Risk-weighted Assets Computation)" and "Capital Adequacy Framework for the Islamic banks

For the banking institutions licensed under the Banking and the Financial Institutions Act, 1989 (BAFIA) with Islamic banking operations in Malaysia, the minimum RWCR was set at 8 per cent. The calculation of the RWCR as below:

$$RWCR\ Islamic = \frac{\text{Capital Base (Islamic)}}{\text{Total Risk – weighted Assets Islamic}}$$

The funds deposited under the profit and sharing investment account (PSIA) were eligible for recognition as a risk absorbent for credit and market. However, the eligibility was not extended as a risk absorbent for operational risk. The risk had to borne by the Islamic banks. The RWCR calculation of the Islamic banks licenced under the BAFIA with Islamic banking operations is as follows:

$$RWCR = \frac{\text{Capital Base (Islamic)}}{\text{Total Risk – Weighted Assets}^1 \text{ Islamic}} \\ \text{Less} \\ (1 - a)^2 \text{ (Credit and Market Risk – weighted Assets funded by PSIA)}^3 \\ \text{Less} \\ (a) \text{ (Credit and Market Risk – weighted Assets funded by PER of PSIA)}$$

Notes: <sup>1</sup> Total RWA is the sum of Credit, Market, Operational RWA and Large Exposure Risk RWA for Equity Holdings; <sup>2</sup> (1-a) represents the quantum of PSIA that is recognised as a risk absorbent for RWCR computation purposes; <sup>3</sup> PSIA balances include Profit Equalisation Reserves.

Source: Bank Negara Malaysia

Table 4.15 shows the calculated RWCR and other financial ratios of the Islamic banks for 2008 to the year 2012. The RWCR of the Islamic banks slightly increased by 0.3 per cent from 14 per cent in 2008 to 14.3 per cent in 2012. The RWCR of the Islamic banks was set higher to cushion the Islamic banks from the financial crisis. The core capital ratio was set above 10 per cent from year 2008 to 2012. The ratio of the return on assets increased by 0.4 per cent from 1.0 per cent in 2008 to 1.4 per cent in 2012. The net impaired financing ratio decreased by 1.1 per cent from 2.3 per cent in 2008 to 1.2 in 2012.

Table 4.15: Financial Ratios of the Islamic banks from Year 2008 to 2012

Ratio/Year	2008	2009	2010	2011	2012*
Risk Weighted Capital Ratio	14.0	15.6	15.5	15.0	14.3
Core Capital Ratio	11.8	13.2	13.3	12.1	11.7
Return on Assets	1.0	1.3	1.3	1.0	1.4
Net Impaired Financing Ratio	2.3	2.2	2.1	1.6	1.2

Note: (\*) Preliminary Data

Source: BNM Financial Stability and Payment Report 2012, (Table A2)

#### 4.10 CONCLUSION

Islamic banking is relatively a young industry in Malaysia. The development of Islamic banking in Malaysia can be divided into three phases. The initial phase was known as ‘familiarisation’ phase from 1983 to 1992. The second phase was from 1993 to 2003, which encouraged competition in the market by allowing the conventional banks to offer Islamic banking products and services under the Islamic Banking Scheme (IBS). The third phase started in 2004, when the industry was liberalized by issuing additional licence to the foreign Islamic banks to operate in Malaysia (Mokhtar *et al.*, 2006).

In summary, as can be seen in Table 4.16, in 2012, the total deposits and financing of Islamic banking exceeded 25 per cent but the amount of total assets was below 25 per cent. Despite the fact that the conventional banks were charging interest rates and their products were not *Shari’ah* compliant, they controlled the major market shares. Furthermore, as an performance indicator, the total financing to deposit ratio increased by 4.2 per cent from 77.4 in 2006 to 81.6 per cent in 2012.

Table 4.16: Summary of the Key Financial Indicator of Islamic Banks, 2008-2012

Items	2008	2009	2010	2011	2012**
Total Assets	250,988.1	303,224.1	351,195.0	434,665.5	494,585.7
per cent of total assets against the banking system	17.4	19.6	20.7	22.4	23.8
Total Deposits	194,385.5	235,938.1	277,549.8	340,695.8	386,196.8
per cent of total Deposits against the banking system	18.8	20.7	22.6	24.4	25.6
Total Financing	150,499.0	186,864.3	222,214.3	268,251.5	314,980.9
per cent of total Financing against the banking system	18.9	21.6	22.7	24.3	25.8
Financing Deposit Ratio*	77.4	79.2	80.1	78.7	81.6
Number of Islamic Banks*	15	17	17	16	16

Notes: (\*) Author’s calculation; (\*\*) Preliminary data

Source: Bank Negara Malaysia, 2012

Table 4.16 shows that the total financing deposit ratio of Islamic banking was close to the ratio of the conventional banks. This indicates that the Islamic banks were moving towards a similar pattern and contributing to the debt creation in the financial system.

Despite the fact that the Government of Malaysia supported the development of the Islamic banking industry, the growth was very much dependant on trust and supports from the business enterprises, financial institutions and individuals. This was evident as the highest amount of deposits came from business enterprises, financial institutions and individuals, but not from the government sector.

In conclusion, after discussing the developments, trends and performance of Islamic banking industry in Malaysia, the following chapters aim at providing empirical studies through econometric modelling by focusing particular aspects of monetary policy, instruments and outcomes in relation with Islamic banking operations and the interaction between the two to shed a greater light on the operations of Islamic banks within the dual banking system and conventional monetary policy framework.

## CHAPTER 5

### RESEARCH METHODOLOGY

#### 5.1 Introduction

This chapter briefly explained the research methodology applied for conducting the study. Among other method used for analysing the data include descriptive statistics test and advance statistical analyses. Descriptive analysis includes normality test by plotting the histogram, or scatter plot to see the distribution of the data. The advanced analysis includes two steps of the Engle-Granger test. This include estimating the model using the ordinary least square test and proceed with checking the unit root of the residual in the model to identify the weather the residual is stationary or non-stationary by conducting the unit root test in particular the Dickey Fuller and Phillip-Perron test. Co-integration test mainly the Johansen co-integration test to investigate co-integration between the variables in the model. Vector Error Correction Model (VECM) was conducted to investigate the speed of adjustment in the model and minimize effect of the error term in the model. The Granger causality test was conducted to analyse any causality effect between the variables. The Ordinary Least Square method was used to identify linear relationship between the variables. Among other steps taken before conducting the analysis were describe as below.

#### 5.2 Descriptive Statistics-Normality Test-Histogram and Scatter Plot

Normality test was conducted with the assumption that the error term was normally distributed. There are three ways to conduct normality tests: plotting a histogram of residuals, normal probability plot or scatter plot and the *Jarque-Bera*. The histogram charts show the pattern and the distribution of the data; the scatter plot shows the distribution of the data along the regression line, while the *Jarque-Bera* test identifies departures of the ordinary square residuals from the normal distribution by looking at the kurtosis and skewness of the distribution.

### 5.3 Two Steps of Engle Granger Test

Engle Granger test involved estimation of the data using the ordinary least square test, followed by checking the unit root in the residual. Residual testing need to be done to ensure that there is no unit root in the residual. Otherwise the model is spurious and not good for estimation and analysis. The next step is to identify cointegration between the variables by conducting Johansen cointegration test. If the data is stationary and cointegrated then can proceed with the error correction model test. The granger causality test also was conducted to identify causality effects between the variables. Below are the explanation about various tests involved in conducting two steps of Engle Granger Test, namely ordinary least square estimation, residual testing, johansen cointegration test, vector error correction test and granger causality test.

### 5.4 Ordinary Least Squares (OLS) Test

The classic OLS model is as below (Ezell & Land, 2005: 943):

$$Y_t = X_t \hat{a} + \hat{a}_t \quad (5.1)$$

where  $\hat{a} = (\hat{a}_0, \hat{a}_1, \dots, \hat{a}_p)$  is a vector of  $p + 1$  parameters explaining the relationship between variable of  $X = (1, X_1, X_2, \dots, X_p)$  (a constant one and  $p$  variables and an error term  $\hat{a}_t$ ). OLS method minimizes the sum squared of the error terms, *i.e.* it minimizes  $\sum e_i^2 = e_1^2 + e_2^2 + e_3^2 + \dots + e_n^2$ , where  $n$  is the sample size, which is the residual of the *Sum Squared Error (SSE)* (Hoyt, 2003: 2)

According to Faraway (2004), there are three reasons for using the OLS test. First, there are a number of attractive geometric properties if the error terms are independently distributed. The least square estimate is similar to the maximum likelihood estimate and the Gauss-Markov theorem explains that the  $\hat{\beta}$  is the *Best Linear Unbiased Estimator* (Hewson & Whalley, 2009).

According to Brooks, (2008), to get the best result, there are a few assumptions of the OLS model that needs to be fulfilled namely. Among other the assumptions are that first that average value of the errors is zero,  $E(u_t) = 0$ . Second the variance of the

error term is constant,  $Var(u_t) = \sigma^2 < \infty$ . This is known as homoscedasticity. If the error term is not constant, then it is known as heteroscedasticity. Third the covariance between the error term is zero,  $cov(u_i, u_j) = 0$  for  $i \neq j$ ; Means that the error term are uncorrelated and if it is correlated then there will be a problem of autocorrelation. Last but not least is that the OLS estimator is constant and unbiased, the  $x_t$  are non-stochastic (Brooks,2008:131-160).

## 5.5 Unit Root Test

There are several ways to identify whether the data are stationary or non-stationary. One of the tests is the unit root test. The hypothesis in conducting the unit root test is that time series data are non-stationary when the coefficient value is zero. Two well-known unit root tests are the Augmented Dickey Fuller (ADF) and the Phillip-Perron (PP) test. If the result of testing shows that the coefficient value is higher than the critical value of the ADF and PP test value, then the data are stationary. The unit root test conducted using the Augmented Dickey Fuller Test (ADF) and Phillip-Perron method to ascertain whether the data is stationary at level, first difference or second difference (Mahadeva and Robinson, 2004). The null and alternative hypothesis is as follow. If the probability value (p-value) is less than 0.05 means that can reject  $H_0$  and accept  $H_a$ .

$H_0$ : There is no unit root in the data

$H_a$ : There is unit root in the data

The Augmented Dickey-Fuller Test is the basic test to identify order of integration. It is also known as t-test. The null hypothesis is always that there is a unit root in the data and the alternative hypothesis is that the data is stationary or no unit root in the data. The objective is to identify the null hypothesis that  $\phi=1$  and the alternative hypothesis is  $\phi < 1$  in the following

$$y_t = \phi y_{t-1} + u_t \quad (5.2)$$

In practice the following equation is employed because the test of  $\phi=1$  is equivalent to test of  $\phi = 0$  (since  $\phi - 1 = \phi$ )

$$\Delta y_t = \phi y_{t-1} + u_t \quad (5.3)$$

The Unit root test can be conducted in three ways by allowing for an intercept, or an intercept and deterministic trend or none of it and the equation for the unit root test for each case is as below:

$$\Delta y_t = \phi y_{t-1} + u_t + \lambda_t + u_t \quad (5.4)$$

By subtracting  $y_{t-1}$  the test can be written as below (Brooks, 2013, 327-328).

$$\Delta y_t = \phi y_{t-1} + u_t + \lambda_t + u_t \quad (5.5)$$

The Augmented Dickey Fuller test includes higher order terms and more complicated than the autoregression (1) process. While another approach was suggested by Phillip (1987) and extended by Perron (1988) by adding the non-parametric correction to the t-test statistics to take in account that the autocorrelation that will exist when the underlying parameters is not AR(1) (Harris and Solis, 2005)

The Phillips and Perron's test statistics can be viewed as advancement of the Dickey–Fuller serial correlation statistics by using the Newey–West (1987) heteroskedasticity and autocorrelation-consistent covariance matrix estimator. Under the null hypothesis that  $\rho = 0$ , the PP  $Z_t$  and  $Z_\pi$  statistics have the same asymptotic distributions as the ADF t-statistic and normalized bias statistics. One of the advantages of the PP tests is that the PP tests are vigorous to general forms of heteroskedasticity in the error term.

## 5.6 Residual Testing

Among other ways to examine that there is no spurious regression or autocorrelation in the model is to check whether there is a unit root or not in the residual of the model. If there is a unit root means the model is suffering with autocorrelation and the result

may be spurious. In this case, one period lag of the residual has been created through the following steps in the e-views:

Proc → make residual → then save the new residual

The null hypothesis is that there is unit root in the residual and alternative hypothesis is that there is no unit root in the residuals. If the probability value is significant less than 5 per cent then can reject the null hypothesis.

### 5.7 Lag Structure Test

To determine the period of lag the lag structure test was conducted. If data is non-stationary and not co-integrated then need to run unrestricted VAR test. If the data are stationary and variables are co-integrated then can run the Vector Error Correction (VEC) test. Before conducting VEC test it is important to know the lags interval or number of lags for proceeding with the test. There are many ways to chose lags including *Bayesian Information Criterion (BIC)*, *Final Prediction Error (FPE)*, *Akaike Information Criterion (AIC)*, *Schwarz Information Criterion*. The lowest the value of AIC or Schwarz SC, better the model. The AIC and FPE should be a better choice for smaller sample (Kim and Liew, 2004). In this research lag is determine based on the lowest value of AIC.

### 5.8 Co-integration and Johansen Cointegration Test

Cointegration test is one of the steps in the twosteps Engle-Granger test to examine the existence of a long-run equilibrium relationship between variables. In order to test for the existence of any long-run relation among the variables we employ the bounds testing approach to cointegration. This involves investigating the existence of a long-run relationship using the following unrestricted errorcorrection model. The F test is used to determine whether a long-run relationship exists between the variables through testing the significance of the lagged levels of the variables. When a long-run relationship exists between the variables, the F test indicates which variable should be normalised (Narayan and Smith 2004).

This test was conducted to examine the co-integration between variables. However, pre-condition for conducting the Johansen co-integration test is that the data need to be non-stationary at level or original data and it will become stationary at 1<sup>st</sup> difference or second difference. Meaning the data must be non-stationary or co-integrated in a same order. If the variables are stationary it will introduce restricted co-integrating vectors (Hjalmarsson, and Österholm, 2007). The null hypothesis ( $H_0$ ) is that there is no co-integration between variables and alternative hypothesis ( $H_a$ ) is that there is co-integration between variables. If the probability value (p-value) is less than 0.05 means that can reject  $H_0$  and accept  $H_a$ . If there is co-integration mean there is long run relationship between variables. Once the result shows that there is co-integration can proceeding with the Vector Error Correction (VEC) test.

## 5.9 Error Correction (ECM) Test

ECM would be conducted if there is single independent variable. However, if there is more than one independent variable than the Vector Error Correction Model would be conducted. If the data is stationary, then Error Correction (VEC) test conducted at lags with the lowest AIC value. The normal VEC model as in equation (5.6) below:

$$\Delta Y_t = \beta_1 \Delta X_t + \beta_2 (Y_{t-1} - \alpha_0 + \alpha_1 + X_{t-1}) + v_t \quad (5.6)$$

Brooks, (2013):p.338.

In the e-views, need to select the dependant variable and independent variables and open as VAR. If the data is non-stationary, need to choose unrestricted VAR and select VEC if the data is stationary. Put the endogenous variables, lag intervals and without trend then click OK, it will display the VEC result. Once getting the result, the e-views system will display the value of coefficient, standard error and the t-statistics. Since VEC result in the e-views does not display the probability value (p-value).

The estimate equation will display the result of each variable including the t-statistics, standard error and p-value. If the value of the coefficient is between -1 and 0 and the probability value is less than 5 per cent, it means that there is long-run relationship between the variables. Ordinary least square test was conducted to estimate the equation. Second step is to create one period lag of the residual to estimate in the

Error Correction Model. Then need to estimate again the model using the one period lag of residual.

#### 5.10 Wald Test

The wald test conducted to investigate short run relationship between variables. The result of the wald test t-statistics would be compared with the McKinnon (1991), critical values for cointegration test. If the t-statistic value of the *wald* test is higher than the critical value and within the range of the McKinnon (1991), critical value for cointegration then, there is short-run causality between the variables. The Granger causality test was specified by Granger (1969). The objective is to test between two variables and predict causality of  $(Y_{t-1})$  the pastime series influencing the past and present of another variable  $(X_{t-1})$ . It also includes the length of the lagged vector ( $Lx$ ) of  $X_t$  and the length of the lagged vector ( $Ly$ ) of  $Y_t$  (Hiemstra and Jones; 1994, 1644). The Granger causality function illustrated by Gujarati (2004:697) is as below:

$$Y_t = \sum_{i=1}^n \alpha_i X_{t-i} + \sum_{j=1}^n \beta_j Y_{t-j} + \mu_{1t} \quad (5.7)$$

and

$$X_t = \sum_{i=1}^n \lambda_i X_{t-i} + \sum_{j=1}^n \delta_j Y_{t-j} + \mu_{2t} \quad (5.8)$$

## **CHAPTER 6**

### **ISLAMIC BANKING AND MACROECONOMIC VARIABLES NEXUS IN MALAYSIA: AN EMPIRICAL ANALYSIS**

#### **6.1 INTRODUCTION**

Malaysia, along with many other countries, has instigated the principles of Islamic finance in its banking system since the establishment of its first Islamic bank in 1984. The banking system of Malaysia accommodates Islamic and conventional banks through its dual banking system under the supervision and regulation of Bank Negara Malaysia (BNM).

Since Islamic banks operating in the dual banking system, the question arise that do Islamic banks and conventional banks financing and investment contributes to the Gross Domestic Product (GDP) and investment?. If the Islamic banks contributes to the GDP growth and investment, is the amount of the contribution is significant knowing that market of the Islamic banks in Malaysia is less than 30 percent and the remaining market share is control by the conventional bank. To answer these questions this chapter aims to measure the growth function of the Islamic banks and conventional banks in Malaysia.

This study employed model used by Al-Hallaq (2005) which investigates impact of Islamic banks on the economic growth in Jordan. In the case of Islamic banks in Jordan, it measures the direct and indirect effects of Jordan Islamic Banks on the Gross Domestic Product (GDP) *per capita* in Jordan from 1980 to 2000. A similar model is employed in this research to examine the connection between Islamic banks and economic growth in Malaysia using quarterly data from year 1997 to 2013.

In this study there are four equations under the growth function model. The growth function is measured using GDP with total financing and investment of the Conventional banks (TFCB) or Islamic banks (TFIIB) with gross fixed capital

formation (GFCF) and trade balance (TB) the vector error correction (VEC) model to identify the long run relationship between variables.

In 2014, the total amount of Islamic Bank financing was less than 30 per cent of the total financing of the conventional banks in Malaysia. It is undeniable fact that there are many other factors that contributes to the growth of GDP and investment. However, this study explores that how far the Malaysian banking system particularly Islamic and conventional banks contributes to the economic growth particularly the GDP and vice versa.

## 6.2 ECONOMIC GROWTH AND ISLAMIC BANKING: A LITERATURE REVIEW

Financial development is also considered to be a factor that contributes to economic growth, and banking is one of the main components in the financial sector. Banks can influence growth by raising the savings rate which also attracts more capital that can be channelled into firms through loans and financing. Since most banks are very conservative and stringent in providing financing, they only provide loans to creditworthy firms which implement projects and programmes that will accelerate the economic growth (Johnson, 2013).

Research by Johnson (2013) revealed that there are three main categories that have potential effect on economic growth namely, legal origin, financial development and Islamic banking. The legal system will provide a positive economic environment for investment, protection of property rights, capital access and capital accumulation, saving capacity and productivity growth which are vital for economic growth. Levine (1998) found that the legal component is one of the external factors of the banking development and growth.

Previous studies using the economic growth model to analyse the impact of banking systems on economic growth include Bagehot (1873), Schumpeter (1912), Gurley and Shaw (1955), Goldsmith (1969) and MacKinnon (1973) employed different methods and techniques to assess the essential role of the financial sector in economic

development and growth. Their findings were that there is relationship between financial development and economic growth (Levine, 2003). Studies by Brunner and Meltzer (1963) as well as Tobin and Barnard (1963) found that bank loans play a vital role in determining the efficacy of the monetary policy. Moreover, King and Levine (1993a) found that financial intermediation can be used to predict the long run rates of economic growth (Levine and Zervos, 1998: 537)

Studies by Zuvekas (1979), Boyd and Prescott (1986), Rajan and Zingales (1998), Branson (1989), Greenwood and Jovanovic (1990), Allen (1990), Bencivenga and Smith (1991), Pango (1993), King and Levine (1993), Levine (1997), Solow (2001), Cetorelli and Gambera (2001), Loayaz and Rancierie (2001), Hoggarth *et al.* (2002), Kasyap *et.al.* (2002), Barth *et al.* (2004), Levine (2005), Dehejia and Lleras-Muney (2007), Hoxha (2009), as well as Mitchener and Wheelock (2010) provide evidence for the significant effect and the relationship between the role of financial intermediaries and economic growth (Levine, 2003).

Among others, studies by Grossman and Weiss (1983), Rotemberg (1984), Lucas (1990) and Fuerst (1992) support the vital role of the bank and its reaction against the monetary policy. The monetary equilibrium models developed by Fuerst (1994) and Labadie (1995) were consistent with this indispensable role of banks. By providing a different perspective, Bernanke and Mark, (1995) Bernanke and Blinder (1988), Domac and Giovanni, (1998), Garretsen and Swank (1998), Guender (1998) Gertler and Gilchrist (1993) and Suzuki (2001) examined the institutional variables such as banks liability and loans (reflecting bank assets) to measure the response of macroeconomic variables such as GDP, unemployment rate and inflation and its impact on the monetary policy (Sukmana and Kassim, 2010: 8).

Theoretically, Islamic finance is also able to contribute to economic development because financing is either assets based or assets backed and tied to the real economy, prohibition of investing in immoral activities and harmful products and services increase the productivity level, and promotion of socio-economic justice by prohibition of *riba* eliminates injustice in society. (Mavrakis, 2009). In practice, most financing of Islamic banks is short term in nature and heavily relies on mark-up

financing (cost plus profit) rather than profit and loss sharing (Aggarwal and Yousef, 2000).

Financial sectors are able to promote economic growth if financial resources are channelled towards productive projects and programmes. Previous studies conducted on the financial sector and economic growth found that there are three possibilities. First, finance is the determinant of economic growth known as supply-leading. Second, the financial sector follows economic growth or demand-following and third there is bi-direct causality between the financial sector and economic growth. Supply-leading means financial institutions are created to stimulate the economic growth. Demand-following is when a financial institution appears as a result of economic development. A study on Islamic banking in Indonesia revealed that it is neither supply-leading nor demand-following but there is a bi-directional relationship. (Abduh and Omar, 2012).

Research by Demirguc-Kunt *et al.* (2012), found that the relationship between economic growth and banking decreases when the financial market deepens and the securities market supersedes the banking system. This is because when real GDP increases private credit also increases. In sum, financial development can stimulate economic growth (Demirguc-Kunt *et al.*, 2012).

Recent study on economic growth and Islamic banking was conducted by Al-Oqool, Okab and Bashayreh (2014), which investigates relation between Islamic banks development and economic growth of Jordan and Islamic bank time and saving deposit with the real GDP for a period of 1989-2012 using the VEC model. The study found that there is bi-directional long run causality between real GDP and Islamic banking growth which reflect positive contribution of the Islamic banks in Jordan but there is no short term causality between the real GDP and Islamic bank's growth. However, there is unidirectional relation between real DGP and total time and saving deposit of Islamic bank which reflect excess of the liquidity. However, not many studies have been conducted on the effect of investment and financing by Islamic banks on the GDP growth in Malaysia.

In the Malaysian context, Tang (2000, 2002), Vaithilingam *et al.* (2003), Azali (2003), Ibrahim (2005), and Kassim and Abdul Majid (2008) provide empirical evidence on the importance of the banking sector in transmitting monetary policy in Malaysia.

A comparable study on the connection between Islamic banks and economic growth in Malaysia was conducted by Furqani & Mulyany (2009). The study employed co-integration test and vector error correction (VEC) model to identify if there was any influence on the economic growth of the financial system and vice versa in the long run. The co-integration method was employed to determine the integration between each variable, while VECM method was applied to establish the long term relationship between variables. The findings of the study reveal that there is a bidirectional relationship between the growth of Islamic banks and the growth of fixed investment in Malaysia. When the GDP increases, it causes growth in the Islamic banks but not vice versa (Furqani and Mulyany, 2009: 59).

A study by Abu Bakar *et al.* (2010), on bank financing utilized two sets of dependent variables, which included total financing growth to earnings ratio and fixed rate financing growth in earning asset growth. The independent variables were real GDP growth, money supply growth (*M3*), bank reserves growth, bank capital growth and loan loss provision growth in the earnings growth ratio. The result was that Islamic bank financing was not influenced by the expansion and contraction of money supply (*M3*). The panel data method was utilized to analyse the Islamic banks' financing behaviour, based on the yearly data from 1998 to 2008, by using generalized least square method (Abu Bakar: 2010:11). In a nutshell, the financial sector plays an important role in the economic growth and vice versa.

### 6.3 MODELLING AND EMPIRICAL ANALYSIS

The model was constructed based on published paper by Al-Hallaq. Said, (2005) the "the Role of Islamic banks in Economic Growth: The Case of Jordan" in a book edited by Munawar Iqbal & Ausaf Ahmad, entitled *Islamic Finance & Economic Development*. Al-Hallaq used two stages least square method but in this case the

Vector Error Correction (VEC) Model would be employed because the researcher want to examine the long run association between the variables.

### 6.3.1 Empirical Model

There were two model employed al Hallaq, one is the growth function and second is the investment function. The model constructed in this study was based on the growth function model used by Al-Hallaq (2005) as below:

$$GDP_t = \alpha_0 + \alpha_1 TCB_{t-1} + \alpha_2 RE_{t-1} + \alpha_3 + I_{t-1} + \mu_{t1} \quad (6.1)$$

where:

$GDP_t$  : refers to the real per capita income as a proxy for economic growth

$TCB_{t-1}$  : total credit by conventional banks

$RE_{t-1}$  : net transfers from abroad

$I_{t-1}$  : volume of investment

$U_{t1}$  : error term

In case of Malaysia, the model was slightly modified due to the unavailability of the time series data for net transfer from abroad and the volume of investment, gross fixed capital formation (GFCF) was used as a proxy to represent aggregate investment; and trade balance (export minus import) was utilize to signify net transfer from abroad. The VEC growth function model constructed in the functional form is as below:

*Model 1- VEC Growth Function Model (Conventional Banks)*

$$\Delta GDP_t = \hat{a}_t + \sum_{i=0}^k \theta_{1t} \Delta TFCB_{t-1} + \sum_{i=0}^k \theta_{1t} \Delta GFCF_{t-1} + \sum_{i=0}^k \theta_{1t} \Delta TB_{t-1} + \delta_1 \gamma_{t-1} + \varepsilon_t \quad (6.2)$$

*Model 2- VEC Growth Function Model (Islamic Banks)*

$$\Delta GDP_t = \hat{a}_t + \sum_{i=0}^k \theta_{1t} \Delta TFIIB_{t-1} + \sum_{i=0}^k \theta_{1t} \Delta GFCF_{t-1} + \sum_{i=0}^k \theta_{1t} \Delta TB_{t-1} + \delta_1 \gamma_{t-1} + \varepsilon_t \quad (6.3)$$

where:

*GDP* : Gross domestic product as a proxy for economic growth  
*TFCB* : Total financing and investment of the Conventional Banks  
*TFIIB* : Total financing and investment of Islamic Banks  
*GFCF* : Gross fixed capital formation as a proxy for investment  
*TB* : Trade balance as proxy for net transfer from abroad  
*T* : Time (quarterly data)

The model 1 aims to analyse the relationship between GDP and GFCF, TB and total financing and investment of the conventional bank. Macroeconomic variable was represented by GDP. The model 2 aims to examine GDP association with GFCF, TB and total financing and investment of the Islamic banks.

### 6.3.2 Defining Variables and Data Sources

There are three dependent variables namely GDP, TFCB and TFIIB. The rest will be inter-changeably used as depicted in the model 1 and model 2 above. A detailed definition of the dependent and independent variables and sources of data are depicted in Table 6.1.

Table 6.1: Definition of Variables and Sources of Data

Summary of Macro Economic Variables	Definition of Variables	Source of Data
GDP	Value of the growth domestic product (at constant price)	BNM
GFCF	Gross fixed capital formation as a proxy for investment	DOSM
TFCB	Percentage of total financing of conventional bank	BNM
TFIIB	Percentage of total financing and investment of Islamic banks (TFIIB) against total credit by conventional banks (TFIIB including purchasing of passenger cars, residential and non-residential property, fixed assets other than land and buildings, personal use, credit card, purchase of consumer durables, construction, working capital and financing of other purposes)	BNM
TB	Trade balance (export minus import)	Department of Statistics of Malaysia (DOSM)

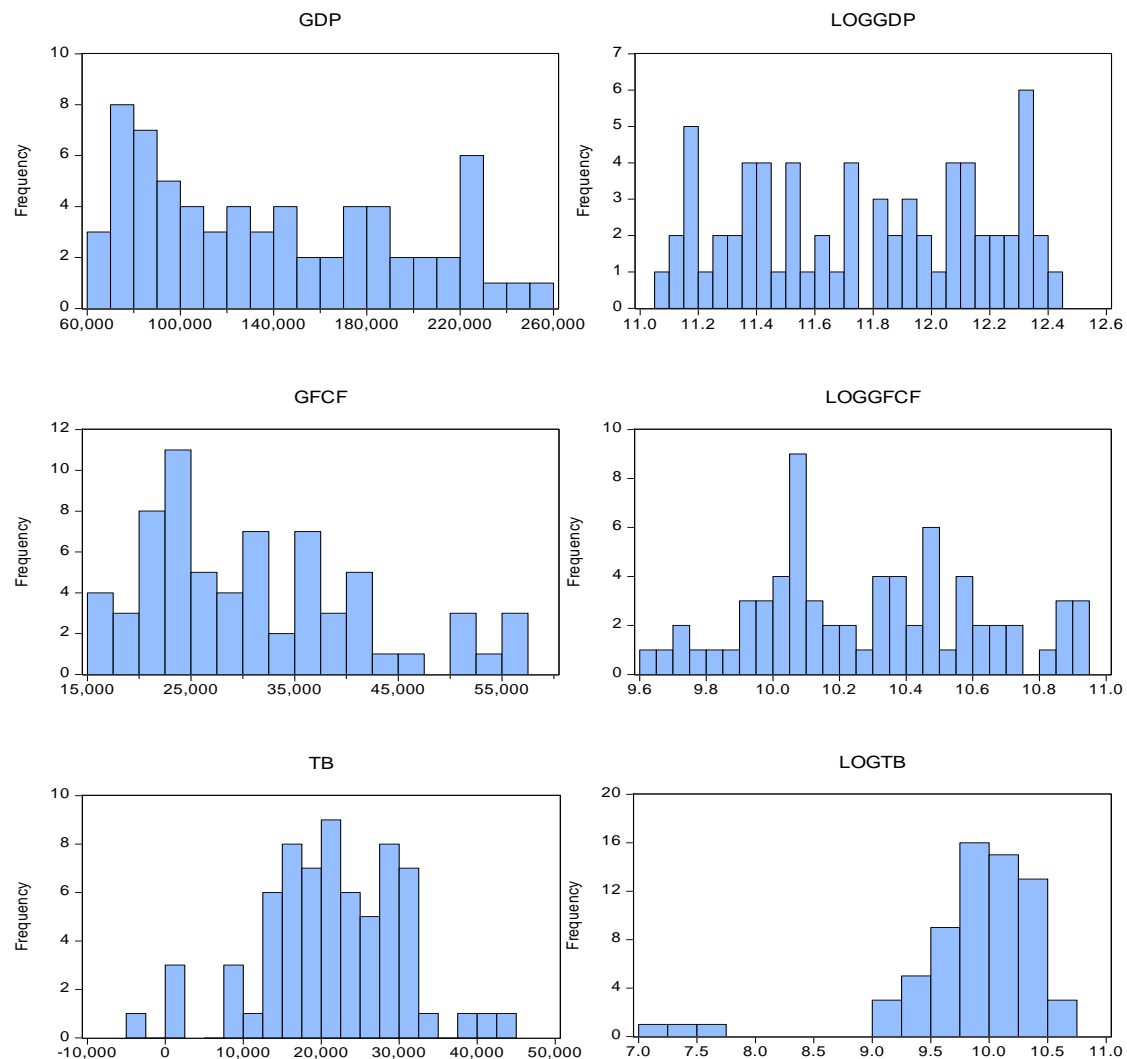
## 6.4 DATA ANALYSIS AND FINDINGS

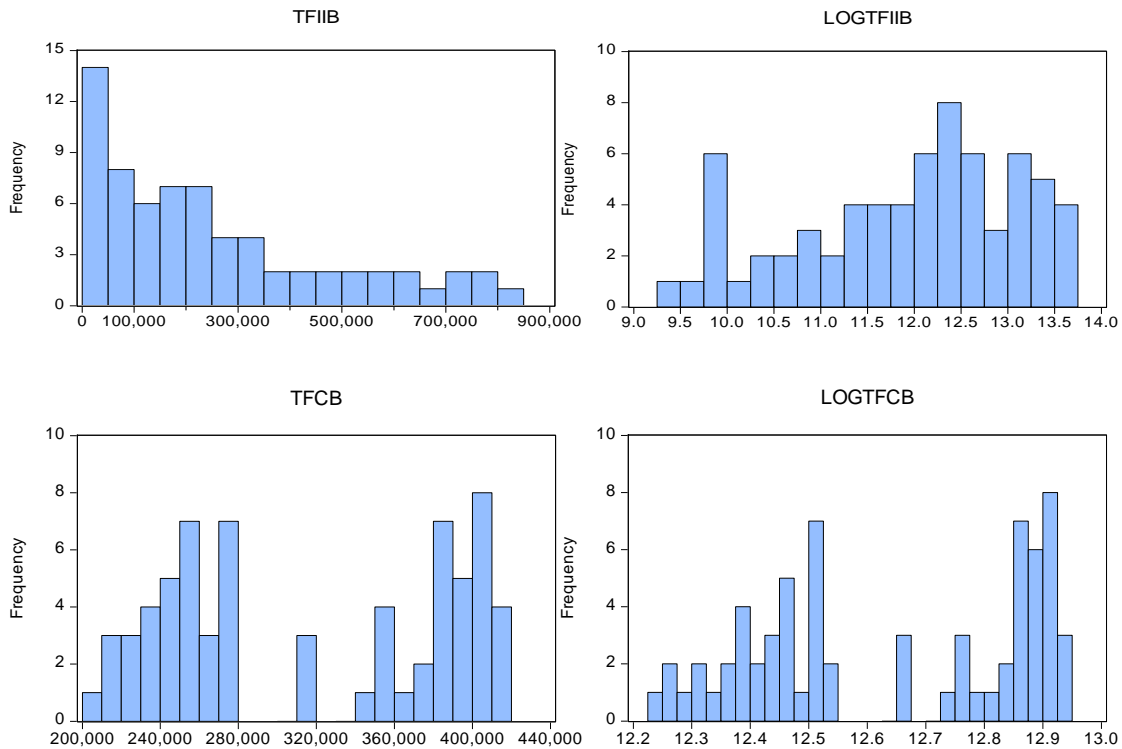
The data were transformed to a logarithm to avoid an abnormal amount of autocorrelation and multi-collinearity between variables. Furthermore, by transforming the data into logarithm, it was easier to compare the distribution and the normality of the data against the original data.

### 6.4.1 Histogram

The histogram depicted in Figure 6.1 shows the distribution of the data before and after it was converted into a logarithm for all variables.

Figure 6.1: Distribution of Data before and after being transformed into a Logarithm





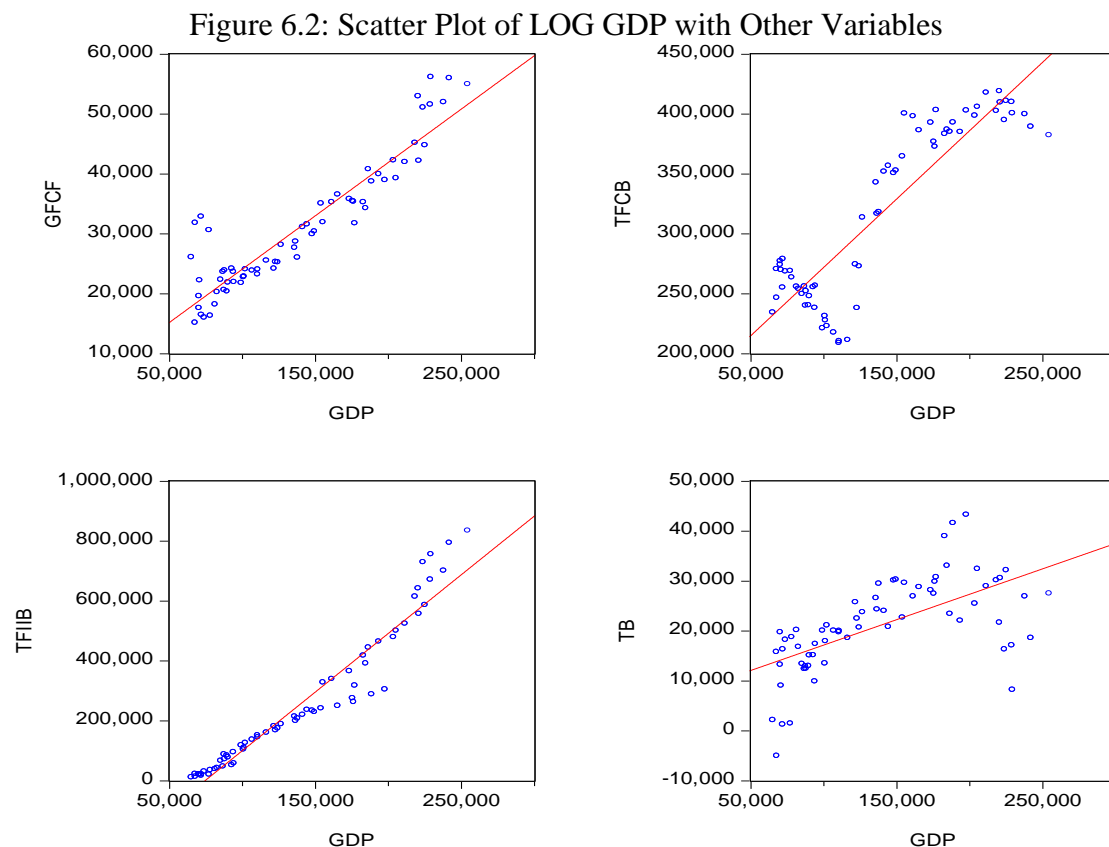
The GDP data was skewed toward left and after transforming to logarithm it seems like normally distributed with some outliers in the data. Similarly, for the GFCF data it was skewed toward left and after changing to logarithm become like normal distribution pattern. For Trade Balance (TB), the original data is like normal distribution pattern but skewed toward right after transforming to logarithm because the data contain the positive and negative values as well.

The TFIIB data skewed to the left initially because at the beginning there was only one Islamic bank in the industry. However, when the data were converted into a logarithm, the amount of financing and investment of all Islamic banks was ordinarily distributed for the whole period. For TFCB data, there is not much change after changing data to logarithm.

The RIR data shows it is relatively having normal distribution shape before it is transformed to log data. Therefore, the original data were utilized rather than converting it to a logarithm because the original data were close to the normal distribution pattern.

### 6.4.2 Scatter Plot

The scatter plot shows the distribution of GDP data against the independent variables. The regression line shows whether the distribution of data is along the regression line or deviates from it. The scatter plot data indicate the positive or negative relationship of the independent variables with the dependent variables. Figure 6.2 shows a scatter plot with the linear regression line. The result shows that all variables have a positive regression line with *LOG TB*.



### 6.4.3 Descriptive Statistics

Table 6.2 depicts the mean, median, standard deviation, skewness, kurtosis and jarque-bera for all variables.

Table 6.2: Descriptive Statistics of all Variables

VARIABLES/ DESCRIPTIVE	LOGGDP	LOGGFCF	LOGTFCB	LOGTFIIB	LOGTB
Mean	11.76685	10.28545	12.64083	11.95880	9.834914
Median	11.78424	10.25598	12.66124	12.17910	9.942013
Standard Deviation	0.407556	0.339958	0.231758	1.139299	0.641534
Skewness	-0.017340	0.179297	-0.122311	-0.482308	-2.587352
Kurtosis	1.685691	2.225574	1.437507	2.225320	10.77747

Jarque-Bera	4.753677	2.002895	6.878366	4.209186	239.9830
Probability	0.092844	0.367347	0.032091	0.121895	0.000000

The data show that the highest mean is for *LOG TFCB* followed by *LOG TFIIB* and *LOG GDP*, while the lowest mean is for *LOG TB*. The highest standard deviation is for real interest rate or *LOG TB*. The data are negatively skewed except for the *LOG* investment of Islamic (*LOG GFCF*). The highest value of the Jarque-Bera is 239 for *LOG TB* and the lowest is 2.0 for *LOG GFCF*. This indicates that the data of all variables are not normally distributed because of the big gap between the values of the jarque-bera of all variables.

#### 6.4.4 Unit Root Tests

A unit root test was conducted to identify whether the data were stationary or non-stationary. Table 6.3 shows the result of the unit root test at level, first difference and second difference data using the ADF and Phillip-Perron (PP) test.

Table 6.3: Unit Root Test for Individual Variables

Variables	Stage	Augmented Dickey Fuller Test			Phillip-Perron Test		
		Level	1 <sup>st</sup> Difference	2 <sup>nd</sup> Difference	Level	1 <sup>st</sup> Difference	2 <sup>nd</sup> Difference
GDP	Intercept	0.9988	<b>0.0001</b>	<b>0.0000</b>	1.0000	<b>0.0000</b>	<b>0.0000</b>
	Trend and intercept	0.4840	<b>0.0002</b>	<b>0.0000</b>	0.6490	<b>0.0000</b>	<b>0.0001</b>
	None	1.0000	<b>0.0033</b>	<b>0.0000</b>	1.0000	<b>0.0000</b>	<b>0.0000</b>
GFCF	Intercept	0.9981	<b>0.0482</b>	<b>0.0000</b>	0.9939	<b>0.0000</b>	<b>0.0001</b>
	Trend and intercept	0.0340	<b>0.0008</b>	<b>0.0000</b>	0.6639	<b>0.0000</b>	<b>0.0001</b>
	None	0.9996	<b>0.0089</b>	<b>0.0000</b>	0.9897	<b>0.0000</b>	<b>0.0000</b>
TFCB	Intercept	0.8112	<b>0.0000</b>	<b>0.0000</b>	0.7473	<b>0.0000</b>	<b>0.0001</b>
	Trend and intercept	0.9430	<b>0.0000</b>	<b>0.0000</b>	0.8089	<b>0.0000</b>	<b>0.0001</b>
	None	0.9662	<b>0.0000</b>	<b>0.0000</b>	0.9074	<b>0.0000</b>	<b>0.0000</b>
TFIIB	Intercept	1.0000	0.9230	<b>0.0000</b>	1.0000	0.9947	<b>0.0000</b>
	Trend and intercept	1.0000	0.3523	<b>0.0000</b>	1.0000	0.5847	<b>0.0001</b>
	None	1.0000	0.8898	<b>0.0000</b>	1.0000	0.9989	<b>0.0000</b>
TB	Intercept	0.0783	<b>0.0000</b>	<b>0.0000</b>	0.0890	<b>0.0000</b>	<b>0.0001</b>
	Trend and intercept	0.4065	<b>0.0000</b>	<b>0.0000</b>	0.0785	<b>0.0000</b>	<b>0.0001</b>
	None	0.6250	<b>0.0000</b>	<b>0.0000</b>	0.6641	<b>0.0000</b>	<b>0.0000</b>
	None	0.0604	<b>0.0000</b>	<b>0.0000</b>	0.1175	<b>0.0000</b>	<b>0.0000</b>

Note: All tests are at maximum lag. Data in bold is p-value

The result of the unit root test shows that the data were non-stationary at the level, where both the ADF and PP tests show that the p-value is not below 0.05 per cent. However, the data were stationary at 1st difference for all variables except for variable *TFIIB*. When the test was run at 2nd difference, the result shows that data are stationary for all variables with *p-value* below 0.05 per cent implying that there is no autocorrelation. Hence, in order to achieve the best result test will be conducted using second difference data. In this case, the null hypothesis ( $H_0$ ) is that there is unit root and the alternative hypothesis is that there is no unit root. Since the p-value at 2<sup>nd</sup> difference is less than 0.05 per cent for variables, therefore can reject  $H_0$  and accept  $H_a$ .

#### 6.4.5 Lag Structure Test

As discussed earlier, there are many ways to determine the lags interval. In this research number of lags was determined based on the lowest value of *Akaike Information Criteria* (AIC). Table 6.4 indicates the lowest value of the AIC is at lag 6.

Table 6.4: Lag Structure for Model 1

Dependant Variable: GDP

LAG	LOGL	LR	FPE	AIC	SC	HQ
0	-3511.746	NA	7.71e+41	113.4757	113.6815	113.5565
1	-3075.094	774.7049	1.89e+36	100.5514	101.9924*	101.1172
2	-3015.120	94.79882	9.01e+35	99.77805	102.4541	100.8287
3	-2956.190	81.74114	4.68e+35	99.03839	102.9496	100.5740
4	-2899.958	67.11532	2.88e+35	98.38575	103.5320	100.4063
5	-2852.621	47.33704	2.70e+35	98.02004	104.4014	100.5255
6	-2787.886	52.20584*	1.77e+35*	97.09309*	104.7096	100.0835*

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5 per cent level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Table 6.5: Lag Structure for Model 2

Dependant Variable: GDP

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2686.548	NA	5.80e+32	86.79187	86.92911	86.84576
1	-2363.401	594.1737	2.89e+28	76.88390	77.57008	77.15331
2	-2327.614	61.18504	1.54e+28	76.24560*	77.48071*	76.73053
3	-2302.645	39.46606	1.17e+28	75.95630	77.74035	76.65676*
4	-2286.901	22.85468	1.22e+28	75.96455	78.29753	76.88053

5	-2261.946	33.00425*	9.64e+27	75.67569	78.55762	76.80721
6	-2243.251	22.31401	9.60e+27*	75.58874	79.01960	76.93578

Table 6.5 shows the lowest value for the AIC for model 2 is at lag 2. Therefore, the test conducted for model 2 was at lag 2.

#### 6.4.6 Two Step Engle-Granger Test

Two steps of Engle-Granger test involved estimations of the model and conducting unit root test for the residual of the model to identify whether there is unit root or not in the residual. If there is no unit root in the residual means the residual is stationary and can proceed to do the Johansen cointegration test to identify whether there is cointegration in the equation. If there is cointegration, the second step is to conduct the vector error correction test including the residual (or error term) in the model.

##### i) Estimation of Model 1 and Model 2

Result in Table 6.6 shows that the value of the coefficient is -38090. While the r-squared value is 96 per cent and the Durbin Watson value is at 1.1. The test was done without testing the unit root test in the residual and with assumption the data is stationary. If the model is spurious often the r-squared value is higher than the Durbin Watson value. In this case, the Durbin value is higher than the r-squared value. However, unit root test was conducted to identify whether there is unit root or not in the residual. If there is unit root means, the model is spurious and not suitable for estimation.

Table 6.6: Estimation of the Equation 6.2 (Conventional Bank)  
Dependent Variable: GDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TFCB	0.003934	0.039484	0.099630	0.9209
GFCF	4.186872	0.215524	19.42652	<b>0.0000</b>
TB	2.157861	0.189299	11.39921	<b>0.0000</b>
C	<b>-38090.53</b>	5885.800	-6.471598	0.0000
R-squared	<b>0.969839</b>	Mean dependent var		139465.5
Adjusted R-squared	0.968426	S.D. dependent var		55861.46
S.E. of regression	9926.111	Akaike info criterion		21.30075
Sum squared resid	6.31E+09	Schwarz criterion		21.43131
Log likelihood	-720.2254	Hannan-Quinn criter.		21.35248
F-statistic	685.9931	Durbin-Watson stat		<b>1.149463</b>
Prob(F-statistic)	0.000000			

Table 6.7 shows that the value of the coefficient is 8719. While the r-squared value is 98 per cent and the Durbin Watson value is at 1.4. However, the unit root test will be conducted to identify unit root in the residual for further estimation.

Table 6.7: Estimation of the Equation 6.3 (Islamic Bank)

Dependent Variable: GDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TFIIB	0.112150	0.010729	10.45340	<b>0.0000</b>
GFCF	2.102055	0.213788	9.832414	<b>0.0000</b>
TB	1.722457	0.094980	18.13489	<b>0.0000</b>
C	<b>8719.715</b>	5092.720	1.712192	0.0917
R-squared	<b>0.988858</b>	Mean dependent var		139465.5
Adjusted R-squared	0.988336	S.D. dependent var		55861.46
S.E. of regression	6033.045	Akaike info criterion		20.30491
Sum squared resid	2.33E+09	Schwarz criterion		20.43547
Log likelihood	-686.3671	Hannan-Quinn criter.		20.35665
F-statistic	1893.385	Durbin-Watson stat		<b>1.490763</b>
Prob(F-statistic)	0.000000			

#### 6.4.7 Residual Testing

Most of the time, the time series data is non-stationary and after transforming to logarithm or 1<sup>st</sup> difference the data will be stationary. Stationary data means the data has no unit root. Sometime the result is spurious because there is unit root in the data or if the residual is not normally distributed. Table 6.8 shows the result of the Augmented Dicky Fuller Test for the residual of model 1-equation (6.2) of the conventional bank. The result for intercept, trend and intercept and no trend and intercept at level shows that the test statistic value is greater than the test critical values at 1 per cent, 5 per cent and 10 per cent respectively. The p-value for all tests also less than 0.05 per cent which indicates that the null hypothesis can be rejected. In this case the null hypothesis is that there is a unit root in the residual. The value of the coefficient of the residual is negative and the Durbin Watson value at 2, which indicate that the model is not spurious and the residual is stationary.

Table 6.8: Result of the Residual Test of Model 1-Equation 6.2

<b>Intercept</b>			t-Statistic	Prob.
Augmented Dickey-Fuller test statistic			<b>-5.262692</b>	<b>0.0000*</b>
Test critical values:	1% level		-3.531592	
	5% level		-2.905519	
	10% level		-2.590262	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	<b>-0.586001</b>	0.111350	-5.262692	0.0000
C	185.4465	1080.121	0.171690	0.8642
R-squared	0.298783	Mean dependent var		195.9081
Adjusted R-squared	0.287995	S.D. dependent var		10477.74
F-statistic	27.69593	Durbin-Watson stat		<b>2.023008</b>
Prob(F-statistic)	0.000002			
<b>Trend and Intercept</b>				
Augmented Dickey-Fuller test statistic			<b>-5.372642</b>	<b>0.0002*</b>
Test critical values:	1% level		-4.100935	
	5% level		-3.478305	
	10% level		-3.166788	
U(-1)	<b>-0.616764</b>	0.114797	-5.372642	0.0000
C	-1929.609	2235.716	-0.863083	0.3913
R-squared	0.311335	Mean dependent var		195.9081
Adjusted R-squared	0.289814	S.D. dependent var		10477.74
F-statistic	14.46673	Durbin-Watson stat		<b>1.996878</b>
Prob(F-statistic)	0.000007			
<b>No Trend and Intercept</b>				
Augmented Dickey-Fuller test statistic			-5.302145	0.0000
Test critical values:	1% level		-2.599934	
	5% level		-1.945745	
	10% level		-1.613633	
U(-1)	-0.586036	0.110528	-5.302145	0.0000
R-squared	0.298465	Mean dependent var		195.9081
Adjusted R-squared	0.298465	S.D. dependent var		10477.74
Durbin-Watson stat	<b>2.022019</b>			

\* Significant at 0.05 per cent

Result in Table 6.9 shows the Augmented Dickey Fuller Test at level for residual of model 2-equation (6.3) of the Islamic bank. The result for intercept, trend and intercept and no trend and intercept at level shows that the test statistic value is greater than the test critical values at 1 per cent, 5 per cent and 10 per cent respectively. This indicates that the residual is stationary and the null hypothesis can be rejected which means there is no unit root in the residual. The value of the coefficient of the residual is negative and the Durbin Watson value is close to 2, which indicate that the model is not spurious and the model is reliable for estimation.

Table 6.9: Result of the Residual Test of Model 2-Equation 6.3

<b>Intercept</b>			t-Statistic	Prob.
Augmented Dickey-Fuller test statistic			-3.685993	<b>0.0066*</b>
Test critical values:	1% level		-3.538362	
	5% level		-2.908420	
	10% level		-2.591799	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	<b>-0.784289</b>	0.212776	-3.685993	0.0005
C	226.4766	686.4404	0.329929	0.7427
R-squared	<b>0.492705</b>	Mean dependent var		-
Adjusted R-squared	0.448206	S.D. dependent var		133.0603
F-statistic	11.07214	Durbin-Watson stat		7282.660
Prob(F-statistic)	0.000000			<b>1.999162</b>
<b>Intercept and Trend</b>				
Augmented Dickey-Fuller test statistic			-3.584921	<b>0.0392</b>
Test critical values:	1% level		-4.110440	
	5% level		-3.482763	
	10% level		-3.169372	
U(-1)	<b>-0.819216</b>	0.228517	-3.584921	0.0007
C	-403.2005	1588.935	-0.253755	0.8006
R-squared	0.494454	Mean dependent var		-
Adjusted R-squared	0.440288	S.D. dependent var		133.0603
F-statistic	9.128556	Durbin-Watson stat		7282.660
Prob(F-statistic)	0.000001			<b>2.000618</b>

\* Significant at 0.05 per cent

#### 6.4.8. Johansen Co-integration Test

To identify co-integration in the data, Johansen co-integration test was conducted at lag 6 for Model 1 and at lag 2 for Model 2. The table 6.10 shows summary results of the trace test with restricted intercepts-no trends, unrestricted intercepts-no trends and unrestricted intercepts-restricted trends. The result of the Johansen co-integration test in Table 6.10 both for *trace* and *maximum eigenvalue* indicates that there is at least one (1) co-integrating equation. In this case, can reject the  $H_0$ , and accept  $H_a$  which means there is co-integration between variables in the model 1. The null hypothesis ( $H_0$ ) is that, there is co-integration between the variables in the original data. The alternative hypothesis ( $H_a$ ) is that there is no co-integration between the variables in the original data. The *trace* and *maximum eigenvalue* test result shows

that the p-value is more than 0.05 per cent which means can reject the  $H_0$ , and accept  $H_a$  which means that there is co-integration between variables.

Table 6.10: Johansen Cointegration Test for Model 1  
Series: GDP GFCF TFCB TB (Lags interval: 1 to 6)

Data Trend:	None	None	Linear	Linear	Quadratic
Test Type	No Intercept No Trend	Intercept No Trend	Intercept No Trend	Intercept Trend	Intercept Trend
Trace	1	2	1	2	2
Max-Eig	1	1	1	2	2
Log Likelihood by Rank (rows) and Model (columns)					
0	-2304.273	-2304.273	-2296.424	-2296.424	-2292.849
1	-2279.689	-2277.591	-2272.110	-2270.577	-2267.771
2	-2272.296	-2268.126	-2262.652	-2256.243	-2253.702
3	-2269.053	-2260.912	-2259.207	-2251.413	-2249.143
4	-2269.042	-2259.139	-2259.139	-2248.041	-2248.041
Akaike Information Criteria by Rank (rows) and Model (columns)					
0	78.69748	78.69748	78.57129	78.57129	78.58520
1	78.15375	78.11772	78.03639	78.01891	78.02529
2	78.17364	78.10249	77.98860	77.84404	77.82629*
3	78.32959	78.16105	78.13795	77.98077	77.93913
4	78.59155	78.39801	78.39801	78.16527	78.16527
Schwarz Criteria by Rank (rows) and Model (columns)					
0	82.01951	82.01951	82.03174	82.03174	82.18407
1	81.75261	81.75119*	81.77367	81.79080	81.90100
2	82.04934	82.04740	82.00272	81.92737	81.97883
3	82.48213	82.41741	82.42890	82.37554	82.36850
4	83.02092	82.96580	82.96580	82.87148	82.87148

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Max-eigenvalue test indicates 2 cointegration eqn (s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

The test result of the Johansen co-integration in Table 6.11 for *trace* and *maximum eigenvalue* for conventional bank and Islamic bank of model 2 indicates that there is at least one (1) co-integrating equation. In this context, can reject the  $H_0$ , and accept  $H_a$  that there is co-integration between variables.

Table 6.11: Johansen Cointegration for Model 2  
Series: GDP TFIIB GFCF TB (Lags interval: 1 to 4)

Data Trend:	None	None	Linear	Linear	Quadratic
Rank or No. of CEs	No Intercept No Trend	Intercept No Trend	Intercept No Trend	Intercept Trend	Intercept Trend
Trace	3	3	2	2	2
Max-Eig	2	2	2	1	1
Log Likelihood by Rank (rows) and Model (columns)					
0	-2456.221	-2456.221	-2450.870	-2450.870	-2446.149
1	-2439.714	-2435.979	-2431.186	-2430.450	-2426.804

2	-2428.111	-2423.612	-2420.269	-2419.525	-2417.190
3	-2422.847	-2416.462	-2414.045	-2411.648	-2411.049
4	-2421.069	-2413.123	-2413.123	-2408.664	-2408.664
Akaike Information Criteria by Rank (rows) and Model (columns)					
0	76.56064	76.56064	76.51908	76.51908	76.49689
1	76.29890	76.21474	76.15957	76.16769	76.14780
2	76.18805	76.11115	76.06982*	76.10848	76.09816
3	76.27220	76.16806	76.12447	76.14300	76.15534
4	76.46367	76.34226	76.34226	76.32811	76.32811
Schwarz Criteria by Rank (rows) and Model (columns)					
0	77.63111	77.63111	77.72335	77.72335	77.83497
1	77.63698	77.58627*	77.63147	77.67304	77.75351
2	77.79375	77.78376	77.80933	77.91489	77.97148
3	78.14552	78.14174	78.13160	78.25049	78.29628
4	78.60461	78.61700	78.61700	78.73666	78.73666

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Max-eigenvalue test indicates 2 cointegration eqn (s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

#### 6.4.9 Ordinary Least Square Estimation of Model 1-Equation (6.2)-Conventional Bank

The Unit Root test of the residual testing conducted earlier confirmed that the residual is stationary at Level. While the test result of Johansen co-integration test indicates that at least there is one co-integrating equations for Model 1. In this case, the data is estimated again by including the residual with one period lag  $u(-1)$  in the model. Table 6.12 shows that the coefficient of the error term is negative at 0.22 per cent which means that the model has been corrected by 0.22 per cent. The r-squared of the equation (6.3) is 48 per cent (average), means that this model explained about 48 percent of the relationship between variables and there are other factors that also influence the GDP growth. The coefficient of the conventional bank is at negative 0.05 which means when GDP increase, the financing of the conventional bank decrease by 0.05 percent and when GDP growth decrease, the financing of the conventional bank increase by 0.05 per cent. However, the p-value of the TFCB is not less than 0.05 per cent which indicates that there is no long run relationship between the GDP growth and the TFCB. On the other hand, there is long run relationship between the GDP growth with GFCF and Trade Balance (TB) because the p-value is less than 0.05 per cent.

Table 6.12: Ordinary Least Squares Estimates of Equation (6.2)  
Dependent Variable: D(GDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TFCB)	<b>-0.054294</b>	0.064055	-0.847621	0.3999
D(GFCF)	1.682355	0.285405	5.894628	<b>0.0000</b>
D(TB)	0.894520	0.131522	6.801283	<b>0.0000</b>
U(-1)	<b>-0.224236</b>	0.072895	-3.076157	<b>0.0031</b>
C	1877.890	640.5796	2.931548	0.0047
R-squared	<b>0.489876</b>	Mean dependent var		2825.463
Adjusted R-squared	0.456965	S.D. dependent var		6860.526
S.E. of regression	5055.583	Akaike info criterion		19.96607
Sum squared resid	1.58E+09	Schwarz criterion		20.13060
Log likelihood	-663.8633	Hannan-Quinn criter.		20.03117
F-statistic	14.88479	Durbin-Watson stat		<b>1.698485</b>
Prob(F-statistic)	<b>0.000000</b>			

Table 6.13 shows that the coefficient of the error term is negative 0.22 and the p-value is less than 0.05 for GFCF and Trade Balance (TB) which indicates that there is long run relationship between the GDP with GFCF and TB. The speed of adjustment in the model is at -0.008. Since the p-value is not significant at 5 per cent, the null hypothesis cannot be rejected that there is no long-run relationship between GDP with TFCB..

Table 6.13: Ordinary Least Squares Estimates of Equation (6.3)

Dependent Variable: D(GDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TFIIB)	0.114783	0.057497	1.996328	<b>0.0503</b>
D(GFCF)	1.337212	0.235474	5.678812	<b>0.0000</b>
D(TB)	0.973228	0.131264	7.414295	<b>0.0000</b>
U(-1)	<b>-0.444554</b>	0.115995	-3.832542	0.0003
C	544.7443	909.2076	0.599142	0.5513
R-squared	<b>0.549246</b>	Mean dependent var		2825.463
Adjusted R-squared	0.520166	S.D. dependent var		6860.526
S.E. of regression	4752.292	Akaike info criterion		19.84234
Sum squared resid	1.40E+09	Schwarz criterion		20.00687
Log likelihood	-659.7183	Hannan-Quinn criter.		19.90744
F-statistic	18.88686	Durbin-Watson stat		<b>1.677309</b>
Prob(F-statistic)	0.000000			

#### 6.4.10 VEC Granger Causality/Block Exogeneity Wald Tests

*Wald* test was conducted to check causality or joint significant between variables. It is also to test for weak exogeneity of the independent variables. The result in Table 6.14 shows that p-value is less than 0/05 per cent which indicates that the other variables are jointly significant in this model.

Table 6.14: Exogeneity Wald Tests of Equation (6.2) and (6.3)

Null Hypothesis: C(1)=0,C(2)=0,C(3)=0,C(4)=0

Test Statistic	Value	df	Prob.	Value	df	Prob.
F-statistic	18.88686	(4, 62)	<b>0.0000</b>	3870.511	(4, 64)	<b>0.0000</b>
Chi-square	75.54744	4	0.0000	15482.05	4	0.0000
Null Hypothesis Summary:						
Normalized Restriction (= 0)						
	Value	Std. Err.		Value	Std. Err.	
<b>TFCB</b>	0.003934	0.039484	<b>TFIB</b>	0.114783	0.057497	
GFCF	4.186872	0.215524	GFCF	1.337212	0.235474	
TB	2.157861	0.189299	TB	0.973228	0.131264	
C	-38090.53	5885.800	C	-0.444554	0.115995	

## 6.5 DISCUSSION ON THE FINDINGS

Three main tests were conducted namely, Unit Root Test, Residual Testing, Johansen Cointegration, and OLS estimates. As mentioned earlier, the OLS test was conducted to identify the relationships between variables, where the dependent variable was the *GDP* as a proxy for economic growth and the independent variables were total financing and investment of the conventional or Islamic banks and other variables include gross fixed capital formation (GFCF) and trade balance (TB).

The result also indicates that the total financing and investment of conventional bank has negative relationship with the GDP. For Islamic banks financing and investment, the p-value in equation (6.3) in table 6.14 is less than 0.05 per cent which indicates that there is short term relationship between the GDP growth and total financing ad investment of the Islamic banks in Malaysia.

With regards to the  $R^2$  value of model 2 is slightly higher (0.54 per cent) than model 1 (0.48 per cent because Islamic banks' financing and investment are contributing to the economic growth which are either asset based or asset backed.. However, it should be

noted that the finding of this study is applicable only in the case of Islamic banks in Malaysia and it cannot be generalized to other countries.

## 6.6 CONCLUSION

The result in this study reveals that Malaysian Islamic banks' total financing and investment contribute an exceptionally small fraction to the *GDP* growth compared to the conventional banks. This is due to the small market share of the Islamic banks. Furthermore, most of the financing and investment are from the capital and equity market rather than money market due to lower market share of the Islamic banks in Malaysia. If the Islamic banks control greater market shares, the result may change. The finding of this chapter can be summarized as in the Table 6.19 below.

Table 6.15: Summary Findings of Chapter 6

Test Result	Model 1-Growth Model Conventional Banks	
	Equation (6.2)- Conventional Bank Dependent Variable: <b>GDP</b>	Equation (6.3) Islamic Bank Dependent Variable: <b>GDP</b>
Coefficient Value of C(1)	1877	544
R <sup>2</sup> Value	48%	54%
Adjusted R <sup>2</sup>	45%	52%
Speed of adjustment	-0.22	-0.44
P-Value	0.3999	<b>0.0503</b>
Indicator	Not Significant	Significant at 5%
Residuals Testing	No Unit Root in the Residual	No Unit Root in the Residual
Cointegration Equation	2	3

Result in table 6.15 shows that Conventional banks and Islamic banks influenced by the GDP growth and not vice versa. The significant and higher contribution is for the total financing and investment of the conventional banks due larger market share compared to the Islamic banks. However, the Islamic banks model is better than the conventional banks mode because of the higher value of the R<sup>2</sup> and adjusted R<sup>2</sup>. Although the speed of adjustment is positive and high but the analysis shows that there is not present of heteroskedascity in the models. This also implied that equation (6.3) and (6.5) can be excluded in future research and the equation (6.4) and (6.6) is good and reliable in explaining the relations between the variables for future research.

Lastly, it should be noted that the result of the finding can only be applied for the Malaysian case due to the fact that there is a dual banking system in Malaysia. However, there is immense potential for the Islamic banks to grow and contribute to the GDP growth and investment in Malaysia. Furthermore, there are many other additional factors that influence economic growth and investment in Malaysia.

## CHAPTER 7

### SEARCHING FOR THE NEXUS BETWEEN INTEREST RATES AND ISLAMIC BANK FINANCING IN MALAYSIA

#### 7.1 INTRODUCTION

This chapter examines the causality effect and co-integration of the Islamic banks with the conventional inter-bank money market, savings and investment. In addition, in establishing the problematic issues for this study Chong and Liu's (2009) model is also utilised to examine the short- and long-term relationship between conventional deposit rates and Islamic investment rates.

Chong and Liu (2009) provided evidence that there is causality between conventional interest rates and Islamic profit rates which, they concluded, is due to the fact that Islamic bank financing is not based on profit and loss sharing (PLS). They consider, therefore, that their result implies that Islamic banks are not interest free, but interest based. This brings to the fore the existential issue as to the realities and operations of Islamic banking, as their study indicates that Islamic banks are not very different from conventional banks in practice, in particular making reference to the lack of PLS, which is supposed to be the strength of Islamic finance. Their statistical survey of Islamic financing indicates that only 0.1 per cent of Islamic bank financing in Malaysia is based on the PLS mode, and the bulk of financing was based on deferred payment sale (49 per cent) and leasing (24 per cent), others (17 per cent) and cost-plus (7 per cent) (Chong and Liu, 2009).

Although Chong and Liu's (2009) finding shows that remarkably low PLS financing is actually practised in the Islamic banks, it should not be concluded that Islamic banks are similar to conventional banks and should be subjected to similar regulations as conventional banks. The main argument is that under the business transaction (*muamalah*), PLS is only one of the principles. There are other principles of *muamalah* such as a deferred payment sale (*al bay muajjal*) leasing (*ijarah*),

*mudarabah*, *murabahah*, *istisna*<sup>11</sup>, *al-bay salam*, and others. Cost plus (*murabaha*) is equally a valid principle and in line with the teachings of Islam. Furthermore, it is acceptable in Islam to utilize all the instruments available within the principles of *muamalah*. There is also no requirement in Islam for principles to be used more or less. This implies that Islamic banks are not limited to providing financing and investment based on profit and loss sharing as long as it does not involve the element of *riba* (interest), *gharar* (doubt) and *maisir* (gambling). Despite this form oriented position, it should be identified that Islamic moral economy foundations of Islamic finance prioritises PLS due to its economic and social development serving nature.

This study, hence, aims to revisit the problematic issues identified by the relationship between conventional finance and Islamic banking with an attempt to locate, if there is one, the relationship between the conventional inter-bank money market, savings and investment, and Islamic banking.

## 7.2 THEORY AND PRACTICE OF ISLAMIC BANKS IN MALAYSIA

The main objective of the establishment of Islamic banks is to eliminate *riba*, as most *fuqaha* agree that the bank interest rate is equivalent to *riba*. There are scholars who believe that Islamic economics can be achieved by removing interest rates from the conventional economy and by adding *zakat*. In addition, the four main characteristics of Islamic banks are: risk sharing; asset backed or asset based; no exploitation; and financing of non-sinful activity (El-Hawary *et al.*, 2004). In-terms of risk sharing, the main difference is that conventional banks are based on interest rates while Islamic banks centre upon profit and loss sharing (Ariff, 1989).

With regards to the asset backed and asset based, there are some differences in these two concepts. For the **asset based financing**, the source of payment comes from the originator's cash flow and the asset stays on the balance sheet of the originator. The beneficial owner has no right to dispose the asset and the recourse is only to obligor and not to the asset. While for the **asset backed financing**, the source of payment comes from the income generated by the asset and the asset is separated from the

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<sup>11</sup> *Istisna* means manufacturing, making or constructing something. It is a contract of sale in which a supplier of the goods or services is asked to supply goods of definite specifications at agreed rates, place and time of delivery. The price of the goods is paid in advance, but the goods are manufactured and delivered at a later date (Borhan 2002).

originator balance sheet. The beneficiary has the legal ownership and right to demand compensation and payment and dispose the asset in case of default (Hidayat,2013).

It should be noted that Islamic banking is a modern concept, and therefore removing interest rates from modern Islamic banking is not an easy task, as Islamic banks are based on the conventional banking model which is governed by the conventional national monetary policy where interest rates are the main mechanism to control the money supply and inflation. Hence, the modern Islamic banks have no other choice but to benchmark against the interest rates of the conventional banks to compete in the market.

Most *fuqaha* have agreed on benchmarking the interest rates of the conventional banks to determine the profit and return rates of Islamic banks. The effects of benchmarking include the high cost of funds incurred by the Islamic banks. This is because:

- (i) All sales and financing contracts of Islamic banks become expensive because the profit rates are marked up against the conventional rates;
- (ii) Islamic banks cannot offer profit rates lower than the conventional bank rates because the movement of the rates is determined by the conventional monetary policy. This is supported by a study by Chong and Liu, in which Islamic bank deposit rates are pegged against the conventional deposit rates (Chong & Liu, 2009)
- (iii) Islamic banks are open to risk where depositors may shift their deposits to the conventional banks when the rates of the Islamic banks are lower and vice versa. This is highlighted in a study by (Bacha, 2004).

Even though most of the Islamic banks' products are *Shari'ah compliant*, the true spirit of Islamic finance cannot be achieved because the Islamic banks' profit rates follow the rates of the conventional banks. A *hadith*, narrated by Abu Hurairah *radiallahu anhu* mentions that a time will come where it will be terribly difficult to avoid *riba*. The closest meaning of the *hadith* is stated as (Chapra, 1985: 236):

From Abū Hurayrah: The Prophet, peace be upon him, said: "There will certainly come a time for mankind when everyone will take *ribā*, and if he does

not do so, its dust will reach him.” (Abū Dāwūd, Kitāb al-Buyū‘, Bābfījtinābi al-shubuhāt; also in IbnMājah).

The *hadith* above reflects on what is happening in the industry. Even though, there is an effort by the Islamic banks to remove *riba*, it cannot be completely achieved because the Islamic banks’ costs are calculated according to the base lending rate (BLR) and the profit rates.

It is also important to stress that many Muslim scholars agree that *riba* is not only related to increased (double or multiple) amounts of money charged by the lender, but whether the amount charged is justifiable as long as the transaction shall not contain the elements of exploitation, oppression, unfairness and uncertainty (Azahari, 2009). In practice, however, Islamic banks’ reference to *riba* is justified on the grounds that they are relatively new, compared to conventional banks which have already been in operation for more than 200 years.

This, as mentioned, brings up the existential question as to whether an Islamic bank is similar to a conventional bank. In substantiating this question, Khan (2010) states that Islamic banks, despite being in operation for more than three decades, are still far from their ideals; a condition, which Asutay (2007; 2012) terms ‘social failure of Islamic banking’.

Table 7.1: Type of Financing by the Islamic Banks from 2006 to 2012

Concept of Financing	2006	2007	2008	2009	2010	2011	2012
<i>Bai Bithaman Ajil</i>	40.7	37.0	33.0	32.1	33.7	32.1	1.9
<i>Ijarah Thumma Al-Bai</i>	29.3	30.2	30.4	29.2	27.3	25.9	23.4
Others	20.7	18.5	16.1	15.2	18.2	19.9	19.9
<i>Murabahah</i>	7.2	11.4	15.2	17.2	14.6	15.4	17.2
<i>Ijarah</i>	1.0	1.4	2.7	3.0	2.5	2.1	2.0
<i>Istisna</i>	0.7	0.9	1.3	1.1	1.0	0.7	0.4
<i>Mudharabah</i>	0.2	0.1	0.3	0.3	0.2	0.1	0.1
<i>Musharakah</i>	0.2	0.4	1.1	1.8	2.5	3.8	5.1
Total Financing	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Compiled from Malaysia Monthly Statistical Bulletin (2013)

In theory, Islamic banks are different from conventional banks as their products are *Shari’ah* compliant and not necessarily based on the PLS mode of financing.

However, convergence in Islamic banking has meant that they have moved to debt-based products as well. As can be seen in Table 7.1, in the Malaysian case, the highest percentage of Islamic banks' total financing in 2006 was *al-bay bithaman ajil*, and the lowest was *mudarabah*. *Musharakah* or PLS accounted for only about 0.2 per cent of the total financing, and in 2012, the amount of PLS only increased to 5.1 per cent. Most of the financing is allocated through *al bay bithaman ajil*, followed by *ijarah thumma al-bay* and others. Table 7.1 also shows that the percentage of *al-bay bithaman ajil* financing decreased from 40.7 per cent in 2006 to 3 per cent in 2012. This was due to the increase in financing of *murabahah*, which escalated from 7.2 per cent in 2006 to 17.2 per cent in 2012 using the concept of *tawarruq*.

Since Malaysia practises a dual banking system, Islamic banks have no other choice but to benchmark against their conventional counterparts. There are about 16 Islamic banks operating with 24 conventional banks, under the supervision of the BNM. To enhance the competitiveness of the Islamic Bank, in 1993 BNM allowed the establishment of 'Islamic Windows' by conventional banks. In 1994, an Islamic inter-money market rate was established to facilitate short-term facility of funding of the Islamic banks and for transmission of monetary policy (Bank Negara Malaysia).

### 7.3 A SURVEY OF EMPIRICAL STUDIES: LITERATURE REVIEW

A number of papers have recently been published investigating the authenticity of Islamic banking and finance; some of them explored the relationship between Islamic banking and interest rates as part of their examination. This section aims to present a review of some of these studies.

In an early study, Haron and Shanmugam (1995) investigated the effect of profit rates on Islamic banks' deposits. They utilized the Pearson correlation method and first order autoregressive model and found that there was a negative relationship between profit rates and rates of return on deposits of Islamic banks. Subsequently, Haron and Ahmad (2000) studied the effect of conventional interest rates and rates of profit on funds deposited in Malaysian Islamic banks, which provided evidence of the relationship between rates of return on investment with the amount of deposit placed in Islamic banks. They confirmed the perception that customers are more profit-oriented rather than religion-oriented when choosing Islamic banks, because there is a

negative relationship between the interest rates of conventional banks and the amount of deposits in Islamic banks. The findings also support earlier research conducted on the same subject in Jordan, Malaysia, Singapore and Sudan (Haron and Ahmad, 2000).

Rosly and Abu Bakar (2003) examined the performance of Islamic and conventional banks in Malaysia. Their findings confirm that an Islamic bank that thrives on interest-like products is less efficient than conventional banks. They noted that, while the products of Islamic banks are *Shari'ah* compliant, they are without the true spirit of Islam. Most of their credit finance mark-up profits are higher than the interest rates of the conventional banks.

In investigating the interest rate risk for Islamic banks in the dual banking system in Malaysia, Bacha (2004) used the monthly data from January 1993 to July 2003. The findings show that even though Islamic banks are operating on interest-free principles, they are exposed to the interest rate risk. Interest rate risk means the cost of funding in Islamic banks becomes higher as the banks have to pay higher rates of profit in order to attract new deposits, and in turn customers may switch to conventional banks due to profit motivation.

Kaleem and Md. Isa (2006) analysed the relationship between terms deposits rates for one, three, six, nine and twelve months for both conventional and Islamic banks. They applied Granger causality technique to identify the relationship between variables. The findings indicate that Islamic banks consider the conventional interest rates before determining their profit rates and return of term deposits.

In another study, Bacha (2008) examined the correlation between Islamic interbank money market (IIMM) rates and conventional interbank money market rates with daily data from October 1998 to April 2007 with 2,328 observations. The findings support the evidence of a high correlation. It is evident that the Islamic banks are subjected to the interest rate risk and operate close to the cycle of the conventional banks. It is true that Islamic banks cannot escape the interest rate risk because they have adopted the commercial conventional bank as a model, which is also part of the fractional reserve system and credit creation.

Chong and Liu (2009), in their study on conventional deposit rates and Islamic investment rates, used the Granger causality test to identify the causality effect between conventional and Islamic rates, using monthly data from April 1995 to April 2005 from the Islamic commercial banks, Islamic investment banks and Islamic finance companies. Their findings indicate that Islamic deposits are not interest free but pegged to conventional deposit rates.

Abdul Kader and Yap (2009) used monthly data from the years 1999 to 2007 to investigate the impact on demand for Islamic financing due to interest rate changes in Malaysia. The study found that an increase in the base lending rate would lead to demands for Islamic financing and *vice versa*. The study concurred that Islamic banks are open to interest rate risk despite operating without *riba*, since customers are more profit- rather than religion-motivated.

Among other studies, the final one to be mentioned here is Cevik and Charap (2011) who found that the conventional bank deposit rates and profit-loss sharing returns of the Islamic banks are correlated and cointegrated in the long term. The correlation level is at 91 per cent between conventional deposit rates and PLS investment account. The findings also support that conventional bank deposits Granger cause return of the PLS account. A study by Hasin and Abd. Majid (2011), shows that Islamic banks in Malaysia cannot shun the interest rate despite its operation delink with interest rate.

#### 7.4 MODELLING, ECONOMETRIC METHOD AND DATA

After identifying the model, this study employed a number of econometric methods to conduct the research which included descriptive statistics, corelogram test, unit root test, Johansen cointegration test, Vector error correction (VEC) model estimates, impulse response and residual testing. Specifically, the Johansen Co-integration and VEC test was utilised to examine whether the Conventional variable having long and short-run association and *vice versa*. On the other hand, the Johansen cointegration and VEC test was aim to investigate whether there is a long-term and short-term association between variables. The impulse response function aims to analyse the pattern or trend of the correlation between variables.

As for data, the interbank money market data in the form of daily data were used from 1998 to 2013, with 4,822 observations. The data for savings and investment account consisted of monthly data from January 1997 to December 2013, with 204 observations. The following section identifies the chosen models within Vector Error Correction (VEC) framework. The model was constructed based on Chong and Liu (2009) paper which was published in the Pacific-Basin Finance Journal.

#### 7.4.1 Empirical Model

Empirical model in this Chapter is based on a normal VEC model as follow:

$$\Delta Y_t = \beta_1 \Delta X_t + \beta_2 (Y_{t-1} - \alpha_0 + \alpha_1 + X_{t-1}) + v_t \quad (7.1)$$

(Chong and Liu, 2009)

Using the above equation, the functional form of the VEC of the conventional and Islamic overnight policy rate and for the conventional bank saving deposit rates for 12 months and Islamic banks profit rates for 12 months is constructed below:

Model 1-Interbank Money Market Rates (Conventional and Islamic)

$$\Delta CON\_ONR_t = \beta_1 \Delta IS\_ONR_t + \beta_2 (CON\_ONR_{t-1} - \alpha_0 + \alpha_1 + IS\_ONR_{t-1} + v_{t1}) \quad (7.2)$$

Model 2- Saving Rates (Conventional and Islamic)

$$\Delta COV\_SIR_t = \beta_5 \Delta IB\_PR_t + \beta_6 (COV\_SIR_{t-1} - \alpha_0 + \alpha_1 + IB\_PR_{t-1} + v_{t3}) \quad (7.3)$$

where:

*COV\_ONR*: Conventional bank interbank overnight interest rates

*IS\_ONR*: Islamic bank interbank overnight profit rates

*COV\_SIR*: Conventional bank savings deposit rates (12 Months)

*IB\_PR*: Islamic banks savings profit rates (12 Months)

*t*: time (Daily/Monthly or Yearly)

#### 7.5.3 Granger Causality Model for Islamic Bank Rates and Interest Rate

The Granger causality model in functional form is as below:

$$Y_t = f(C1 * X_{t-1} + C2 * Y_{t-j} + \mu_1 t) \quad (7.4)$$

$$X_t = f(C3 * X_{t-1} + C4 * Y_{t-j} + \mu_2 t) \quad (7.5)$$

where:

- $Y$  : Dependent variable
- $X$  : Independent variable
- $C$  : Coefficient of the variable
- $T$  : Period
- $t-1$  : Lag of period
- $t-j$  : Number of lags (number of years)
- $\mu$  : Residual of the model

Based on the model above, the functional form of the Granger causality model of the Conventional Bank and Islamic Bank Interbank Money Market Rates, saving rates and fixed deposits rates are as in equation of (7.8) and (7.9).

$$COV\_ONR_t = f(C1 * IS\_ONR_{t-1} + C2 * CONV\_ONR_{t-j} + \mu 1_t) \quad (7.8)$$

$$COV\_SIR_t = f(C1 * IS\_PR_{t-1} + C2 * CONV\_SIR_{t-j} + \mu 2_t) \quad (7.9)$$

## 7.5 ANALYSIS AND FINDINGS

Data analysis involves two parts, namely descriptive and inferential statistical analysis. Descriptive statistical analysis includes normality testing by plotting a histogram figure and scatter plot, while econometric analysis includes unit root test and autocorrelation test along with the Granger causality test, Johansen cointegration test, VEC estimates followed by estimating the impulse response function.

### 7.5.1 Descriptive Statistics

Descriptive statistics in this section include mean, median, standard deviation, skewness, kurtosis and Jarque-Berra. Table 7.2 shows descriptive statistics for the interbank money market rates of the conventional and Islamic banks.

Table 7.2: Descriptive Statistics of the Variables

Statistics	Conventional Interbank Money Market Rates	Islamic Interbank Profit Rates	Conventional Bank Saving Rates	Islamic Bank Profit Rates
Mean	2.945803	2.874471	1.983388	1.967828
Median	2.790000	2.750000	1.590000	1.590000
Standard Deviation	0.619748	0.537713	1.173765	1.186800
Skewness	2.444251	1.527255	1.294373	1.263882
Kurtosis	14.01958	8.714385	3.590396	3.531792
Jarque-Bera	29198.93	8435.331	59.92647	56.71538

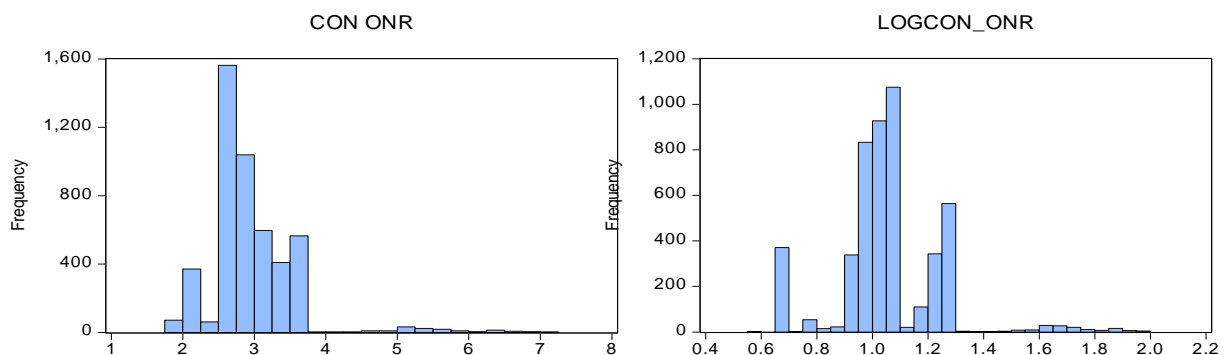
Statistics	Conventional Interbank Money Market Rates	Islamic Interbank Profit Rates	Conventional Bank Saving Rates	Islamic Bank Profit Rates
Probability	0.000000	0.000000	0.000000	0.000000
No. of Observations	4822	4822	204	204

Skewness of the Islamic interbank profits rate is 1.5 and lower than the conventional bank, which means that the data is positively skewed. The conventional interbank rate is also positively skewed to the right but the value is at 2.4, which means that the conventional rates are highly volatile compared to the Islamic rates. Table 6.3 also depicts descriptive statistics for the conventional and Islamic banks' one year savings rates and fixed deposit rates. Skewness of the Islamic banks profit rates and conventional banks' saving rates is close to 1 which mean the data closed to normal distribution.

### 7.5.2 Histogram

The histogram shows the distribution shape of the data before and after changing the data into logarithm. It is prepared to investigate whether the data are normally distributed or otherwise. If the data are not normally distributed, then the shape of the data will be skewed towards the left or right side. Figure 6.1 shows the histogram of interbank overnight policy's conventional interest rates and interbank Islamic profit rates. As can be seen from the histogram in Figure 6.1, the data are not normally distributed, but are skewed towards the left, and there are some outliers in the data.

Figure 7.1: Histogram of the Conventional and Islamic Banks *ONR*



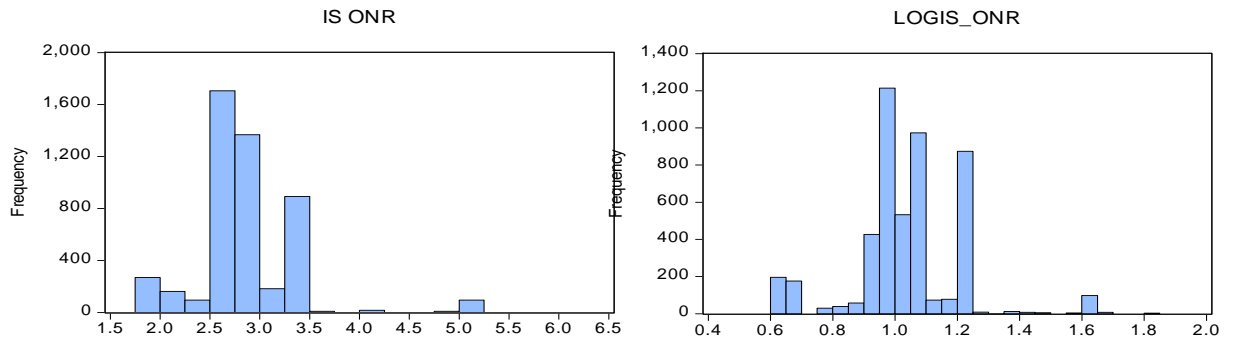
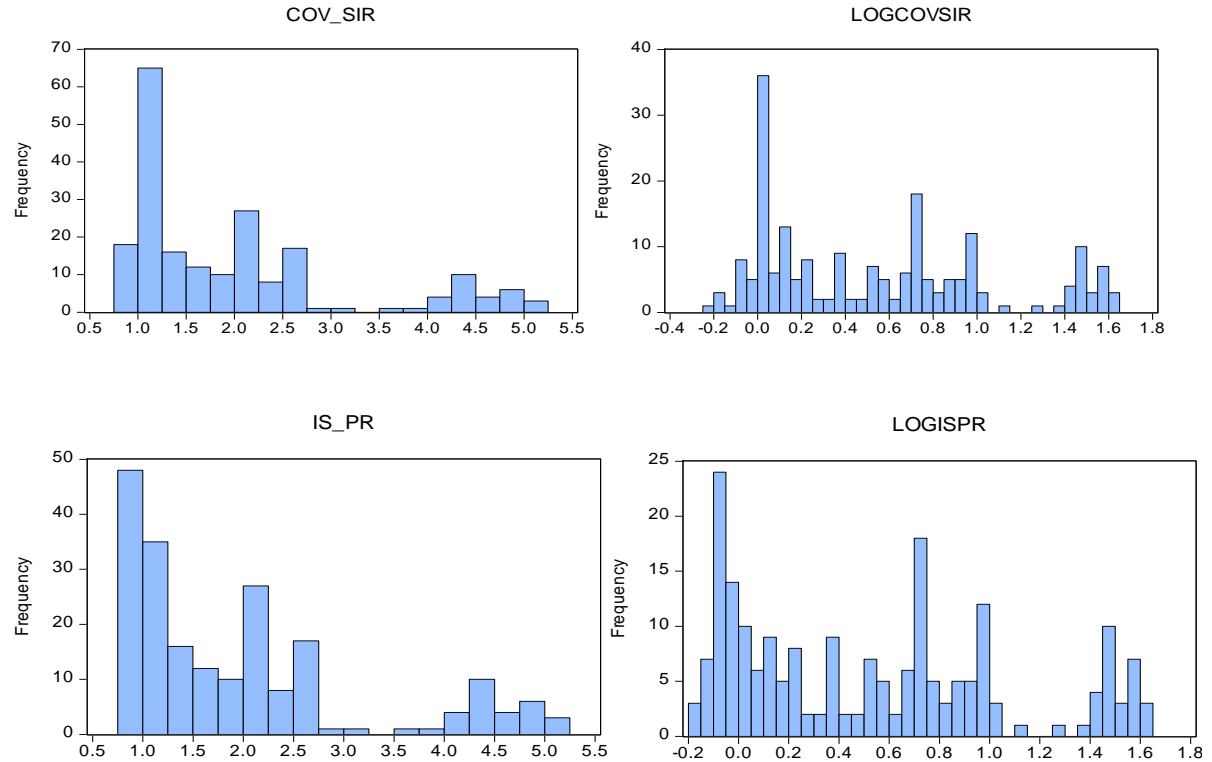


Figure 7.2 shows the histogram of savings rates of conventional banks and profit rates of the Islamic banks. The figure 7.2 demonstrated that the data for savings and profit rates are skewed to the left. For the saving and profit rates both having outliers at the earlier period because Malaysia was facing financial crisis in 1998 and at that time the saving rate and profit rates was high to attract saving from the depositors. However, the trends changed later, and subsequently the rates of return were lower for both conventional banks and Islamic banks.

Figure 7.2: Histogram of Saving Rates of the Conventional and Islamic Banks Profit Rates



### 7.5.3 Scatter Plot

A scatter plot is a mathematical diagram, which shows the correlation of the data along the regression line. If the data are highly correlated, then distribution of the data will be close to the regression line. Figure 6.3 shows a scatter plot of the variables with a linear regression line, which indicates that there is a positive correlation between the variables.

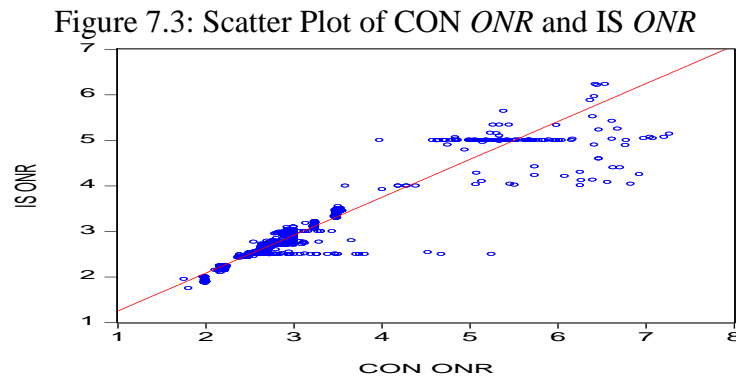
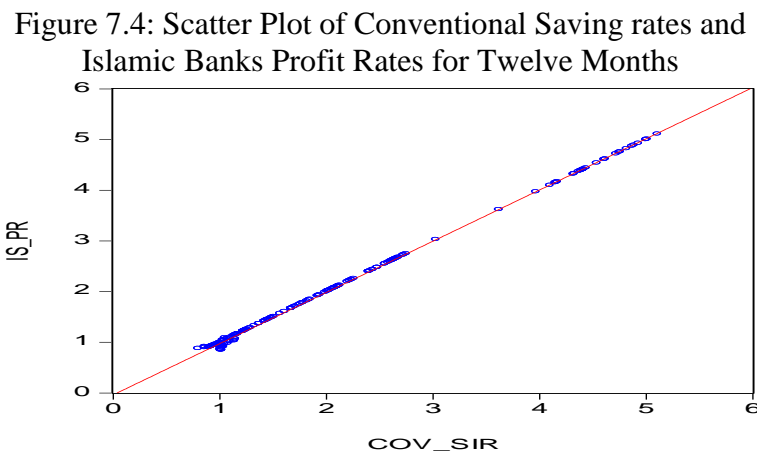


Figure 7.4 shows a scatter plot with regression line of savings rates of the conventional and Islamic bank, which indicates that there is a perfect positive correlation between the savings rates of conventional banks and Islamic banks profit rates.



### 7.5.4 Unit Root Test

The unit root test examines whether the data are stationary or non-stationary. In performing the econometric method test it is important to ensure that the data are stationary. Otherwise, data should be transformed into logarithm form or outliers should be removed to make the data stationary. Popular methods in unit root testing are the Augmented Dickey Fuller (ADF) and Phillip Perron (PP) tests. The unit root

test was conducted using ADF and PP test at individual intercept and trend, at level, 1<sup>st</sup> and 2<sup>nd</sup> difference at maximum lags of 31. The result in Table 7.3 shows that the data are stationary at 1<sup>st</sup> difference and 2<sup>nd</sup> difference where the probability value is significant at 1 per cent.

Table 7.3: Unit Root Test of Individual Variables

Variables	Stage	Augmented Dickey Fuller			Phillip-Perron		
		Level	1 <sup>st</sup> Difference	2 <sup>nd</sup> Difference	Level	1 <sup>st</sup> Difference	2 <sup>nd</sup> Difference
CON ONR	Intercept	-5.96774 (0.0000)	-5.79446 (0.0000)	-2.241553 (0.0000)	-6.04812 (0.0000)	-98.22626 (0.0001)	-865.3570 (0.0001)
	Trend and intercept	-14.19458 (0.0000)	-14.34933 (0.0000)	-14.14849 (0.0000)	-6.002904 (0.0000)	-100.8843 (0.0001)	-864.8419 (0.0001)
	None	-27.90848 (0.0389)	-27.90998 (0.0000)	27.90987 (0.0000)	-1.658909 (0.0919)	-97.56630 (0.0001)	865.6418 (0.0001)
IS ONR	Intercept	-3.163927 (0.0223)	-13.16526 (0.0000)	-24.09108 (0.0000)	-3.367895 (0.0122)	-67.31305 (0.0001)	-461.1766 (0.0001)
	Trend and intercept	-3.095498 (0.1074)	-13.19518 (0.0000)	-24.09068 (0.0000)	-3.289016 (0.0681)	-67.32856 (0.0001)	-460.9388 (0.0001)
	None	-1.046606 (02.669)	-13.16058 (0.0000)	-24.09073 (0.0000)	-1.040853 (02.669)	-67.31832 (0.0000)	-461.2464 (0.0001)
COV SIR	Intercept	-2.097989 (0.2458)	-17.65505 (0.0000)	-11.11500 (0.0000)	-2.110411 (0.2409)	-17.42634 (0.0000)	-139.1339 (0.0001)
	Trend and intercept	-1.391088 (0.8609)	-17.80082 (0.0000)	-11.08415 (0.0000)	-1.629149 (0.7782)	-17.60209 (0.0000)	-148.0047 (0.0001)
	None	-2.901801 (0.00038)	-17.38060 (0.0000)	-11.14496 (0.0000)	-2.796190 (0.00053)	-17.09164 (0.0000)	-139.7051 (0.0001)
IS PR	Intercept	-2.091122 (0.2486)	-17.76147 (0.0000)	-11.07822 (0.0000)	-2.106849 (0.2423)	-17.52179 (0.0000)	-146.7496 (0.0001)
	Trend and intercept	-1.381811 (0.8636)	-17.909937 (0.0000)	-11.04829 (0.0000)	-1.624411 (0.7801)	-17.69785 (0.0000)	-167.3826 (0.0001)
	None	-2.928900 (0.0035)	-17.478858 (0.0000)	-11.10749 (0.0000)	-2.812430 (0.0050)	-17.17325 (0.0000)	-148.9752 (0.0001)

The unit root test was also conducted to examine the saving and profit rates of the conventional and Islamic banks, which was conducted at individual intercept and trend, at level, 1<sup>st</sup> and 2<sup>nd</sup> difference to identify whether the data are stationary or non-stationary at maximum lag of 14. The result in Table 7.3 shows that the data are stationary at the 1<sup>st</sup> difference and 2<sup>nd</sup> difference where the probability value is significant at 1 per cent.

### 7.5.5 Lag Structure Test

The lag structure test was conducted to determine the lags interval. In this research number of lags was determined based on the lowest value of Akaike Information Criteria (AIC). Table 7.4 indicates the lowest value of the AIC is at lag 8 conventional and Islamic ONR.

Table 7.4: Lag Structure of Equation (7.2)

Dependant Variable: Cov ONR

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1692.824	NA	0.006932	0.704123	0.706815	0.705068
1	12312.83	27993.85	2.06e-05	-5.112933	-5.104857	-5.110097
2	12321.16	16.64663	2.06e-05	-5.114733	-5.101273	-5.110006
3	12415.46	188.3304	1.98e-05	-5.152249	-5.133406	-5.145632
4	12488.79	146.3759	1.93e-05	-5.181051	-5.156824	-5.172543
5	12580.27	182.5477	1.86e-05	-5.217396	-5.187785	-5.206998
6	12658.09	155.2221	1.80e-05	-5.248065	-5.213071	-5.235777
7	12712.08	107.6348	1.77e-05	-5.268832	-5.228454	-5.254653
8	12753.38	82.31470*	1.74e-05*	-5.284330*	-5.238568*	-5.268260*

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5 per cent level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Lag structure test result for conventional saving rates and Islamic profit rates as in Table 7.5 indicates that the lowest value of the AIC is at lag 2.

Table 7.5: Lag Structure for Equation (7.3)

Dependant Variable: Cov Saving Rates

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-64.76976	NA	0.006799	0.684818	0.718387	0.698410
1	543.3507	1197.530	1.39e-05	-5.511290	-5.410582*	-5.470514
2	550.0803	13.11392*	1.35e-05*	-5.539285*	-5.371439	-5.471326*
3	553.1169	5.855237	1.36e-05	-5.529404	-5.294419	-5.434261
4	553.5813	0.885883	1.41e-05	-5.493141	-5.191018	-5.370815
5	555.0041	2.685250	1.45e-05	-5.466709	-5.097448	-5.317200
6	556.2497	2.325103	1.49e-05	-5.438459	-5.002059	-5.261766
7	558.1464	3.501509	1.52e-05	-5.416886	-4.913348	-5.213009
8	559.7210	2.874741	1.56e-05	-5.392011	-4.821334	-5.160950

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5 per cent level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

### 7.5.6 Two Step Engle-Granger Test

#### i) Estimation of Equation (7.2) and Equation (7.3)

Result in Table 7.6 shows that the value of the coefficient is -0.230. While the r-squared value is 91 per cent and the Durbin Watson value is at 0.42. The test was done without testing the unit root test in the residual and with assumption the data is stationary. In this case, the Durbin value is lower than the r-squared value. However, unit root test will be conducted for residual to identify whether there is unit root or not in the residual. If there is unit root means, the model is spurious and not suitable for estimation.

Table 7.6: Estimation of the Equation (7.2)  
(Conventional Bank and Islamic Overnight Policy Rate)

Dependent Variable: CON\_ONR

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IS_ONR	1.105102	0.004715	234.3843	0.0000
C	<b>-0.230781</b>	0.013788	-16.73788	0.0000
R-squared	0.919339	Mean dependent var	2.945803	
Adjusted R-squared	0.919322	S.D. dependent var	0.619748	
S.E. of regression	0.176033	Akaike info criterion	-	0.635880
Sum squared resid	149.3596	Schwarz criterion	-	0.633192
Log likelihood	1535.108	Hannan-Quinn criter.	-	0.634937
F-statistic	54936.00	Durbin-Watson stat		<b>0.421191</b>
Prob(F-statistic)	<b>0.000000</b>			

Table 7.7 shows that the value of the coefficient is at -0.000628. While the r-squared value is at 0.012 per cent and the Durbin Watson value is at 2.7. To examine whether the model is spurious or not, the residual test will be coming of the root in the residual for further estimation.

Table 7.7: Estimation of the Equation (7.3)-Conv. Bank and Islamic Saving Rates

Dependent Variable: Conventional Banks Saving Rate and Islamic Banks Profit Rates.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IS_PR	-0.015416	0.009785	-1.575404	0.1167
C	0.000628	0.007344	0.085535	0.9319
R-squared	0.012197	Mean dependent var		-0.007487
Adjusted R-squared	0.007283	S.D. dependent var		0.074859
S.E. of regression	0.074586	Akaike info criterion		-2.343926
Sum squared resid	1.118176	Schwarz criterion		-2.311283
Log likelihood	239.9084	Hannan-Quinn criter.		-2.330720
F-statistic	2.481897	Durbin-Watson stat		2.720610
Prob(F-statistic)	0.116736			

### 7.5.7 Residual Testing

Result in Table 7.8 shows the Augmented Dickey Fuller Test at level for equation (7.2) ONR of the Cov bank and the Islamic bank. The result for intercept, trend and intercept and no trend and intercept at level shows that the test statistic value is greater than the test critical values at 1 per cent, 5 per cent and 10 per cent respectively. This indicates that the residual is stationary and the null hypothesis can be rejected which means there is no unit root in the residual. The value of the coefficient of the residual is negative and the Durbin Watson value is close to 2, which indicate that the model is not spurious and the model is reliable for estimation.

Table 7.8: Result of the Residual Test of Model 1-Equation (7.2)

<b>Trend</b>				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			<b>-13.75604</b>	<b>0.0000</b>
Test critical values:	1% level		-3.431533	
	5% level		-2.861948	
	10% level		-2.567030	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	-0.180849	0.013147	-13.75604	0.0000
C	<b>-0.002422</b>	0.001275	-1.899794	0.0575
R-squared	0.337112	Mean dependent var		-0.000484
Adjusted R-squared	0.332794	S.D. dependent var		0.107776
F-statistic	78.07079	Durbin-Watson stat		2.033210
Prob(F-statistic)	0.000000			
<b>Trend and Intercept</b>				
Augmented Dickey-Fuller test statistic			<b>-13.63072</b>	<b>0.0000</b>
Test critical values:	1% level		-3.959953	
	5% level		-3.410742	
	10% level		-3.127161	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	-0.180546	0.013246	-13.63072	0.0000

C	-0.002848	0.002586	-1.101187	0.2709
R-squared	0.337117	Mean dependent var		-0.000484
Adjusted R-squared	0.332659	S.D. dependent var		0.107776
F-statistic	75.61688	Durbin-Watson stat		2.033225
Prob(F-statistic)	0.000000			
None				
Augmented Dickey-Fuller test statistic			-13.67400	0.0000
Test critical values:	1% level		-2.565445	
	5% level		-1.940890	
	10% level		-1.616655	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	-0.179592	0.013134	-13.67400	0.0000
R-squared	0.336610	Mean dependent var		-0.000484
Adjusted R-squared	0.332429	S.D. dependent var		0.107776
Durbin-Watson stat	2.032863			

\* Significant at 0.05 per cent

Sometime the result is spurious because there is unit root in the data or if the residual s not normally distributed. Table 7.9 shows the result of the Augmented Dicky Fuller Test for the residual of model 1-equation (7.3) of the conventional bank saving rates and Islamic profit rates. The result shows that the test statistic value is greater than the test critical values at 1 per cent, 5 per cent and 10 per cent respectively. The p-value for all tests also less than 0.05 per cent which indicates that there is no unit root in the residual.

Table 7.9: Result of the Residual Test of Model 1-Equation (7.3)

<b>Intercept</b>			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			<b>-20.62548</b>	<b>0.0000</b>
Test critical values:	1% level		-3.462737	
	5% level		-2.875680	
	10% level		-2.574385	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	-1.360580	0.065966	-20.62548	0.0000
C	3.16E-05	0.004907	0.006440	0.9949
R-squared	0.680210	Mean dependent var		-9.55E-05
Adjusted R-squared	0.678611	S.D. dependent var		0.123024
F-statistic	425.4102	Durbin-Watson stat		2.048368
Prob(F-statistic)	0.000000			
<b>Intercept and Trend</b>				
Augmented Dickey-Fuller test statistic			<b>-20.67975</b>	<b>0.0000</b>
Test critical values:	1% level		-4.004132	
	5% level		-3.432226	
	10% level		-3.139858	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	-1.364918	0.066003	-20.67975	0.0000
C	0.010135	0.009853	1.028615	0.3049
R-squared	0.682440	Mean dependent var		-9.55E-05
Adjusted R-squared	0.679248	S.D. dependent var		0.123024
F-statistic	213.8265	Durbin-Watson stat		2.054752
Prob(F-statistic)	0.000000			
<b>None</b>				

Augmented Dickey-Fuller test statistic			<b>-20.67698</b>	<b>0.0000</b>
Test critical values:	1% level		-2.576460	
	5% level		-1.942407	
	10% level		-1.615654	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	-1.360579	0.065802	-20.67698	0.0000
R-squared	0.680210	Mean dependent var		-9.55E-05
Adjusted R-squared	0.680210	S.D. dependent var		0.123024
Durbin-Watson stat	2.048369			

\* Significant at 0.05 per cent

### 7.5.8. Johansen Co-integration Test

To identify co-integration in the data, Johansen co-integration test was conducted for equation 7.2. The table 7.10 shows summary results of the trace test with restricted intercepts-no trends, unrestricted intercepts-no trends and unrestricted intercepts-restricted trends. The result also shows that for *trace* and *maximum eigenvalue* there is at least two (2) co-integrating equations. In this case, can reject the  $H_0$ , and accept  $H_a$  which means there is co-integration between variables in the equation 7.2. The null hypothesis ( $H_0$ ) is that, there is co-integration between the variables in the original data. The alternative hypothesis ( $H_a$ ) is that there is no co-integration between the variables in the original data.

Table 7.10: Johansen Cointegration Test for Equation (7.2)  
Series: CONV and IS ONR (Lags interval: 1 to 8)

Data Trend:	None	None	Linear	Linear	Quadratic
Test Type	No Intercept	Intercept	Intercept	Intercept	Intercept
	No Trend	No Trend	No Trend	Trend	Trend
Trace	1	2	2	2	2
Max-Eig	1	2	2	2	2
Log Likelihood by Rank (rows) and Model (columns)					
0	12778.83	12778.83	12779.69	12779.69	12782.38
1	12871.66	12876.62	12877.23	12877.72	12879.81
2	12873.46	12889.35	12889.35	12891.02	12891.02
Akaike Information Criteria by Rank (rows) and Model (columns)					
0	-5.296835	-5.296835	-5.296358	-5.296358	-5.296648
1	-5.333747	-5.335391	-5.335229	-5.335019	-5.335470
2	-5.332830	-5.338604	-5.338604*	-5.338468	-5.338468
Schwarz Criteria by Rank (rows) and Model (columns)					
0	-5.253757	-5.253757	-5.250588	-5.250588	-5.248186
1	-5.285285	-5.285583*	-5.284075	-5.282518	-5.281624
2	-5.278984	-5.282065	-5.282065	-5.279237	-5.279237

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Max-eigenvalue test indicates 2 cointegration eqn (s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

The test result of the Johansen co-integration in Table 7.11 for *trace* and *maximum eigenvalue* for conventional bank and Islamic bank of model 2 indicates that there is at least one (1) co-integrating equation except for no intercept and no trend. In this context, can reject the  $H_0$ , and accept  $H_a$  that there is co-integration between variables.

Table 7.11: Johansen Cointegration for Equation (7.3)  
Series: COV\_SIR IS\_PR Lags interval: 1 to 2

Data Trend:	None	None	Linear	Linear	Quadratic
Test Type	No Intercept No Trend	Intercept No Trend	Intercept No Trend	Intercept Trend	Intercept Trend
Trace	2	1	1	1	1
Max-Eig	2	1	1	1	1
Log Likelihood by Rank (rows) and Model (columns)					
0	688.9623	688.9623	691.7760	691.7760	692.2750
1	747.2508	747.6023	750.3225	750.3633	750.7689
2	750.6520	751.2858	751.2858	752.6661	752.6661
Akaike Information Criteria by Rank (rows) and Model (columns)					
0	-6.809623	-6.809623	-6.817760	-6.817760	-6.802750
1	-7.352508	-7.346023	-7.363225*	-7.353633	-7.347689
2	-7.346520	-7.332858	-7.332858	-7.326661	-7.326661
Schwarz Criteria by Rank (rows) and Model (columns)					
0	-6.677690	-6.677690	-6.652844	-6.652844	-6.604851
1	-7.154609*	-7.131632	-7.132343	-7.106259	-7.083824
2	-7.082655	-7.036009	-7.036009	-6.996829	-6.996829

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Max-eigenvalue test indicates 2 cointegration eqn (s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

#### 7.4.9 Error Correction Model Test

Since there is long-run co-integration between the conventional ONR and Islamic ONR and conventional banks' saving rates and Islamic banks' profit rates, the error correction model test was conducted. The VEC result of the interbank money market rates is illustrated in Table 7.12 which shows that there is at least one cointegration between variables which means there is long-term cointegration between variables. The table shows the coefficient value, standard errors and *t*-statistics value. The coefficient value is also negative for conventional ONR and zero for Islamic ONR.

Table 7.12: VEC Test of Equation (7.2)

Error Correction:	Conventional ONR	Islamic ONR
	D(CON_ONR)	D(IS_ONR)
CointEq1	-1.296717	0.366045
	(0.11133)	(0.07933)
	[-11.6476]	[ 4.61403]
D(CON_ONR(-1))	-0.014798	-0.215897
	(0.06838)	(0.04873)
	[-0.21641]	[-4.43051]
D(IS_ONR(-1))	-0.329156	-0.284454
	(0.09559)	(0.06812)
	[-3.44353]	[-4.17607]
C	<b>-0.000390</b>	<b>0.000167</b>
	(0.00510)	(0.00364)
	[-0.07636]	[ 0.04605]
R-squared	0.665423	0.257327
Adj. R-squared	0.660328	0.246017
Sum sq. resids	1.030361	0.523215
S.E. equation	0.072321	0.051536
F-statistic	130.6013	22.75267
Log likelihood	244.7697	312.8757
Akaike AIC	-2.395718	-3.073390
Schwarz SC	-2.329981	-3.007653
Mean dependent	-0.000430	0.000110
S.D. dependent	0.124089	0.059351

The table 7.13 shows the coefficient value, standard errors and *t*-statistics value of the conventional saving rates and Islamic profit rates. The coefficient value is also zero for the conventional bank variable and negative for Islamic bank variable means there is long run relationship between the variables.

Table 7.13: VEC of Equation (7.3)

Error Correction:	Conventional Saving Interest Rate	Islamic Profit Rates
	D(CON_ONR)	D(IS_ONR)
CointEq1	-1.922544	-1.640623
	(0.27164)	(0.49779)
	[-7.07764]	[-3.29584]
D(DCOVSIR(-2))	-0.003826	-0.053215
	(0.07067)	(0.12950)
	[-0.05414]	[-0.41094]
D(IS_PR(-2))	0.071313	0.183771
	(0.07987)	(0.14636)
	[ 0.89289]	[ 1.25560]
C	<b>0.005515</b>	<b>-0.004247</b>
	(0.00536)	(0.00982)
	[ 1.02920]	[-0.43248]
R-squared	0.692443	0.126021
Adj. R-squared	0.684516	0.103496
Sum sq. resids	0.932406	3.131231
S.E. equation	0.069327	0.127045
F-statistic	87.35530	5.594658

Error Correction:	Conventional Saving Interest Rate	Islamic Profit Rates
	D(CON_ONR)	D(IS_ONR)
Log likelihood	253.0427	131.9014
Akaike AIC	-2.470427	-1.259014
Schwarz SC	-2.371478	-1.160065
Mean dependent	0.000662	-0.015616
S.D. dependent	0.123428	0.134178

Further testing was conducted to obtain the probability value, as the VEC test result would not provide the *p*-value. To obtain the *p*-value, estimation needs to be conducted using the coefficient value of the VEC model utilizing the OLS test.

#### 7.5.10 Ordinary Least Square Estimation of Equation (7.2)-Conventional Bank and Islamic Bank ONR

The Unit Root test of the residual testing conducted earlier confirmed that the residual is stationary at Level. While the test result of Johansen co-integration test indicates that at least there is one co-integrating equations for Model 1. In this case, the data is estimated again by including the residual with one period lag  $u(-1)$  in the model. Table 7.14 shows that the coefficient including *t* value of the error term is negative at 0.18 per cent which means that the model has been corrected by 0.18 per cent. The *r*-squared of the equation (7.3) is 10 per cent (low), means that this model explained about 10 per cent of the relationship between variables and there are other factors that also influence the Conventional ONR. The coefficient of the conventional bank is at negative 0.05 which means when GDP increase, the financing of the conventional bank decrease by 0.05 percent and when GDP growth decrease, the financing of the conventional bank increase by 0.0004 per cent. However, the *p*-value of the Islamic ONR is less than 0.05 per cent which indicates that there long run relationship between the Conventional ONR with Islamic ONR. The Durbin Watson values at 2.0 means there is no autocorrelation in the model.

Table 7.14: Ordinary Least Squares Estimates of Equation (7.2)  
Dependent Variable: D(COV\_ONR)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IS_ONR)	0.470911	0.033267	14.15556	<b>0.0000</b>
U(-1)	<b>-0.182930</b>	0.008678	-21.07869	0.0000
C	-0.000443	0.001496	-0.296292	0.7670
R-squared	<b>0.101916</b>	Mean dependent var		-0.000570
Adjusted R-squared	0.101543	S.D. dependent var		0.109606

S.E. of regression	0.103892	Akaike info criterion	-1.690307
Sum squared resid	52.00333	Schwarz criterion	-1.686274
Log likelihood	4077.486	Hannan-Quinn criter.	-1.688891
F-statistic	273.3762	Durbin-Watson stat	<b>2.087569</b>
Prob(F-statistic)	0.000000		

The coefficient value is -0.0018 and the p-value is more than 0.05 for IS\_PR means that there is no long run relationship between the CONV Interest Rate with Islamic Profit Rate. The speed of adjustment in the model is at -1.22. Since the p-value is not significant at 5 per cent, the null hypothesis cannot be rejected that there is no long-run relationship between COV\_SIR with IS\_PR.

Table 7.15: Ordinary Least Squares Estimates of Equation (7.3)

Dependent Variable: D(COV\_SIR)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IS_PR)	-0.154832	0.213408	-0.725521	0.4690
U(-1)	<b>-1.226137</b>	0.216139	-5.672908	0.0000
C	-0.001085	0.005203	-0.208578	0.8350
R-squared	<b>0.685643</b>	Mean dependent var		2.66E-05
Adjusted R-squared	0.682483	S.D. dependent var		0.123950
S.E. of regression	0.069844	Akaike info criterion		-2.470366
Sum squared resid	0.970758	Schwarz criterion		-2.421233
Log likelihood	252.5070	Hannan-Quinn criter.		-2.450487
F-statistic	217.0188	Durbin-Watson stat		<b>2.057846</b>
Prob(F-statistic)	0.000000			

#### 7.5.11 Wald Test

Wald test here is used to test the joint significance of a subset of coefficients of the Conventional ONR and Islamic ONR. These two variables are individually significant based on OLS estimates. To investigate whether these variables have short-run association or joint significance, Wald test was conducted. The result in Table 6.16 shows that p-value is significant at 1 per cent for equation (6.2) and (6.3) means the Conventional banks ONR can granger cause Islamic banks Interbank money market rates and vice versa.

Table 7.16: VEC Granger Causality/Block Exogeneity Wald Test

Test Statistic	COV ONR(-1) = IS ONR(-1)-Equation (7.2)		
	Value	df	Probability
t-statistic	-20.06634	195	<b>0.0000</b>
F-statistic	402.6580	(1, 195)	<b>0.0000</b>
Chi-square	402.6580	1	<b>0.0000</b>
Null Hypothesis: C(4)=(5)			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
-5 + C(4)		-5.238655	0.261067
Restrictions are linear in coefficients.			

#### 7.5.12 Granger Causality Test for Conventional and Islamic ONR-Equation (7.8)

The Granger causality test was conducted for the Interbank Money Market rates, saving account and investment account rates of the Islamic and the conventional banks and the saving rates were for one year. The result in Table 7.17 shows that conventional *ONR* does not Granger causes the Islamic *ONR* and *vice versa* up to the lag 164. At the lag 166, there is one-way causality where the conventional *ONR* Granger causes the Islamic *ONR* up to the lag 204. After the lag 206, the conventional *ONR* does not Granger causes Islamic *ONR* and *vice versa* up to the lag 746. At the lag 748, the Islamic *ONR* is significant at 1% level. This indicates that there is one-way causality effect where the Islamic *ONR* Granger causes the conventional *ONR* up to the lag 928. At the lag 930, there is no Granger causality effect between the Islamic *ONR* and conventional *ONR* and *vice versa*. The result indicates that the conventional *ONR* Granger causes Islamic *ONR* at a short period of time. However, the Islamic *ONR* Granger causes the conventional *ONR* at long-term or at least for a period of more than 2 years.

Table 7.17: Granger Causality Test of Equation (7.8)

Null hypothesis	Lag	Observation	F-Statistic	Probability
ISL_ <i>ONR</i> does not Granger Cause CON_ <i>ONR</i>	2	4089	161.716	3.E-68
ONR does not Granger Cause CON_ <i>ONR</i>	164	3927	10.2685	4E-197
CON_ <i>ONR</i> does not Granger Cause ISL_ <i>ONR</i>			1.48713	8.E-05
ISL_ <i>ONR</i> does not Granger Cause CON_ <i>ONR</i>	166	3925	9.82681	4E-189
CON_ <i>ONR</i> does not Granger Cause ISL_ <i>ONR</i>			1.38533	0.0010***
ISL_ <i>ONR</i> does not Granger Cause CON_ <i>ONR</i>	202	3889	4.18738	1.E-68

Null hypothesis	Lag	Observation	F-Statistic	Probability
CON_ONR does not Granger Cause ISL_ONR			1.19614	0.0338**
ISL_ONR does not Granger Cause LOG_CON_ONR	204	3887	3.99406	7.E-64
CON_ONR does not Granger Cause ISL_ONR			1.17019	0.0538**
ISL_ONR does not Granger Cause CON_ONR	206	3885	3.70275	2.E-56
CON_ONR does not Granger Cause ISL_ONR			1.15422	0.0702
ISL_ONR does not Granger Cause CON_ONR	746	3345	1.25271	9.E-05
CON_ONR does not Granger Cause ISL_ONR			0.41896	1.0000
ISL_ONR does not Granger Cause CON_ONR	748	3343	1.24887	0.0001***
CON_ONR does not Granger Cause ISL_ONR			0.42064	1.0000
ISL_ONR does not Granger Cause CON_ONR	924	3167	1.10857	0.0440**
CON_ONR does not Granger Cause ISL_ONR			0.46869	1.0000
ISL_ONR does not Granger Cause CON_ONR	928	3163	1.10277	0.0528**
CON_ONR does not Granger Cause ISL_ONR			0.46951	1.0000
ISL_ONR does not Granger Cause CON_ONR	930	3161	1.09816	0.0608
CON_ONR does not Granger Cause ISL_ONR			0.46827	1.0000

Notes: (\*\*\*) Significant at 1%; (\*\*) Significant at 5%.

### 7.5.13 Causality Test of the Equation (7.9)

Table 7.18 shows the Granger causality result of the conventional bank saving rates and Islamic banks profit rates of saving account for one year. The result indicates that there is no causality effect between the conventional and Islamic banks rates for saving account.

Table 7.18: Granger Causality Test of Equation (7.9)

Null hypothesis	Lag	Observation	F-Statistic	Probability
IS_SAVPR_1Y does not Granger Cause COV_SAVIR_1Y	2	166	0.86271	0.4240
COV_SAVIR_1Y does not Granger Cause IS_SAVPR_1Y			0.07690	0.9260
IS_SAVPR_1Y does not Granger Cause COV_SAVIR_1Y	4	164	0.62426	0.6459
COV_SAVIR_1Y does not Granger Cause IS_SAVPR_1Y			0.04435	0.9962
IS_SAVPR_1Y does not Granger Cause COV_SAVIR_1Y	6	162	0.49684	0.8100

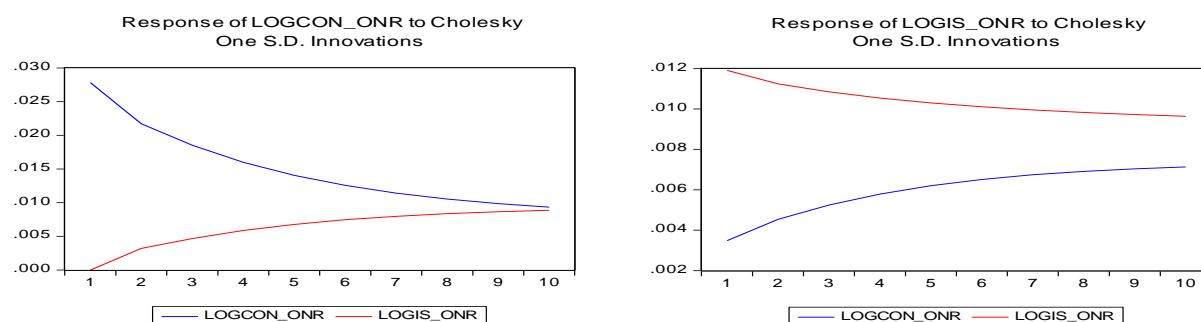
Null hypothesis	Lag	Observation	F-Statistic	Probability
COV_SAVIR_1Y does not Granger Cause IS_SAVPR_1Y			0.09844	0.9964
IS_SAVPR_1Y does not Granger Cause COV_SAVIR_1Y	8	160	0.42298	0.9058
COV_SAVIR_1Y does not Granger Cause IS_SAVPR_1Y			0.11323	0.9987
IS_SAVPR_1Y does not Granger Cause COV_SAVIR_1Y	10	158	0.33726	0.9695
COV_SAVIR_1Y does not Granger Cause IS_SAVPR_1Y			0.08592	0.9999
IS_SAVPR_1Y does not Granger Cause COV_SAVIR_1Y	12	156	NA	NA
COV_SAVIR_1Y does not Granger Cause IS_SAVPR_1Y			NA	NA

#### 7.5.14 Impulse Response Test of Equation (7.2)

The impulse response test is one of functions of the vector auto regression (VAR) model and aims to analyze the dynamics affects when the model receives the impulse. Generally, the impulse response reflects the reaction of the dynamic system in response to some external changes. The chart is plotted to display clearer response of the impulse function in the model (Lu and Xin, 2010).

Figure 7.5 shows the left panel is the pattern of the response of the conventional ONR to the Islamic ONR and the right panel is the response of the Islamic ONR to the Conventional ONR. The result indicates that the Conventional ONR moving closely with the Islamic ONR at the end of the period and the Islamic ONR moving parallel at the end the period with the Conventional ONR.

Figure 7.5: Impulse Response Test of Model 1



This indicates that Conventional Islamic ONR following closely the Islamic ONR at the end of the period while Islamic ONR is moving parallel with the conventional ONR at the end of the period. This happen because both operating in dual banking system and subject to the same monetary policy and the conventional rates cannot deviates far from the Islamic bank rates otherwise the customers may chose Islamic banks for financing if the conventional bank rates is too high compared to the Islamic banks. On the other note, the Islamic banks financing rates are always higher than the conventional banks because the rate is fixed and Islamic banks do not want to take risk when the Overnight Policy Rate (OPR) for Islamic bank is lowered by the Central bank, the Islamic banks still be able to make profit and cover their cost of fund for financing and investment.

## 7.6 CONCLUSION

The literature review on the theory and practice of Islamic banks in Malaysia reveals that about 68 per cent of the financing of Islamic banks in 2011 were debt based or debt-like. Among other controversial types of financing were *al-bay inah*, *al-bay a-dayn* and *tawarruq* which were not permissible in the Middle East but permitted by *Shari'ah* scholars in Malaysia for the purpose of enhancing the development of the Islamic banking sector in the country.

The analysis in this study concludes that there is a co-integration between the conventional banks and Islamic banks interbank money market rates and conventional banks saving rates with Islamic banks profit rates. Statistically, there is enough evidence that conventional interbank money market rates and Islamic interbank money market rates have long and short-run association because both conventional

banks and Islamic banks are operating in a dual banking system and subjected to the same monetary policy. The summary findings of the chapter 7 are in Table 7.19. The result indicates that model 2 is stable compared to model 1. However, p-value in equation (7.2) in model 1 is less than 0.05 per cent which indicate that there is long run relationship between the variables.

Table 7.19: Summary Findings of the Models in Chapter 7

Test Result	Model 1	Model 2
	Cov Banks' ONR and Islamic ONR Equation (7.2)	Cov Banks' Saving rates and Islamic Banks Profit Rates Equation (7.3)
Coefficient Value of C(1)	-0.0004	-0.0010
R <sup>2</sup> Value	10%	68%
Adjusted R <sup>2</sup>	10%	68%
Durbin Watson	2.08	2.05
Speed of adjustment	-0.18	-1.22
P-Value	<b>0.0000</b>	0.46
Indicator	Significant at 1 %	Not Significant
Residual Testing	No Unit Root in the Residual Residual is stationary	No Unit Root in the Residual Residual is stationary

An important part of the analysis of the finding is that Islamic banks are subject to interest rate risk under the conventional monetary policy and this is in line with the findings of Bacha (2004). This implies that if the conventional bank offers higher interest rates it could affect depositors' behaviour for Islamic banking patronising as well. Therefore, Islamic banks need to adjust their rates in the long-term. Lastly, the result also supports the findings of Haron (2000) that Islamic bank depositors are affected by the rates provided by conventional banks. The finding indicates that conventional banks saving rates and Islamic banks profit rates have short-run association and both rates move in tandem.

## CHAPTER 8

### EXAMINING THE IMPACT OF INTEREST RATE SPREAD ON THE ISLAMIC BANK SAVINGS AND INVESTMENT RETURN RATES IN MALAYSIA

#### 8.1 INTRODUCTION

There is a growing amount of literature on the development of Islamic finance and banking. Many scholars and modern *fuqaha* agree that there are differences between Islamic banks and conventional banks in terms of their financing modes, as well as the products and services they offer. The differences between the Islamic banks and conventional banks are that Islamic banks provide loan and finance based mainly on the principles of *muamalah* (business transaction) such as *murabahah* (cost plus profit or mark-up), *mudharabah* (as a capital provider), *musharakah* (profit and loss sharing investment) and *ijarah* (leasing). Despite their differences, the similarities are that both systems are based on a fractional reserve system and involved in credit creation. In addition, as discussed in the previous chapters, having Islamic banks operating within a dual banking system and within the existing conventional monetary environment, the convergence from Islamic banking to conventional banking is inevitable. Therefore, the result of monetary policy, including developments related to the interest rate, is expected to have a direct impact on Islamic banking and finance operations.

This paper, hence, aims to explore the impact of interest rate spread on Islamic banks in Malaysia. Since Islamic banks in Malaysia operate with conventional banks under the dual banking system, savings and investment return rates of the Islamic banks are based on the Islamic interbank money market rates (IIMMR), which is benchmarked against the Kuala Lumpur interbank offered rates (KLIBOR). Thus, developments in KLIBOR are expected to have a direct impact and effect on Islamic bank return rates. This study also aims to investigate the market and macroeconomic related factors that affect and determine the Islamic banks' savings and investment return rates spread in Malaysia. In rationalising this empirical paper, it should be noted that, as evidenced

from the survey of the empirical papers in a later section, there is no study available in the literature which investigates the impact of interest rate spread on Islamic banks' operations in general the case of Malaysia in particular. Since Islamic bank pricing is based on the interest rates, this study utilized savings account return rate and investment account return rate as the proxy to analyse its impact on the market and macroeconomic determinant variables.

The following section describes the conceptual definition of interest rate spread, reviews the development of Islamic banking in Malaysia under the interest rate based monetary policy in comparison with interest rates spread related trends in other countries. The methodology section covers models, methods and definition of the variables. After presenting the analysis and findings employing Vector Error Correction Model for meaningful results.

## 8.2 CONCEPTUAL DEFINITION OF INTEREST RATE SPREAD

Tight monetary policy with higher interest rates often results in a decrease in economic activity. Easing the monetary policy with lower interest rates may increase economic activity. Ploseer and Rowenhorst (1994) note that interest rate spread movement may reflect the real business cycle theory (Dotsey, 1998:31). Therefore, it is imperative to understand the conceptual definition of interest rate spread. The interest rate spread can be described using narrow and wide definition (Mlachila and Chilwa, 2002:12). The most common definition of interest rate spread, which is used by the World Bank, is the lending rate minus the deposit rate. However, there are other definitions known as narrow and wide definitions of the interest rate spread. The narrow definition includes:

- (i) Interest received only on loans minus the interest paid on deposits;
- (ii) Interest received on loans minus interest paid on deposits; and
- (iv) Interest plus commission received on a loan minus interest and commission paid on deposits

The wide definition includes the following:

- (i) Interest received minus interest paid/total assets;
- (ii) Interest received/all interest bearing assets minus interest paid/interest earning liabilities;
- (iii) Interest plus commission received/ all interest bearing assets minus interest plus commission paid/interest earning liabilities.

### 8.3 ISLAMIC BANKING IN MALAYSIA AND INTEREST RATE BASED MONETARY POLICY

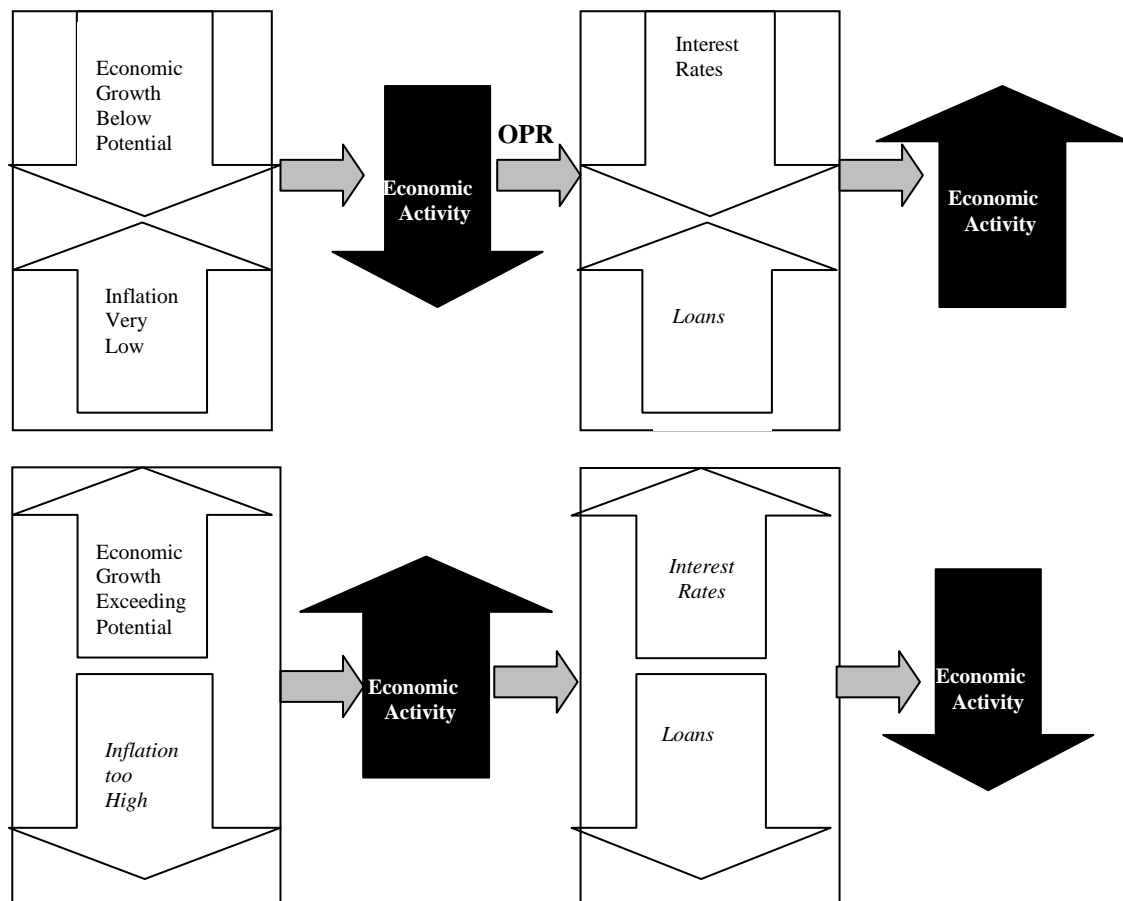
The majority of Islamic scholars agree that the bank interest rate is *riba*. The main reason for establishing Islamic banks is to abolish *riba* from the banking system. However, despite knowing that *riba* is *haram* and not permitted in Islam, the monetary policy of all Muslim countries, including Malaysia, is still based on interest. The interest rate in modern economies is one of the main instruments of monetary policy and it is utilized to influence the economic growth and economic activity.

Malaysia is one of the countries that practise a dual banking system, and 70 per cent of its market share is controlled by the conventional banks. Islamic banks do not provide loans and credit based on interest rate, but loans and financing by Islamic banks are legitimized by sales and purchase agreement leasing contract as well as leasing and buy back contract utilizing the *Shari'ah* compliance mode of financing (*al-bay bithaman ajil, ijarah and ijarah thumma al-bay, murabaha*).

As depicted in Figure 8.1 as a theoretical construct, when economic growth is below potential, and the inflation rate is low, the overnight policy rate (ONR) will be reduced by BNM. When the ONR is reduced, it will affect the interest rates of the banking system. In turn, the banking system may provide more loans with lower interest rates, which are expected to stimulate economic activity. However, providing more loans without a link to the real sector is meaningless and leads to higher inflation. If economic growth exceeds the expected level and inflation rate becomes too high, the Central Bank will then increase the ONR which will lead to an increase in saving. When interest rates are high, fewer loans will be disbursed because banks will be highly selective in approving loans due to the risk of default risk by customers,

even though fewer loans are expected to shrink the inflation and economic activity. The role of interest rates in Malaysian monetary policy is illustrated in Figure 8.1.

Figure 8.1: Malaysian Monetary Policy



OPR-Overnight Policy Rate  
Source: Hashim (2012: 6-7)

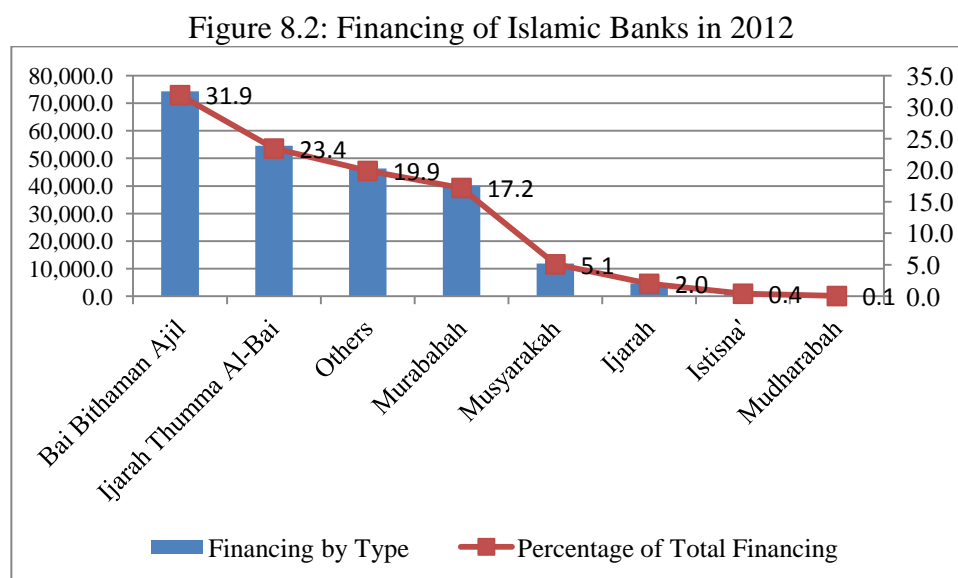
Considering that Islamic banks have to operate within a system determined by and based on interest, they cannot become *Islamic* by merely using an Islamic mode of financing. Rather, they need to be guided by a monetary policy whereby the interest rate is no longer the mechanism or instrument. There should be a separate monetary policy for the Islamic banks otherwise they are directly affected by the interest based monetary policy.

As they are operating and working within the existing conventional monetary environment, the structure of Islamic banks is similar to that of the conventional banks, which is based on a fractional reserve system; hence the Islamic banks are not necessarily an alternative to conventional banks. In other words, Islamic banks have

inherited the conventional banking system and their functions are similar to conventional banks as intermediaries by taking deposits and providing financing and loans to customers.

Within such an operating environment, the financing rates of Islamic banks are extremely dependent on the cost of funds. The major factor that affects the cost of fund includes ‘interest rate spread’ which in the case of Islamic banks it is known as the ‘profit rate spread’. This paper, hence, explores and examines whether there is a relationship between interest rate spread and Islamic banking outcomes as both banks work under the same system with the dominance of conventional banking and monetary policy.

Figure 8.2 shows the distribution of financing by Islamic banks in 2012. About 32 per cent of the Islamic banks financing was based on *al-bay bithaman ajil*, 23 per cent on *ijarah thumma al-bay* (leasing and buying back), 20 per cent on credit cards, staff financing, share margin financing and others, and 17.2 per cent was based on *murabaha*. *Musharakah*, *mudarabah* and *istisna* financing were less than 5 per cent.



Source: Compiled from the BNM, Monthly Statistical Bulletin, 2013

In comparison, as identified by Cevik and Charap (2011), by 2011, about 60 per cent of the financing were loans and debts, utilizing the Islamic finance principles. The *musharakah* financing was about 3.8 per cent in 2011. Islamic banks utilized debt-like instruments that were based on deferred payment sales with mark-up financing, where

there was a guaranteed profit margin. Furthermore, Islamic banks' mark-up profit was adjusted based on the conventional interest rate. As a result, the pricing of Islamic financing is not, in general, a function of real economic activity but based on a pre-determined interest rate plus a credit risk premium, which was similar to conventional bank loans (Cevik and Charap, 2011).

Islamic banks in Malaysia have been under the regulation and supervision of the BNM. The first one was established on 1st March 1983 and started operating on 1st July 1983 with an authorized capital of RM500 million and paid-up capital of RM79.9 million (Bank Islam Malaysia Berhad, 1984, p. 22). The facility and service provided then was current account deposit without distribution of profit known as *al-wadiah* account (safe custodianship).

For savings accounts, under *al-wadiah* principles, the distribution of profit is at the discretion of the bank. It is also known as *hibah* (gift) or a token of appreciation to the depositors for depositing their money with Islamic banks. For current accounts, Islamic banks cannot provide profit because the money is not used for investment purposes. In Islam, money cannot create money unless it is used as a medium of exchange, which involves buying and selling of assets, products and services or for the purpose of investment.

In terms of the investment deposit account, for the duration of one month to five years and above, it is based on the *al-murabahah* (trust financing) principle, and banks are obligated to distribute profit to the depositors. Financing and investments are based on *al-murabahah* (trust financing), *al-musharakah* (joint-venture), *al-bay bithaman ajil* (deferred payment sale) and *al-ijarah* (leasing). *Al-bay bithaman ajil* is among the most widespread mode of financing utilized by the Islamic banks in Malaysia. In 2010, 33.1 per cent of the financing was based on *al-bai bithaman ajil* (deferred payment sale), 14.4 per cent were *al-murabaha* (mark-up cost plus profit) and other financing which included credit cards, staff financing, and share margin financing was 19.6 per cent.

From 1984 to 1993, Bank Islam Malaysia Berhad dominated the market share of the Islamic banking industry as a single Islamic bank. In 1994, the Government decided to allow competition in the market by issuing new licenses to the conventional commercial banks to offer Islamic bank products and services under the concept of

Islamic banking scheme (IBS) known as ‘Skim Perbankan Islam’. In 1999, the second full-fledged Islamic bank was established known as Bank *Muamalat* Malaysia. From 2002 to 2009, to enhance competition in the industry, more licenses were issued allowing conventional banks to offer Islamic banking product and services through their branches or subsidiaries. As of December 2012, there have been 16 Islamic banks in Malaysia, as depicted in Table 8.1.

Table 8.1: No. of Islamic Banks in Malaysia as of 2012

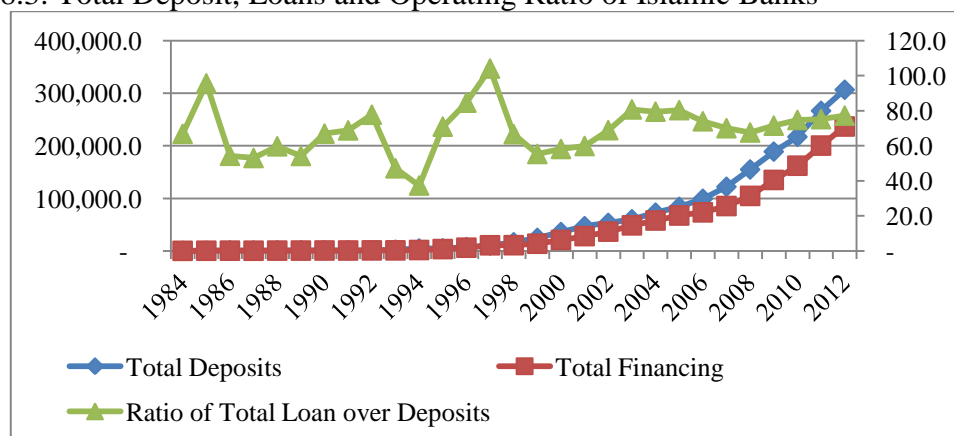
CATEGORIES	NO.
Total Local Islamic Banks	9
Full-fledged Local Islamic Bank	2
Subsidiary or Branch of Local Conventional banks	7
Total Foreign Islamic Banks	7
Subsidiary or Branch of Foreign Conventional Banks	3
Full-fledged Foreign Islamic Banks in Malaysia	4
Total Numbers of Islamic Banks	16

*Source:* Compiled from the BNM, Monthly Statistical Bulletin (2013)

In 2004, to facilitate Islamic banks borrowing without involving interest rates payment, the Islamic Interbank Money Market (IIMM) was established by the government. The objectives were to allow banks that had a surplus to channel funds into banks which had a deficit, to serve as a channel of transmission of the monetary policy, and to maintain liquidity and stability of funding in the banking system.

Since 1984, the loans provided by the Islamic banks have been increasing. Figure 8.3 shows the total loans and total deposits and ratio of total loans over total deposits of Islamic banks from 1984 to 2012. Overall, the ratio of total loan is below 80 per cent of the total deposits.

Figure 8.3: Total Deposit, Loans and Operating Ratio of Islamic Banks



*Source:* Compiled from the BNM, Monthly Statistical Bulletin (2013)

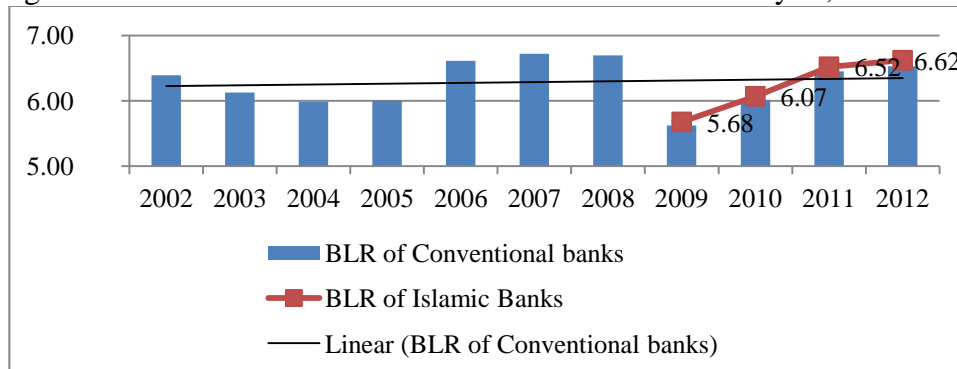
The conventional and Islamic bank savings return rates and investment account return rates depend on the base lending rate (BLR). Prior to 1983, the interest rates were based on the rates of two leading banks. BLR was introduced in 1983, where banks were allowed to set their own BLR. The computation of BLR is based on the formula below:

$$BLR = \frac{(IR * 80\text{per cent})}{1 - SSR} + 2.25\text{per cent}$$

Note that IR is the ‘intervention rate’, and SRR is the ‘statutory reserve requirement’ set by the Bank Negara Malaysia (BNM). In 1987, no bank was allowed to set its BLR percentage higher than the two leading banks’ BLR. From 1991 onwards, the computation of BLR was tied to the cost of funds of the banks. In 1995, BLR computation was directly linked to the daily average three month interbank rates (Abdul Majid, 2010: 4). Prior to 1 September 1998, BLR was calculated using the average of KLIBOR rate in lieu of the intervention rate, and administrative charges were 2.5 per cent instead of 2.25 per cent. In 1998, due to slow transmission process, the three month interbank rate was replaced with a three month intervention rate (Domac, 1999: 11).

In April 2004, the three month intervention rates were replaced with ONR. The main feature of ONR is an indicator of the monetary policy stance and the target rate of the day-to-day liquidity operation of BNM. Changes in monetary policy would be signalled through ONR, which would serve as the primary reference for other markets. To minimize the volatility of the ONR, BNM had set 25 basis points as the upper and lower limits to facilitate the lending activity (BNM; 2004). Starting from 2009, the Islamic banks set their own BLR. Figure 8.4 shows that the Islamic banks’ BLR set was similar to the conventional BLR. However, from 2011 to 2012 the BLR of Islamic banks was slightly higher than that of conventional banks.

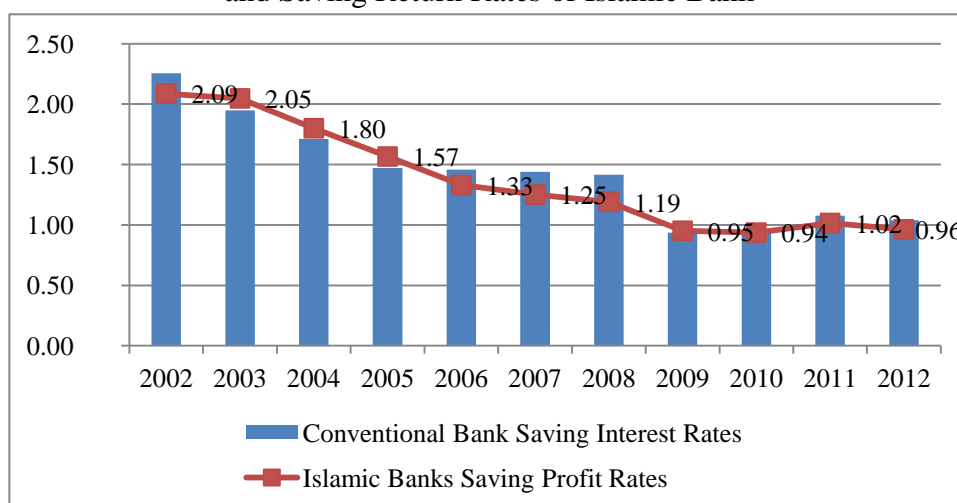
Figure 8.4: BLR of Conventional and Islamic Banks in Malaysia, 2002-2012



Source: Compiled from the BNM, Monthly Statistical Bulletin (2013)

Figure 8.5 shows trends in the savings interest rates of conventional banks and savings return rates of Islamic banks from 2002 to 2011. The average interest rates of conventional banks and savings return rates of Islamic banks were below 2.5 per cent. From 2005 to 2011, the average rates were below 1.5 per cent for both banks.

Figure 8.5: Saving Interest Rates of the Conventional Banks and Saving Return Rates of Islamic Bank



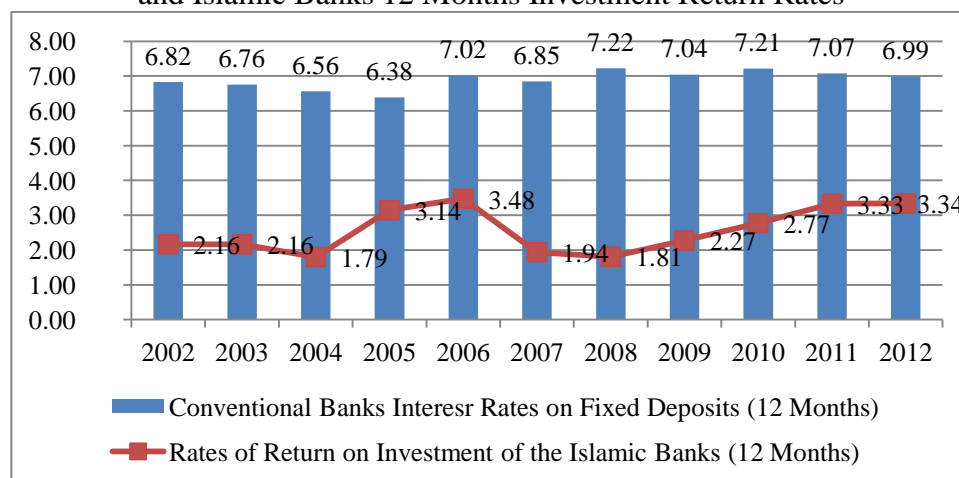
Source: Compiled from the BNM, Monthly Statistical Bulletin, 2013

Figure 8.5 also indicates that the Islamic bank savings return rates were slightly higher than conventional interest rates from 2003 to 2005. Conversely from 2006 to 2008, Islamic banks offered lower savings return rates. In addition, as the trend shows, in the period from 2009 to 2012 the Islamic banks adjusted their savings return rates close to conventional bank interest rates.

As the trends shown in Figure 8.5 indicate, the savings return rates of Islamic banks were sometimes slightly lower or higher than those of conventional banks, but generally the Islamic savings return rates were close to the interest rates offered by the conventional banks during the period in question. The findings of Kaleem and Md Isa (2003:7) confirm that Islamic banks consider interest rates before adjusting their savings return rates. In addition, Haron and Ahmad (2000: 5) found that customers who place their deposits either in conventional or Islamic banks in Malaysia are profit motivated where there is a negative relationship between conventional banks' interest rates and the amount deposited in Islamic banks.

Figure 8.6 shows the rate of return for investment accounts for conventional and Islamic banks. The rate offered by the conventional banks was almost double that offered by the Islamic banks. On average, the fixed deposits' interest rate of the conventional banks was higher than the Islamic banks. This indicates that the conventional bank interest rates were more attractive than the Islamic banks' investment return rates.

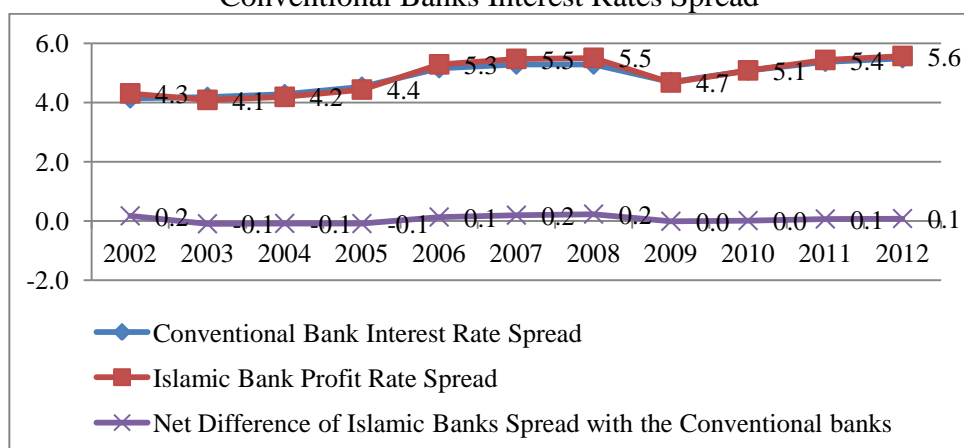
Figure 8.6: Commercial Banks 12 Months Fixed Deposit Interest Rates and Islamic Banks 12 Months Investment Return Rates



Source: Compiled from the BNM, Monthly Statistical Bulletin (2013)

Figure 8.7 depicts the Islamic banks' savings return rates spread and conventional banks' interest rates spread from 2002 to 2012. As the trend shows, Islamic banks relatively determined the same amount of net margin spread as the conventional banks. There is not much difference between the Islamic banks' savings return rates and the conventional banks' interest rates. Figure 8.7 also shows the net difference of the Islamic banks spread with the conventional banks from 2002 to 2012.

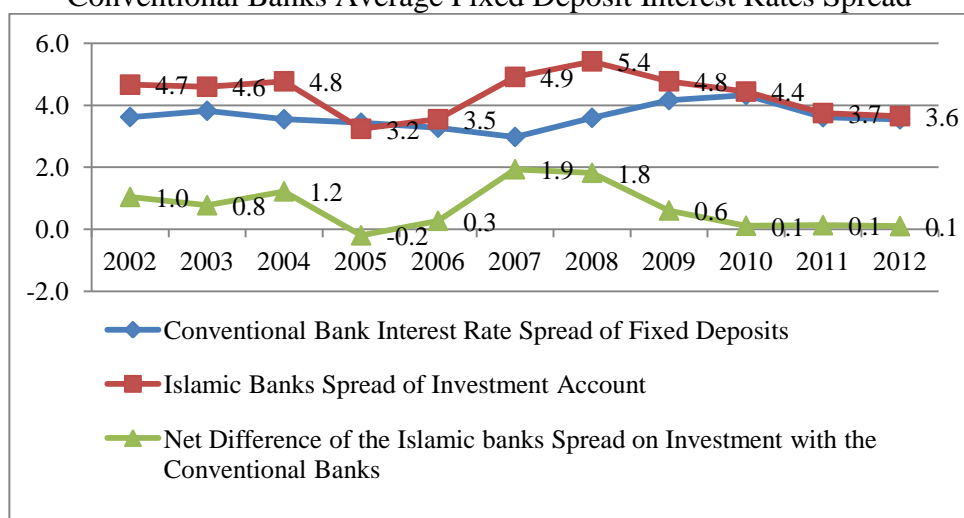
Figure 8.7: Islamic Banks Saving Return Rates Spread and Conventional Banks Interest Rates Spread



Source: Compiled from the BNM, Monthly Statistical Bulletin (2013)

Figure 8.8 shows conventional banks' average fixed deposit interest rates spread Islamic banks average investment return rates spread from year 2002 to 2012.

Figure 8.8: The Islamic Banks Average Investment Return Rates Spread and Conventional Banks Average Fixed Deposit Interest Rates Spread



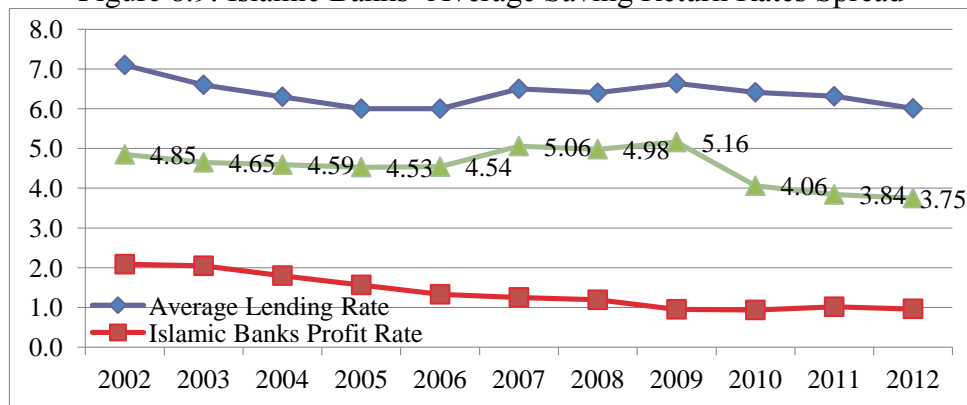
Source: Compiled from the BNM, Monthly Statistical Bulletin (2013)

The net difference of Islamic banks spread was more volatile and did not have similar patterns to savings accounts. However, the net spread of the Islamic banks was higher than that of the saving account.

Figure 8.9 shows the average lending rates, savings return rates and net saving return rates spread of the Islamic banks from 2002 to 2012, which also highlights that the average lending rate of Islamic banks was higher than the savings return rates. The data indicate that Islamic banks provided lending at higher rates and gave a smaller

amount of the saving deposits profit. The net profit rate spread range was between 3 per cent and 5 per cent from 2002 to 2012.

Figure 8.9: Islamic Banks' Average Saving Return Rates Spread

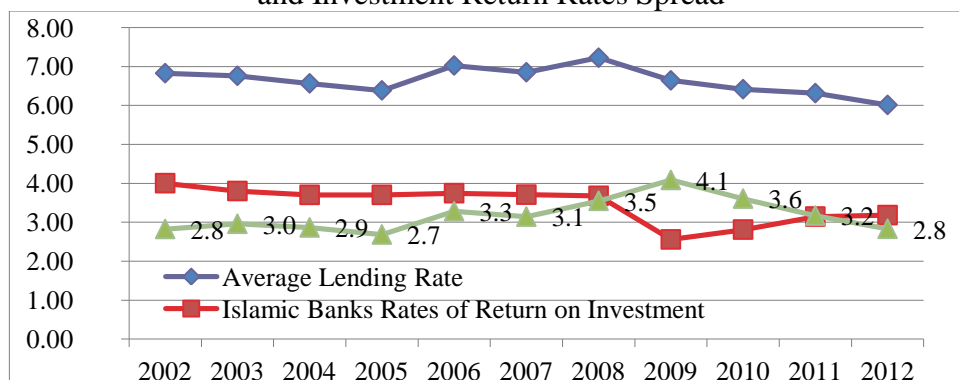


Source: Compiled from the BNM, Monthly Statistical Bulletin (2013)

Figure 8.10 shows the average investment return rates of the Islamic banks from 2002 to 2012. The net spread of investment return rate ranged from 2.5 per cent to 4.1 per cent. The average rate of return on investment accounts was below 4 per cent. Hence, the rate of return on investment was lower than the savings return rates of the saving accounts of Islamic banks as depicted in Figure 8.10. There was no particular financial attraction for investors to invest in the Islamic banks because the rate of return was very low. Therefore, the sustained patronage can only be explained by religious reasons.

Figure 8.10 also indicates that the Islamic banks were inefficient in managing investment deposits compared to deposits received for savings accounts. The investors received a lower return when investing in Islamic banks compared to conventional banks, because investment return rates of the Islamic banks was lower than the savings return rates.

Figure 8.10: Islamic banks Average Lending and Investment Return Rates Spread



Source: Compiled from the BNM, Monthly Statistical Bulletin (2013)

In summary, the data reveal that Islamic banks in Malaysia gained higher savings return rates spread than conventional banks. However, the investment return rates offered by Islamic banks were benchmarked against the fixed deposit rates of the conventional banks. Further empirical analysis is presented in the following section to examine the impact of interest rates spread on the Islamic banks in Malaysia. In comparison to the conventional banks, Islamic banks which charged higher return rates of financing and loans became uncompetitive in the market in the period covered. From a customer's point of view, Islamic banks were often perceived as more expensive than conventional banks. From the market perspective, higher interest rates' spread was seen as an indicator of the Islamic banks inefficiency. From the macroeconomic perspective, it reflected the monetary policy stance set by the Central Bank, which affected the pricing of Islamic banks.

#### 8.4 EMPIRICAL STUDIES IN INTEREST RATE SPREAD: A LITERATURE SURVEY

While the existing empirical literature on interest rate spread indicates mixed findings, a study on the interest rate spread is crucial, because it reflects the monetary policy stance of the country and contains useful information about its financial development. According to Bernanke (1990: 66), interest rate spread is immensely informative because it not only contains information about default risk but it is also a measure of monetary policy.

There are many factors that determine the interest rate spread of banks. A study by Demirguc-Kunt and Huizinga (1999), which employed bank level data for 80 countries from 1988 to 1995, suggests that differences in banks' profitability and interest margins were determined by many factors including bank characteristics, macroeconomic environment, taxation system, deposit insurance regulation, financial structure and institutional indicators. Their findings also show that in developing countries foreign banks had higher margins and profit compared to the local banks.

They also found that interest rate spread became higher in the small market where banks passed the burden of corporate tax to their clients. Their results indicated that bank characteristics might be influenced by the number of players in the industry,

percentage of market share of the participants, ownership structure and control, and the regulatory framework.

There is no doubt that the macroeconomic environment may influence the performance of the banking industry. For example, when the macroeconomic environment is not stable, and the economic growth is exceptionally low or negative, it may affect the return on investment and banks may charge high lending rates due to uncertainty and high risk of default in payment by the borrowers. It may also affect the level of non-performing loans of the banks and reduce their margins and profitability.

In searching for the determinants of interest spread, taxation system can also be considered, as it can widen the interest spread by increasing withholding taxes, stamp duties, transaction taxes, value added taxes, profit taxes, license fees and statutory reserve requirement. Studies by Barajas *et al.* (1996) and Demirguc-Kunt and Huizinga (1997) found a positive relationship between high interest rate spread and high levels of taxation on intermediation.

A study by Friedman and Kutner (1992:472) in the case of the USA found that spread between the Treasury bill rate and commercial paper rates contains highly significant information about the movement of real income in the future. An increase in the interest rate spread may discourage savings and investment, and it may also affect the depositor or the borrower or both (Khawaja and Ud-Din, 2007).

Ho and Saunders (1981: 594) show that interest rates spread is higher for smaller banks and lower for larger banks in the case of the USA. This is because larger banks are more competitive nationally and globally compared to smaller banks which operate in an uncompetitive environment.

In the case of OECD countries, Browne and Tease (1992: 5) found that interest rate spread is one of the best predictors of output compared to other financial variables. Studies have shown that a higher interest rate spread is caused by banks' characteristic of maximizing savings return rates in a certain market. In addition, research by Saunders and Schumacher (2000: 16-17), in the case of seven OECD countries, namely France, Germany, Italy, Spain, Switzerland, the UK and the US, for the period of 1988 to 1995, found that a bank's net interest margin (NIM) was

affected by regulatory taxes, reserve requirements, cost of bank equity, market structure and interest rates volatility.

The NIM might be lowered to allow competitive interest rates by banks; the amount of reserve requirements could affect the NIM paid by them. If a bank's capital ratio was high, it might impose a higher burden on banks, and it would be reflected by the NIM amount the banks paid. It should also be noted that interest rate volatility at the macro level may affect the NIM of banks. In relation to this, Saunders and Schumacher (2000: 16-17) also found that an increase of 1 per cent in the macro level interest rates causes an increase of 2 per cent in the NIM of the banks. This indicates that macroeconomic factors influence the interest rate policy and the monetary policy has the positive effect on the NIM of banks.

Randall (1998: 36), in the case of Eastern Caribbean Countries, using a behavioural model, found that 53 per cent of the spread was due to the operational cost. While the reserve requirement accounted for only about 6 per cent of the interest rate spread, the remaining 41 per cent were influenced by the return on equity.

There are two factors that contribute to the bank interest rates spread namely, market related factors and macroeconomic determinants. The market specific variables are market share, operating costs, capital to asset ratio and loan to asset ratio (Abreau, 2001: 3). For example, Afanasieff *et al.* (2002: 26) use panel data from 142 banks in Brazil for the period of February 1997 to November 2000; they found that macroeconomic variables were more prominent than market factors in describing the behaviour of the bank interest rates spread. However, they noted other unidentified factors which account for the higher spread trend in the country.

In relation to macroeconomic variables, studies by Mlachilla and Chilwa (2002) as well as Brock and Franken (2003), in the case of Malawi and Chile respectively, suggest that the macroeconomic variables that affected the interest rates spread included inflation, money market rates, real interest rates and the GDP growth. In the case of Ukrainian banks, it was found that the macroeconomic factors that affected the banks' net margin comprised inflation, GDP growth and real interest rate. In most cases, when spread is utilized as a proxy for macroeconomic forecasting, the result is expected to be positive (Mariscal and Howells, 2002: 577).

In case of Malaysia, Ghazali and Ali (2002) used the Granger causality test to explore the impact of open market interest rates on commercial bank interest rates spread. The result of the study indicates that changes in the open market rates affected changes in the interest rate spread and deposit rates of the commercial banks in Malaysia.

However, so far there is no agreed model for analysing the consequences of the macroeconomic impact of the interest rate spread (Brock and Franken, 2003:9). Studies in the Columbia, and by Jayaraman and Sharma (2003: 80), in the case of Fiji, suggest that wide interest rates spread might adversely affect the economic growth and reduce the private investment.

Other studies, such as Doliente (2003: 15), in the case of Southeast Asia banking system including Indonesia, Malaysia, Philippines and Thailand found that bank specific factors that determined the interest rate spread were mainly financial factors such as collateral, liquid assets, loan quality, operating expenses and capital.

A study by Soulgoub, on the 30 largest banks in Ukraine, employing data from 2000 to 2005 indicates that macroeconomic factors like higher inflation rate affected the interest rate margin, which implies that bank profits would be higher when the real interest rates increased. While the bank or financial variables such loan quality, liquidity risk, the significance of off-balance sheet activities, share of earnings of total assets were included in the analysis, the effect of these variables on the bank profit margin was relatively small. Undoubtedly, banks preferred higher interest rates because they gave them higher profits (Soulgoub, 2006: 2).

Grenade (2007), investigated the main factors influencing interest rates spread in the Eastern Caribbean Currency Union from 1993 to 2003. The determinants of the interest rates spread were divided into four categories namely, regulatory, bank specifics, market power variables and rate of growth of GDP as a proxy of economic activity Grenade (2007: 24-25). Regulatory variables referred to savings deposits and reserve requirements, while bank variables included operating cost and provision of loan losses. The market power variables were the level of interbank competition and rate of GDP growth as a proxy of economic growth. The result shows that interest rates spread impacted by the high level of market concentration, regulated savings deposit rates, and high operating costs of non-performing bank loans.

Crowley (2007) studied the case of English-speaking African countries, and found that higher interest rate spread was associated with lower inflation, large number of banks, greater public ownership of banks, poor corporate governance, weak regulatory framework, property rights, and higher reserve requirement.

Fulawewo and Tennant (2008) examined the determinants of spread between banks' lending return rates and deposit return rates from 1988 to 2005 for 33 Sub-Saharan African countries. They found that other macroeconomic variables such as discount rates, Treasury bill rates and government domestic borrowing could influence the interest rates spread.

Norris and Floerkemeier (2007) employed panel data set to examine the interest rate spread and net interest margin in Armenia from 2002 to 2006. The test result highlights that bank-specific characteristics and market structure played a pivotal role in the variation of interest rates spread and margins. The factors that affected interest rates spread included bank size, return on an asset, liquidity and overall market concentration measured market in deposits.

Beck and Hesse (2009) analysed the high interest rates spread and margins in Uganda using data from 1999 to 2005. The study explored four different approaches in explaining spread and margin, namely market structure, macroeconomic risk and the nature and the size of the financial system. The variables used to analyse the high spread were bank size, exchange rate depreciation, real Treasury bill rate, liquidity ratio, market concentration, inflation, GDP growth, institutional development, and overhead costs. The findings of the study suggest that risk factor was the main determinant of high spread and margins contributed by higher Treasury bill rates, institutional deficiencies and differences in the composition of the loan portfolio.

Maudos and Solis (2009) examined the determinants of net interest income of the Mexican banking system and found that there were various factors that contributed to its higher interest rate spread. The factors included operating cost, interest rate volatility, market risk, inflation rate, quality of management, non-interest income, credit risk, transaction cost and the GDP growth. The study also suggests that the most significant factors determining the interest rate spread in the case of Mexico were the average operating cost and the market power of the banks.

Afzal and Mirza (2010) used data from 2004 to 2009 to conduct research on the Pakistani commercial banking sector by including macroeconomic and firm level variables. They found strong evidence that bank size was the main determinant of interest rate spread. Similarly, there were other influential factors that determined the interest rates spread such as operational efficiency, asset quality, liquidity, risk absorption capacity and the GDP growth. However, no evidence was found that the interest rate volatility (volatility in Treasury bill yield) and financial development indicator (M2 divided by the GDP) affected the interest rates spread in Pakistan.

Akinlo and Babatunde (2012) conducted a research on interest rates spread in Nigeria utilizing data from 1986 to 2007. The bank variables employed in the research included cash reserve ratio, the ratio of average capital to average total assets, ratio of loans to total deposit, the ratio of average loans to average total assets, the ratio of non-interest expenses to average total assets. Other ratios included ratio of remuneration to total assets, minimum rediscount rate, gross domestic product development stocks, treasury certificates, treasury bills and changes in inflation. The findings show that the cash reserve ratio, loans to total deposits and remuneration to total assets are positively correlated with the interest rates spread (Akinlo and Babatunde, 2012).

In summary, as stated by Shahzad and Lodhi (2012), empirical studies in this area remains inconclusive, because different researchers found different results or determinants for the interest rate spread. Based on the previous findings of various empirical studies, there were essentially three factors that determined the interest rate spread: banks specific, market specific and macroeconomic variables. However, the results might vary from one region and country to another due to the different size of banks, market share, market structure and macroeconomic environment.

## 8.5 EMPIRICAL MODEL, METHODOLOGY AND DATA

As an empirical paper, this section presents the model selection for the conduct of empirical analysis in this study as well as the empirical methodology pursued to fulfil the research aim. Definition of variables and the sources of data are also presented in this section.

### 8.5.1 Empirical Model

The model was constructed based paper by Shahzad; Lodhi, and Athar (2012) which was published in “Actual Problem of Economics”. The basic spread model in the functional form is as below:

$$SP_t = f(X_t + Y_t + Z + \varepsilon_t) \quad (8.1)$$

where  $SP$  the interest rate spread of the bank,  $X_t$  is a vector of bank specific variables.  $Y_t$  is the banking industry variables and  $Z_t$  is the macroeconomic variables and  $\varepsilon_t$  is the error term while  $t$  refers to the time. This model falls under the narrow definition of spread where interest rates received on loans is subtracted from the interest paid on deposits. Since this study is on Islamic banks, a slight modification was made, with the interest rate spread replaced with Islamic bank return rates spread of saving and investment.

The definition of savings and investment spread of Islamic banks is as in equations (8.2) and (8.3). Two models were employed to analyse the spread of Islamic banks. The first model included the market related variables as in equations 8.3 and 8.4, and the second model was developed with macroeconomic variables as in equation 8.5 and 8.6.

#### *Saving Return Rates Spread*

$$ISPRS_t = APR_t - ADR_t \quad (8.2)$$

where:

$ISPRS_t$  : Islamic Banks Saving Return Rates Spread  
 $APR_t$  : Average Saving Return Rates (Yearly Rates)  
 $ADR_t$  : Average Deposit Return Rates (Yearly Rates)  
 $t$  : Time (Yearly Data)

#### Model 1-Market Determinant Variables

$$ISPRS_t = f(BDEV_t + RSDP_t + RGDP\_PC_t + \varepsilon_t) \quad (8.3)$$

where:

$BDEV_t$  : Total Islamic Banks Assets Divided by Total GDP  
 $RSDP_t$  : Reserve Requirement Ratio to Total Deposits  
 $RGDP\_PC$  : Real GDP Per Capita  
 $T$  : Time (Yearly Data)

## Model 2-Macroeconomic Variables

$$ISPRS_t = f(GDP_t + INFL_t + RIR_t + T\_BILL_t + \varepsilon_t) \quad (8.4)$$

where:

$GDP_t$  : Growth Domestic Products  
 $INF_t$  : Inflation Rates  
 $RIR_t$  : Real Saving Return Rates  
 $T\_BILL_t$  : Treasury Bill Rates for 12 months  
 $t$  : Time (Yearly Data)

### 8.5.2 Method

This study investigates the relationship of profit rate spread (PRS) of Islamic banks with market related variables such as the reserve ratio of deposits. The bank development variable is measured by total assets of Islamic banks divided by the current GDP. The macroeconomic variables in the model are GPD, inflation, interbank money market rates, exchange rates, and Treasury bill rates.

The data analysis method includes a unit root test. As part of the time-series analysis, a unit root test was conducted, based on Augmented Dickey Fuller, Phillip Perron, Im, Pesaran and Shin W statistic tests. In this test,  $X_t$  is stationary if  $\beta$  equal to 0 and  $X_t$  is non-stationary if  $\beta$  is equal to 1. The auto regression model of the unit root test utilised in the estimation is as below (Ngugi, 2001:30).

$$X_t = \alpha_0 + \alpha_1 t + \beta X_{t-1} + \Sigma \gamma_t + X_t + \mu 1_t \quad (8.5)$$

The data for interest rate spread of the conventional and Islamic banks have relatively similar values, and to avoid spurious regression or auto correlation between variables, all data were transformed to logarithm (*log*) with first order difference. The data for analysis included the yearly records of Islamic and conventional banks from 1984 to 2010.

### 8.5.3 Defining the Variables

In the model, there is one dependent variables: IPRS and additional independent variables. The summary of the variables, source of data and expected results are depicted in Table 8.2.

Table 8.2: Summary Definition of Variables and Sources of Data

Variables	Definition of Variables	Sources of Data	Expected Sign
<i>Bank Specific Variables</i>			
<i>ISPRS</i>	Average savings return rates of lending minus average saving return rates of the Islamic banks	BNM Monthly Statistical Bulletin (MSB)	+
<i>Market Variables</i>			
<i>BDEV</i>	Total asset of Islamic banks divided by total current GDP of the year	BNM-MSB	+
<i>RSDP</i>	Reserve requirement percentage divided by total deposit of the Islamic banks	BNM-MSB	+
<i>RGDP_PC</i>	Real GDP <i>per capita</i> is GDP constant divided by inflation. Real GDP is further divided by a number of populations to get real GDP <i>per capita</i>	BNM-MSB	+/-
<i>Macroeconomic Variables</i>			
<i>GDP</i>	Growth of GDP (at constant price)	BNM	+/-
<i>INF</i>	Inflation rate (consumer index price)	BNM	+
<i>RIR</i>	Real saving returns rates are inflation minus nominal saving return rates	BNM	+
<i>T-bill</i>	Treasury bill rates for 12 months	BNM	+

## 8.6 ANALYSIS AND FINDINGS

The analysis was conducted by utilizing descriptive statistics, unit root test, Johansen Cointegration Test, Vector Error Correction Model Test and Ordinary Least Square estimations within the framework of two steps of Engle-Granger test.

### 8.6.1 Descriptive Statistics

Table 8.3 depicts descriptive statistics of the Islamic and conventional banks' spread of savings and investment.

Table 8.3: Descriptive Statistics of the Dependent Variables

Descriptive Statistics	Variables			
	ISPRS	ISIVRS	COVIRSI	COVIRSS
Mean	5.552715	3.846728	3.226667	5.385185
Median	5.415833	3.623333	2.860000	5.400000
Maximum	7.869163	6.623333	6.050000	7.900000
Minimum	4.083333	1.876667	2.160000	4.100000
Standard Deviation	1.081140	1.049072	0.930430	0.908381

Descriptive Statistics	Variables			
	ISPRS	ISIVRS	COVIRSI	COVIRSS
Skewness	0.531921	0.554262	1.329169	0.668662
Kurtosis	2.388710	3.442934	4.343591	3.332076
Jarque-Bera	1.693616	1.603145	9.981003	2.136046
Probability	0.428781	0.448623	0.006802	0.343687

As can be seen in Table 8.3, the *mean* of the Islamic banks' spread of saving and investment is higher than that of conventional banks. Between the Islamic savings return rates and investment returns rates, the *mean* of the former is higher than the latter. This suggests that Islamic banks are charging higher lending rates for loans compared to financing of investment.

Table 8.3 shows that the standard deviation of the Islamic spread is almost the same as the standard deviation of the conventional banks. This means that spread of Islamic banks and conventional banks is close to each other. It should be noted that a higher interest rates spread is frequently perceived as an indicator of banks' inefficiency.

A study by Afzal and Mirza (2010: vi) in the case of the Pakistani commercial banking sector highlighted the factors contributing to intermediary inefficiency which include bank size, operational efficiency, asset quality, liquidity risk absorption capacity and GDP growth rate. However, there are many additional factors that also contribute to the inefficiency of banks such as market share, number of branches, market strategy, technology, human resource skills and others. Based on the descriptive data in Table 7.3, it is obvious that Islamic banks' spread is higher than that of conventional banks. This implies that the cost of funding of Islamic banks is higher than that of conventional banks.

#### 8.6.2 Unit Root Test

The Unit Root test was conducted at level, first and second difference at individual intercept, trend and intercept and without intercept using Augmented Dickey Fuller and Phillip test methods. Table 8.4 depicts that the probability value is not significant at level for most of the variables. There are also some variables such as COVIRSS, RSDP and GDP where the p-value is not significant at 1<sup>st</sup> difference but significant at 2<sup>nd</sup> difference. This indicates that data is stationary at 1st difference except for COVIRR, RSDP and GDP but all variables are stationary at 2<sup>nd</sup> difference. The

analysis of data would be by transforming data into logarithm or using or with 2 lags difference.

Table 8.4: Unit Root Test for All Variables

Variables		Augmented Dickey Fuller (ADF)			Phillip Perron (PP)		
		Level	First Difference	Second Difference	Level	First Difference	Second Difference
ISPRS	Intercept	-1.883521 (0.3344)	-5.053221 <b>(0.0004)</b>	-7.837729 <b>(0.0000)</b>	-1.916552 (0.3199)	-5.054046 <b>(0.0004)</b>	-12.91059 <b>(0.0000)</b>
	Intercept and trend	-2.87841 (0.1863)	-4.946858 <b>(0.0028)</b>	-7.657014 <b>(0.0000)</b>	-2.87841 (0.1863)	-4.9508714 <b>(0.0028)</b>	-1245748 <b>(0.0000)</b>
	None	-1.104419 0.2372	-5.00405 <b>(0.0000)</b>	-8.010278 <b>(0.0000)</b>	-1.137838 0.2254	-5.004930 <b>(0.0000)</b>	-13.34396 <b>(0.0000)</b>
BDEV	Intercept	-2.274562 (0.1871)	-5.20820 <b>(0.0003)</b>	-6.394931 <b>(0.0000)</b>	-2.282599 (0.1846)	-6.445532 <b>(0.0000)</b>	-13.87369 <b>(0.0000)</b>
	Intercept and trend	-3183136 0.1096	-5038946 <b>(0.0025)</b>	-6.225870 <b>(0.0002)</b>	-.3112026 (0.1244)	-6.281125 <b>(0.0001)</b>	-15.54439 <b>(0.0000)</b>
	None	-1.565008 (0.1087)	<b>-5.285740</b> <b>(0.0000)</b>	<b>-6.557213</b> <b>(0.0000)</b>	1.399264 (0.1466)	<b>6.466359</b> <b>(0.0000)</b>	<b>-13.89088</b> <b>(0.0000)</b>
RSDP	Intercept	8.650091 <b>(0.0000)</b>	-0.783300 (0.7981)	-9.167565 <b>(0.0000)</b>	-6.041868 <b>(0.0000)</b>	-.9.088956 <b>(0.0000)</b>	5.858026 <b>(0.0001)</b>
	Intercept and trend	-1.809340 (0.6619)	-1.767249 (0.6800)	-8.378795 (0.0000)	-7.461751 (0.0000)	-7.859797 <b>(0.0000)</b>	-4.823629 <b>(0.0039)</b>
	None	-1.028386 <b>(0.0000)</b>	-1.575051 (0.1061)	-8.981709 <b>(0.0000)</b>	5.928108 <b>(0.0000)</b>	-9.5696893 <b>(0.0000)</b>	-6.514187 <b>(0.0000)</b>
RGDPPC	Intercept	-0.675863 (0.8353)	-9.728861 <b>(0.0000)</b>	-13.45520 <b>(0.0000)</b>	-3.760286 <b>(0.0089)</b>	-9.728861 <b>(0.0000)</b>	-20.74401 <b>(0.0001)</b>
	Intercept and trend	-4.860510 <b>(0.0032)</b>	-9.707802 <b>(0.0000)</b>	13.26184 <b>(0.0000)</b>	-4.860678 <b>(0.0032)</b>	-9.707802 <b>(0.0000)</b>	-26.12855 <b>(0.0000)</b>
	None	-5.228566 (0.8231)	-9.631932 <b>(0.0000)</b>	13.82300 <b>(0.0000)</b>	-2.063640 <b>(0.0396)</b>	-9.566520 <b>(0.0000)</b>	-20.40531 <b>(0.0001)</b>
GDP	Intercept	1.322551 (0.9980)	-4.202807 <b>(0.0024)</b>	-5.372265 <b>(0.0003)</b>	-1.790996 (0.9995)	-4.910891 <b>(0.0006)</b>	-11.78654 <b>(0.0000)</b>
	Intercept and trend	-3.49721 <b>(0.0247)</b>	-4.596436 <b>(0.0065)</b>	-5.753894 <b>(0.0006)</b>	-9.800492 <b>(0.0000)</b>	-5.500937 <b>(0.0008)</b>	-15.58471 <b>(0.0000)</b>
	None	-6.359163 (1.0000)	-0.040971 (0.6852)	-5.400545 <b>(0.0000)</b>	-6.359163 (1.0000)	-1.661175 <b>(0.0000)</b>	-11.04492 <b>(0.0000)</b>
INF	Intercept	-3.563862 (0.0140)	-7.555362 (0.0000)	-5.537761 (0.0002)	--3.63543 (0.0119)	-7.555362 (0.0000)	-16.75661 (0.0001)
	Intercept and trend	-3.490590 (0.0614)	-7.406110 <b>(0.0000)</b>	5.637969 <b>(0.0007)</b>	-3.56200 <b>(0.0531)</b>	-7.406110 <b>(0.0000)</b>	-19.26088 <b>(0.0000)</b>
	None	-1.35054 (0.2261)	-7.704890 <b>(0.0000)</b>	-5.691849 <b>(0.0000)</b>	-1.605535 (0.1007)	-7.704890 <b>(0.0000)</b>	-17.19936 <b>(0.0001)</b>
T_BILL	Intercept	-1.570186 (0.4831)	-4.554870 <b>(0.0014)</b>	-7.150553 <b>(0.0000)</b>	-1570186 (0.4831)	-4.541078 <b>(0.0015)</b>	-11.31090 <b>(0.0000)</b>
	Intercept and trend	-2.119597 (0.5116)	-4.4727331 <b>(0.0081)</b>	-4079586 <b>(0.0226)</b>	-2.119597 (0.5116)	-4.374307 <b>(0.0084)</b>	-10.89106 <b>(0.0000)</b>
	None	-0.962669 (0.2912)	-4.622925 <b>(0.0001)</b>	-4.622925 <b>(0.0000)</b>	-0.968552 (0.2888)	-4.611953 <b>(0.0001)</b>	-1169587 <b>(0.0000)</b>
RIR	Intercept	-1.910582 (0.3223)	-8.948199 <b>(0.0000)</b>	-17.78401 <b>(0.0001)</b>	-2.44612 (0.1408)	-8.946199 <b>(0.0000)</b>	-17.70401 <b>(0.0001)</b>
	Intercept and trend	3.976703 <b>(0.0228)</b>	-8.887085 <b>(0.0000)</b>	-17.32150 <b>(0.0000)</b>	-4.035239 <b>(0.0201)</b>	-8.887085 <b>(0.0000)</b>	-17.32150 <b>(0.0000)</b>
	None	-1.595857 (0.1025)	-8.709148 <b>(0.0000)</b>	-1840206 <b>(0.0001)</b>	1.493274 (0.1240)	-8709148 <b>(0.0000)</b>	-18.40206 <b>(0.0000)</b>

Notes: Some variables are significant at 1 per cent and some are significant at 5 per cent.  
P-value is in parenthesis ( ).

### 8.6.3 Lag Structure Test

The lag structure test was conducted to determine the lags interval. In this research number of lags was determined based on the lowest value of Akaike Information Criteria (AIC). Table 8.5 indicates the lowest value of the AIC for Model 1 and Model 2. The maximum lag test for model 1 and 2 will be at lag 2.

Table 8.5: Lag Structure of Model 1 and Model 2

<b>Model 1-Equation (8.3)</b>						
Number of Observations:25						
Dependent Variable: ISPR: Independent Variables: BDEV,RSDP, RGDP_PC						
Lag	LogL	LR	FPE	AIC	SC	HQ
1	-414.9772	NA	1.12e+10*	34.47817*	35.25826*	34.69454*
2	-401.1867	18.75507	1.45e+10	34.65494	36.21510	35.08766
<b>Model 2-Equation (8.4)</b>						
Number of Observations:25						
Dependent Variable: ISPRS: Independent Variables: GDP, INF, RIR, T-BILL						
0	-457.9453	NA	8.36e+09	37.03562	37.27940	37.10323
1	-354.9471	156.5572*	17092090*	30.79577*	32.25842*	31.20145*
2	-330.4494	27.43742	23414777	30.83596	33.51748	31.57970

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5 per cent level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

### 8.6.4 Two Steps Engle-Granger Test

Two steps of Engle-Granger test involved estimations of the model and conducting unit root test for the residual of the model to identify whether there is unit root or not in the residual. If there is no unit root in the residual means the residual is stationary and can proceed to do the Johansen cointegration test to identify whether there is cointegration in the equation. If there is cointegration, the second step is to conduct the vector error correction test including the residual (or error term) in the model. Result in Table 8.6 shows that the value of the coefficient is 5.63. While the r-squared value is 43 per cent and the Durbin Watson value is at 1.2. The test was done without testing the unit root test in the residual and with assumption the data is stationary. If the model is spurious often the r-squared value is higher than the Durbin Watson value. In this case, the Durbin Watson value is higher than the r-squared value. However, unit root test will be conducted for residual to identify whether there is unit

root or not in the residual. If there is unit root means, the model is superior and not suitable for estimation.

Table 8.6: Estimation of the Equation (8.3)

Dependent Variable: ISPRS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BDEV	-0.000987	0.025009	-0.039467	0.9689
RSDP	1.047782	0.419717	2.496403	<b>0.0202</b>
RGDP_PC	-2.22E-06	1.08E-06	-2.044334	<b>0.0525</b>
C	<b>5.635462</b>	0.368026	15.31267	0.0000
R-squared	<b>0.434527</b>	Mean dependent var		5.552715
Adjusted R-squared	0.360770	S.D. dependent var		1.081140
S.E. of regression	0.864391	Akaike info criterion		2.682371
Sum squared resid	17.18497	Schwarz criterion		2.874347
Log likelihood	-32.21201	Hannan-Quinn criter.		2.739456
F-statistic	5.891307	Durbin-Watson stat		<b>1.211428</b>
Prob(F-statistic)	0.003885			

Table 8.7 shows that the value of the coefficient is 3.05. While the r-squared value is 84 per cent and the Durbin Watson value is at 1.18. However, the unit root test will be conducted to identify unit root in the residual for further estimation.

Table 8.7: Estimation of the Equation (8.4)

Dependent Variable: GDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	-1.03E-06	9.23E-07	-1.113124	0.2777
INF	0.475914	0.123556	3.851814	0.0009
RIR	0.462277	0.080150	5.767626	0.0000
T_BILL	0.001327	0.111424	0.011910	0.9906
C	3.059894	0.649622	4.710266	0.0001
R-squared	<b>0.847892</b>	Mean dependent var		5.552715
Adjusted R-squared	0.820236	S.D. dependent var		1.081140
S.E. of regression	0.458388	Akaike info criterion		1.443375
Sum squared resid	4.622634	Schwarz criterion		1.683345
Log likelihood	-14.48556	Hannan-Quinn criter.		1.514731
F-statistic	30.65847	Durbin-Watson stat		1.184956
Prob(F-statistic)	0.000000			

#### 8.6.5 Residual Testing

Table 6.8 shows the result of the Augmented Dicky Fuller Test for the residual of model 1-equation (6.2) of the conventional bank. The result for intercept, trend and intercept and no trend and intercept at level shows that the test statistic value is

greater than the test critical values at 1 per cent, 5 per cent and 10 per cent respectively. The p-value for all tests also less than 0.05 per cent which indicate that the null hypothesis can be rejected. In this case the null hypothesis is that there is a unit root in the residual. The value of the coefficient of the residual is negative and the Durbin Watson value at 2, which indicate that the model is not spurious and the residual is stationary.

Table 8.8: Result of the Residual Test of Model 1-Equation (8.3)

<b>Constant</b>				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.593145	0.0014
Test critical values:	1% level		-3.737853	
	5% level		-2.991878	
	10% level		-2.635542	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	-0.977275	0.212768	-4.593145	0.0001
C	-0.002571	0.011425	-0.225058	0.8240
R-squared	0.489523	Mean dependent var		-0.004950
Adjusted R-squared	0.466320	S.D. dependent var		0.076536
F-statistic	21.09698	Durbin-Watson stat		1.994405
Prob(F-statistic)	0.000142			
<b>Constant, Linear Trend</b>				
Augmented Dickey-Fuller test statistic			-4.509847	0.0078
Test critical values:	1% level		-4.394309	
	5% level		-3.612199	
	10% level		-3.243079	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	-0.982029	0.217752	-4.509847	0.0002
C	-0.009854	0.025561	-0.385507	0.7037
R-squared	0.492004	Mean dependent var		-0.004950
Adjusted R-squared	0.443623	S.D. dependent var		0.076536
F-statistic	10.16944	Durbin-Watson stat		1.996477
Prob(F-statistic)	0.000816			
<b>None</b>				
Lag Length: 0 (Automatic - based on SIC, maxlag=5)				
Augmented Dickey-Fuller test statistic			-4.706232	0.0000
Test critical values:	1% level		-2.664853	
	5% level		-1.955681	
	10% level		-1.608793	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	-0.979446	0.208117	-4.706232	0.0001
R-squared	0.488348	Mean dependent var		-0.004950
Adjusted R-squared	0.488348	S.D. dependent var		0.076536
Durbin-Watson stat	1.985689			

\* Significant at 0.05 per cent

Result in Table 8.9 shows the Augmented Dicky Fuller Test at level for residual of model 2-equation (8.4) of the Islamic bank. The result for intercept, trend and intercept and no trend and intercept at level shows that the test statistic value is greater than the test critical values at 1 per cent, 5 per cent and 10 per cent respectively. This indicates that the residual is stationary and the null hypothesis can be rejected which means there is no unit root in the residual. The value of the coefficient of the residual is negative and the Durbin Watson value is close to 2, which indicate that the model is not spurious and the model is reliable for estimation.

Table 8.9: Result of the Residual Test of Model 2-Equation (8.4)

<b>Intercept</b>			t-Statistic	Prob.
Augmented Dickey-Fuller test statistic			-3.685993	<b>0.0066*</b>
Test critical values:	1% level		-3.538362	
	5% level		-2.908420	
	10% level		-2.591799	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
U(-1)	<b>-0.784289</b>	0.212776	-3.685993	0.0005
C	226.4766	686.4404	0.329929	0.7427
R-squared	<b>0.492705</b>	Mean dependent var		-
Adjusted R-squared	0.448206	S.D. dependent var		133.0603
F-statistic	11.07214	Durbin-Watson stat		7282.660
Prob(F-statistic)	0.000000			<b>1.999162</b>
<b>Intercept and Trend</b>				
Augmented Dickey-Fuller test statistic			-3.584921	<b>0.0392</b>
Test critical values:	1% level		-4.110440	
	5% level		-3.482763	
	10% level		-3.169372	
U(-1)	<b>-0.819216</b>	0.228517	-3.584921	0.0007
C	-403.2005	1588.935	-0.253755	0.8006
R-squared	0.494454	Mean dependent var		-
Adjusted R-squared	0.440288	S.D. dependent var		133.0603
F-statistic	9.128556	Durbin-Watson stat		7282.660
Prob(F-statistic)	0.000001			<b>2.000618</b>

\* Significant at 0.05 per cent

#### 8.6.6 Johansen Co-integration Test

To examine the co-integration between the variables, the Johansen co-integration test was conducted at lag 2. The null hypothesis is that there is no co-integration between variables, then the null hypothesis can be rejected. If there is cointegration then the null hypothesis cannot be rejected. Table 8.10 shows the test result of the Johansen

co-integration test of equation (8.3). The result shows that there is at least **one co-integration equations** for *trace* and *maximum eigenvalue* test. Thus it confirms that there is co-integration between these variables in the long-run. In this case null hypothesis can be rejected.

Table 8.10 Johansen Co-Integration Test of Equation (8.3)

Series: ISPRS BDEV RSDP RGDP\_PC (Lags interval: 1 to 2)

Data Trend:	None	None	Linear	Linear	Quadratic
Test Type	No Intercept	Intercept	Intercept	Intercept	Intercept
	No Trend	No Trend	No Trend	Trend	Trend
Trace	1	1	1	1	1
Max-Eig	1	1	1	1	1
Log Likelihood by Rank (rows) and Model (columns)					
0	-382.9652	-382.9652	-380.9531	-380.9531	-376.9869
1	-369.8950	-358.0724	-356.5746	-355.8690	-352.3362
2	-363.3325	-351.5066	-350.8248	-345.5067	-342.9138
3	-360.4131	-346.9462	-346.8240	-339.8277	-337.2589
4	-360.3801	-344.3212	-344.3212	-336.9715	-336.9715
Akaike Information Criteria by Rank (rows) and Model (columns)					
0	34.58044	34.58044	34.74609	34.74609	34.74891
1	34.15791	33.25604	33.38121	33.40575	33.36135
2	34.27771	33.45888	33.56873	33.29223	33.24281*
3	34.70109	33.82885	33.90200	33.56898	33.43824
4	35.36501	34.36010	34.36010	34.08096	34.08096
Schwarz Criteria by Rank (rows) and Model (columns)					
0	36.15117	36.15117	36.51317	36.51317	36.71233
1	36.12134	35.26855*	35.54098	35.61460	35.71746
2	36.63382	35.91316	36.12118	35.94285	35.99160
3	37.44988	36.72490	36.84713	36.66137	36.57972
4	38.50648	37.69792	37.69792	37.61512	37.61512

The Johansen co-integration test was conducted at lag 1. Table 8.11 shows the test result of the Johansen co-integration test of equation (8.3). The result shows that there is at least **two co-integration equations** for *trace* and *maximum eigenvalue* test. Thus it confirms that there is co-integration between these variables in the long-run. In this case null hypothesis can be rejected.

Table 8.11 Johansen Co-Integration Test of Equation (8.4)

Series: ISPRS GDP INF RIR T\_BILL (Lags interval: 1 to 1)

Data Trend:	None	None	Linear	Linear	Quadratic
Test Type	No Intercept	Intercept	Intercept	Intercept	Intercept
	No Trend	No Trend	No Trend	Trend	Trend

Trace	3	5	2	3	5
Max-Eig	2	1	1	2	2
Log Likelihood by Rank (rows) and Model (columns)					
0	-387.9797	-387.9797	-377.1519	-377.1519	-375.0402
1	-366.0469	-364.8392	-355.6768	-353.0021	-350.8937
2	-353.7776	-352.0919	-344.2617	-335.6055	-335.3486
3	-344.9398	-343.1641	-336.6629	-324.9443	-324.7050
4	-339.0982	-335.8851	-331.2196	-317.7581	-317.5232
5	-338.8062	-330.4494	-330.4494	-312.6709	-312.6709
Akaike Information Criteria by Rank (rows) and Model (columns)					
0	33.03838	33.03838	32.57215	32.57215	32.80322
1	32.08375	32.06714	31.65414	31.52017	31.67150
2	31.90221	31.92735	31.54094	31.00844*	31.22789
3	31.99518	32.09313	31.73304	31.03555	31.17640
4	32.32785	32.39080	32.09756	31.34065	31.40186
5	33.10449	32.83596	32.83596	31.81367	31.81367
Schwarz Criteria by Rank (rows) and Model (columns)					
0	34.25725	34.25725	34.03481	34.03481	34.50964
1	33.79018	33.82232	33.60435	33.51912*	33.86548
2	34.09618	34.21884	33.97869	33.54370	33.90941
3	34.67671	34.92092	34.65834	34.10711	34.34548
4	35.49693	35.75490	35.51042	34.94852	35.05848
5	36.76112	36.73636	36.73636	35.95785	35.95785

#### 8.6.7 Vector Error Correction Model Test

Since there is long-run co-integration between variables the error correction model test was conducted. The VEC result of equation (8.3) is in Table 8.12. The R<sup>2</sup> and R<sup>2</sup> squared value of the equation (8.3) is higher (78 per cent and 48 per cent) respectively. Coefficient of the cointegration for equation (7.0) is negative which means equation 8.3 is the long-run model.

Table 8.12: VEC Test of Equation (8.3)

Error Correction:	D(ISPRS) Equation (8.3)
CointEq1	0.032512 (0.02213) [ 1.46885]
<b>D(ISPRS)</b>	-0.190927 (0.19618) [-0.97321]
D(BDEV)	0.063541 (0.02880) [ 2.20640]
D(RSDP)	0.581953 (0.83657) [ 0.69564]
D(RGDP_PC)	-1.31E-06 (1.6E-06) [-0.83971]
C	-0.019285

Error Correction:	D(ISPRS) Equation (8.3)
	(0.14692)
	[-0.13126]
R-squared	<b>0.789508</b>
Adj. R-squared	<b>0.485465</b>
Sum sq. resids	2.590792
S.E. equation	0.536531
F-statistic	2.596693
Log likelihood	-7.524986
Akaike AIC	1.871738
Schwarz SC	2.562908
Mean dependent	-0.090399
S.D. dependent	0.747976

Table 8.13 shows the VEC result of model of equation (8.4). The coefficient value of the equations is negative means there is long run association between the variables..

Table 8.13: VEC Test of Equation (8.4)

Error Correction:	D(ISPRS)	D(GDP)	D(INF)	D(RIR)	D(T_BILL)
CointEq1	-0.577836	-20293.38	0.469018	-1.555298	0.217289
	(0.67993)	(10130.1)	(1.62574)	(1.55297)	(1.16172)
	[-0.84985]	[-2.00328]	[ 0.28850]	[-1.00150]	[ 0.18704]
D(ISPRS(-2))	-0.360885	8739.691	-0.496437	0.584844	-1.361136
	(0.51769)	(7712.90)	(1.23782)	(1.18241)	(0.88452)
	[-0.69711]	[ 1.13313]	[-0.40106]	[ 0.49462]	[-1.53884]
D(GDP(-2))	2.01E-05	-0.067159	2.62E-05	-2.42E-06	2.50E-05
	(1.5E-05)	(0.22784)	(3.7E-05)	(3.5E-05)	(2.6E-05)
	[ 1.31128]	[-0.29476]	[ 0.71745]	[-0.06927]	[ 0.95796]
D(INF(-2))	0.257270	-4624.221	-0.217303	-0.371049	0.513795
	(0.56708)	(8448.80)	(1.35592)	(1.29522)	(0.96891)
	[ 0.45367]	[-0.54732]	[-0.16026]	[-0.28647]	[ 0.53028]
D(RIR(-2))	0.242274	-8497.934	0.009586	-0.614565	0.337256
	(0.48197)	(7180.71)	(1.15241)	(1.10082)	(0.82349)
	[ 0.50268]	[-1.18344]	[ 0.00832]	[-0.55828]	[ 0.40955]
D(T_BILL(-2))	0.179459	2066.021	0.799302	-0.079803	0.463493
	(0.29100)	(4335.50)	(0.69579)	(0.66464)	(0.49720)
	[ 0.61670]	[ 0.47654]	[ 1.14877]	[-0.12007]	[ 0.93221]
C	-0.830915	25471.14	-0.868570	-0.686140	-0.901934
	(0.45901)	(6838.74)	(1.09752)	(1.04840)	(0.78427)
	[-1.81021]	[ 3.72454]	[-0.79139]	[-0.65447]	[-1.15003]
R-squared	<b>0.609940</b>	<b>0.689317</b>	<b>0.535440</b>	<b>0.651102</b>	<b>0.493601</b>
Adj. R-squared	0.252384	0.404523	0.109594	0.331278	0.029401
Sum sq. resids	5.429893	1.21E+09	31.04316	28.32623	15.85139
S.E. equation	0.672675	10021.99	1.608394	1.536398	1.149326
F-statistic	1.705862	2.420411	1.257355	2.035816	1.063337
Log likelihood	-16.22091	-246.8377	-37.14242	-36.04334	-29.07697
Akaike AIC	2.351743	21.56980	4.095202	4.003611	3.423081
Schwarz SC	2.940770	22.15883	4.684229	4.592638	4.012108
Mean dependent	-0.144444	20331.65	0.056250	-0.331250	-0.070522
S.D. dependent	0.777975	12987.39	1.704505	1.878802	1.166603

### 8.6.8 Ordinary Least Square Estimation of Equation (8.3)

The test result in Table 8.14 shows that the model is moderate where the  $R^2$  value is 12 per cent but the  $R^2$  adjusted value is low around -0.05 per cent. Furthermore, the coefficient value of (C1) is negative which and the despite positive and p-value is not significant. This means that not all variables are jointly significant for the dependent variables and they may have only short-run relationship. The speed of adjustment is at -0.019 which mean the model has been corrected by 0.019 per cent.

Table 8.14: OLS Estimation of Equation (8.3)

Dependent Variable: D(ISPRS)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BDEV)	-0.036278	0.027079	-1.339712	0.1954
D(RSDP)	-1.350454	1.373831	-0.982984	0.3374
D(RGDP_PC)	-5.12E-07	7.39E-07	-0.693396	0.4960
U(-1)	-2.064228	3.307291	-0.624145	0.5396
C	-0.183732	0.165925	-1.107320	0.2813
R-squared	<b>0.124190</b>	Mean dependent var		-0.131567
Adjusted R-squared	-0.050972	S.D. dependent var		0.764312
F-statistic	0.709000	Durbin-Watson stat		<b>2.159972</b>
Prob(F-statistic)	0.595272			

The result in Table 8.15 shows that the model is good where the  $R^2$  value is 71 per cent but the  $R^2$  adjusted value is low around 64 per cent. Furthermore, the coefficient value of (C1) is -0.08.. The p-value of inflation (INF) and real interest rate (RIR) less than 0.05 percent which means that Islamic banks' spread affected by the inflation and real interest rate in the long term.

Table 8.15: OLS Estimation of Equation (8.4)

Dependent Variable: D(ISPRS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP)	3.32E-06	7.25E-06	0.457629	0.6524
D(INF)	0.401681	0.134435	2.987911	<b>0.0076</b>
D(RIR)	0.343895	0.104389	3.294377	<b>0.0038</b>
D(T_BILL)	0.205718	0.129749	1.585512	0.1294
U(-1)	0.305336	1.760844	0.173403	0.8642
C	-0.080121	0.164408	-0.487328	0.6316
R-squared	<b>0.719682</b>	Mean dependent var		-0.131567
Adjusted R-squared	0.645914	S.D. dependent var		0.764312
F-statistic	9.756042	Durbin-Watson stat		<b>1.812637</b>
Prob(F-statistic)	0.000097			

## 8.7 CONCLUSION

Islamic banks are indirectly affected by the interest based monetary policy conducted by the central banks in each country. Despite the fact that the Islamic banks' contracts are *Shari'ah* compliant, the pricing of Islamic banks' products and services is set based on the interest rates of the conventional banks. In searching and examining this relationship, the findings in this study indicate that there is a significant relationship between Islamic savings return rates with market determinant variables and macroeconomic variables. The finding of the study in Chapter 8 can be summarized as in Table 8.16 below.

Table 8.16: Summary Findings of Equations (8.3) and (8.4)

Test Result		
	Islamic banks' Saving Spread Equation (8.3)	Islamic banks' Saving Spread Equation (8.4)
Coefficient Value of C(1)	0.003	-0.156
R <sup>2</sup> Value	12%	75%
Adjusted R <sup>2</sup>	-0.05%	51%
Speed of adjustment	-2.064	0.036
P-Value	Not Significant	
Serial Correlation	No serial correlation	No serial correlation

In short, Islamic banks' savings return spread is affected by market determinant factors are the reserve requirement ratio, real GDP per capita, and Bank assets (Bank Development). While for the macroeconomic determinant factors that affecting the Islamic banks' savings return rate spread are the GDP, inflation rate, real interest rate and 12 months rate of the Treasury bill determined by the Central bank. The result provides evidence that, statistically the saving and investment return spread of the Islamic banks affected by the monetary policy set by the Malaysian Central Bank (BNM). However, as mentioned earlier, research in this area is inconclusive due to the different size of the banks, market share, market structure, and macroeconomic environment, which is an issue in this study as well. In conclusion, Islamic banks are also posed to various risk such as market risk, liquidity risk and interest rates risk.

## CHAPTER 9

### CRITICAL REFLECTIONS ON THE FINDINGS, POLICY RECOMMENDATIONS AND CONCLUSION

#### 9.1 INTRODUCTION

This chapter summaries and discusses the literature review presented in Chapters two and Chapter three and findings generated in Chapter four, Methodology in Chapter five and also contextualising them within the empirical analysis presented in Chapters six to Chapter eight.

It should be reiterated that the aim of this study is to explore the implementation of monetary policy in an interaction with the Islamic bank financing in the dual banking system in Malaysia by exploring the relationship between macroeconomic variables and institutional variables of the Islamic banks. For this, the research presented in this study is based on testing econometric models developed to investigate the impact of monetary policy on Islamic banking operations and *vice versa*, for which various analyses were carried out using Islamic bank specific and macro-economic variables.

Chapter two reviews the existing literature on monetary policy and Islamic monetary policy. Additional input in this chapter compares the differences between conventional and Islamic monetary policy. Chapter three describes the evolution of Malaysian monetary policy from the 1970s up to 2012. It also highlights the main monetary policy instruments and Islamic finance instrument applied in the Islamic banking sector in Malaysia. Chapter four examines, after discussing the developments and trends in Malaysian Islamic banking, the performance of Malaysian Islamic banks using secondary data mainly from 2006 to 2012. Chapter five, describe the research methodology mainly involving the two steps of engle granger test. Chapter Six, being the first empirical chapter, investigates the growth function as well as the nexus of the conventional and Islamic banks against the selected macroeconomic variables such as GDP and gross fixed capital formation (GFCF) and trade balance (TB).

Chapter seven examines co-integration between conventional interest rates and Islamic savings and investment return rates and conventional and Islamic interbank money market rates. The final chapter (Chapter 8) explores the impact of Islamic banks in expanding the interest rates spread through debt-based and debt like instruments.

## 9.2 REFLECTING ON THE EMPIRICAL FINDINGS

The first empirical chapter (Chapter 6) explores the relationship between Islamic bank financing and investment with macroeconomic variables such as economic growth. An analysis was conducted using Al-Hallaq's (2005) model for the Islamic Bank of Jordan but with slight modification with the objective of examining the contribution of Islamic financing and investment to GDP growth in Malaysia for the period of 1997 to 2013. Growth function model was employed for conventional and Islamic banks variables plus the macroeconomic variables such as investment, trade balance and GDP.

A preliminary test conducted using GDP shows that the relationship between Islamic banks' total investment and financing with GDP is significant at 5 per cent level.. The VEC model was used for analysing data for Islamic banks in Malaysia. To avoid spurious regression, residual testing was done to check whether there is unit root or not in the residual. All residual testing shows that the data is stationary and there is no unit root in the residual. Johansen co-integration also indicates that there is at least one or two cointegrating equations for most of the equations.

The findings of the model indicate that the conventional bank financing and investment does not contribute to the GDP growth where the p-value is not significant. The statistical result also indicates that Islamic banks may contribute to GDP growth if the market share of the Islamic bank is substantial. The findings also provide evidence that, statistically, there is a meaningful relationship between the growths of the Islamic banks and GDP growth because in Malaysia most financing of the government project was done by issuing sukuk by the Islamic Banks or Institutions. It should be noted that, in the case of the Islamic bank of Jordan, the results indicate that statistically the amount of contribution is relatively insignificant at 0.048 per cent compared to 0.5 per cent of the conventional banks.

As the findings in this study show, the Malaysian case can only be applied in Malaysia, and indeed cannot be generalized for other Islamic banks in other countries. The result may differ due to size of banks, economic development and economic growth level, level of investment, the amount of financing and investment of the Islamic banks.

The subsequent empirical chapter (Chapter 7) examines the co-integration and long run relationship between conventional bank or Islamic bank on the the selected macroeconomic variables. The model was adapted from Chong and Liu (2009), who examined the potential relationship between Islamic bank rates and those of conventional banks in Malaysia. Chapter 7 extends the analysis and examines the association of saving interest rates of the conventional banks with profit rates of Islamic banks. The findings show that Islamic profit rates for 12 months does not follow the rates of the conventional banks and vice versa despite moving in tandem.

The results support the findings of Chong and Liu (2009) for the case of Malaysia. However, this does not mean that Islamic bank transactions are interest based and should be subjected to the same monetary policy as conventional banks. The Islamic banks' contracts are *Shari'ah* compliant despite the return rates of savings of the Islamic banks following the rates of interest of the conventional banks. The Islamic banks may not be able to achieve the objective of the *al-maqasid al-shari'ah* if it continues to determine their profit based on the interest rates of the conventional banks.

In further exploring the model, this study found, by using the VECM test on conventional interbank money market rates and Islamic interbank money market rates, that in the long run conventional ONR and Islamic ONR moving closely together. The findings also indicate that those depositing in Islamic banks may shift to conventional banks because they offer higher interest rates for saving compared to Islamic banks that need not to gives profit to their customer for saving account. It should also be added that the results presented in this study also support the finding of Haron (2000) that Islamic bank depositors are affected by the rates provided by the conventional banks.

The empirical analysis in Chapter 8 aims to examine the determinant factors of interest rates spread utilizing market determinant and macroeconomic variables. The findings establish that Islamic banks' overnight interbank return rates are cointegrated in long term. directly affected by the statutory reserve requirement ratio set by the Bank Negara Malaysia. The result signifies that Malaysian Islamic banks contribute to interest rate spread, as most of the financing and loan by Islamic banks are either debt-based or debt-like. However, the findings of this study cannot be generalized to other countries because of different size banks, market share, market structure, and the macroeconomic environment.

In taking the analysis even further, Chapter 7 explores the Islamic banks' contribution to interest rates spread. Market and macroeconomic variables were utilized to test the relationship between Islamic banks' return rates for savings and investment. The method used in this analysis is based on two steps Engle-Granger approach. The test result shows that Islamic return rates of savings and investments are significant with the reserve requirement ratio set by the Central bank. Thus, the findings indicate that the spread of Islamic banks is higher than that of conventional banks. This suggests that the Islamic banks' cost of funding is higher than the conventional banks. It also supports the complaint made by the Islamic Consumer Association of Malaysia in 2012 that Islamic banks are charging higher profit rates than conventional banks.

In summary, Islamic bank return rates' spread of savings and investment are uncommonly determined by the Central banks and affected by the rates of the Treasury bill, which is priced against the conventional interest rates. As the results indicate, the spread of Islamic banks' rates is higher than that of conventional banks, especially for savings account compared to the spread of investment rates. This also indicates that, for investors, rates of return on investment offered by banks are not attractive because they are not merely giving a lower return to the investors but also lower spread to the banks. As the findings indicate, Islamic banks also contribute to the interest rates spread by providing loans and financing through utilizing Islamic finance principles. This is also due to the fact that Islamic banks prefer to provide more loans and debt rather than to finance projects and investments. Since the Islamic banks' spread of savings and investment is not based on market value, but merely follows the conventional bank interest rates' spread, the operations of Islamic banks

are considered far from serving the objective of *al-maqasid al-shari'ah* or human well-being.

### 9.3 POLICY REFLECTIONS

Despite being Islamic banks, the operation of Islamic banks follows the conventional banking system, as the various empirical evidences have indicated in this study. One of the major hindrances for Islamic banks to operate 'Islamically' is that they are subjected to the same monetary policy of the conventional banks. Islamic banks are also managed by bankers who have been trained according to the conventional banking system mind-set and they aim to replicate conventional banking operations in the Islamic banking sphere. Therefore, even though there is a *Shari'ah* board at the bank or at national level, Islamic banks have been unable to achieve the objective of the *al-maqasid al-shari'ah*, because the foundation is based on conventional banking system.

In summary, the principal policy is governed by the conventional monetary policy and managed by bankers with a conventional bank mentality. However, one recommendation or measure that may help to increase the value of Islamic banks in becoming more Islamic is that it needs to have its own Islamic monetary policy where interest rates should not be the main instrument or mechanism in transmitting the policy. Accordingly, the calculation of the Islamic banks' profit needs to be based on the market rates. This requires entirely a different mind-set, which aims to consider Islamic political economy as a system, rather than Islamic banking as an option. The following are some of the reflections on policy developed from the findings of this study:

#### 9.3.1 Monetary Policy for Islamic Banks

Currently, conventional monetary policy is used to govern the operations of Islamic banks. However, this study suggests that in a dual banking system it should have a twofold system, where if there is a conventional and Islamic bank then it should have an Islamic monetary policy for the Islamic banks. In Malaysia, except for the absence of Islamic monetary policy, there is almost a complete setup for the Islamic banking industry, which includes an Islamic money market and Islamic capital market. In this industry, the objective of the Islamic banking system is to remove *riba*, *maisir* and

*gharar* in the transaction. However, if the main policy governing Islamic banks is based on interest rates, it is difficult to expect Islamic banks to achieve the objective of *al-maqasid al-shari'ah*.

### 9.3.2 Removal of Controversial Mechanism/Products

Islamic banks should remove all controversial mechanism or products used to promote Islamic banks such as *al-bay al-inah*, *tawarruq* and *al-bay al-dayn*: all of the controversial contracts should not be offered by Islamic banks. To contextualise the issue, it should be noted that some contracts are allowed in Malaysia but not allowed in the Middle East. For example, *al-bay al-dayn* is only offered in Malaysia but not practiced in Middle Eastern countries. By allowing *al-bay al-dayn* contract and implementing a fictitious system in awarding *tawarruq* contracts and *al-bay al-inah* contracts, it is not only tarnishing the image Islamic banking, but Islamic finance and Islam as a religion. The *Shari'ah* scholars should not allow tricks (*hilah*) or legal stratagem (*hiyar*) to justify the means.

### 9.3.3 Calculation of Profit

Islamic banks should calculate their profit based on the cost of funds; they should not include rates of interest or benchmark against conventional banks' interest rates. It is commonly known that Islamic banks' profit rates are higher than conventional interest rates. Various reasons given to justify higher profit rates include:

- (i) Islamic banks are truly new and need to compete with the conventional banks, therefore if Islamic bank charges lower profit rates, they may not be able to compete with the conventional banks;
- (ii) There is no harm for Islamic banks charging a higher rate of profit as the teaching of Islam does not limit the amount of profit charged by the seller to the buyer; and
- (iii) There is nothing wrong with paying more or paying a higher price for a *halal* product rather than paying a lower price for non-*halal* products. For instance, hotels may charge a higher price for food and beverages compared to retail stores but nobody complains because hotels provide premium service.

Similarly, Islamic banks are seen as providing a *halal* service and Muslims should be willing to pay a high premium for *halal* products.

In 2011, the first international Islamic interbank benchmark rate was by Thompson Reuters based on major Islamic financial institutions including Malaysia. However, there was not enough information on how this rate was calculated and determined. Thus, Islamic banks needed to disclose the determining profit rates to the public. This would earn public confidence on the Islamic banking system; and it should be considered an important governance issue in terms of transparency.

#### 9.3.4 Underlying Assets

The transactions conducted by Islamic banks using assets as collateral. Therefore, among the main differences between the conventional banks and Islamic banks is that Islamic bank transactions are either asset based or asset backed. The problem lies when it comes to implementation. For instance, for financing personal loan, some of the Islamic banks will use a piece of paper which states the land value.

Depending on the amount of financing, Islamic banks will sell a piece of land to the customer at a higher price, and immediately the customer will sell the land to the bank at a lower price. The difference of the selling price of the customer and the buying back price by the banks is considered as profit for the banks. The same method is again applied for further customers applying for a personal loan using the same piece of paper, which states the value of the land. This method is not applied coincidentally, but it is pre-arranged by the banks with customers. This contract is known as *al-bai inah*. Thus, while the contractual (form) requirement is fulfilled with asset based/asset backed nature, in reality the contract is based on a fictitious asset, which is used to facilitate the contract to raise funding. Such tricks do not create any economic benefit other than increasing transaction cost. Consequently, a serious effort is needed to develop Islamic financing based on real assets to have real economy impact.

#### 9.3.5 Islamic Monetary Policy Link with Ethics (*Akhlaq*) and other Principles of Islam

Even though there is a lack of discussion about Islamic monetary policy, it should not be limited to the activity of the central banks and the commercial banks. The broader

context of Islamic monetary policy should include not only the commercial sector (*tijari*) but also the social sector (*ijtimai*). Furthermore, without eliminating the elements of *riba*, *gharar* and *maysir*, and mobilizing Islamic fiscal instruments such as *zakah*, *waqf* and *sadaqah* along other institutions, Islamic monetary policy will not be able to achieve justice (*al-adalah*) in terms of distribution of wealth in the society.

Considering that many of the Muslim scholars and economists were trained in and given exposure to the conventional banking system, it was not surprising that modern Islamic scholars suggested modifying the existing instruments of monetary policy to make them 'Islamic' or *Shari'ah* compliant. The term 'interest rate' was changed to 'profit rate' and a 'fixed deposit rate' was renamed 'rate of return'. Most modern Muslim scholars believe that the banking system is the best platform to apply the principles of Islamic finance and expect to achieve justice by modifying the financing terms and contracts of the conventional banks.

The piecemeal approach of *Islamising* and mimicking the conventional banks' products and services has not only proven far from reaching social justice and developmentalism in an aspirational sense, but has highlighted the fact that Islamic banks are closely following conventional banks in their operations by providing more loans and financing by utilizing sales principals of Islamic finance rather than asset based profit-loss-sharing instruments. The creation of more loans and debts contributes to the spread of interest rates in the banking system. Since the amount of debt created in the bank is more than the money supply in the system, it may lead to a crisis during a downturn in an economy, because there will be default in payment due to less currency in circulation compared to the amount of debt.

According to Asutay (2007: 2012), there is a social failure of Islamic banks, whereby they no longer respond to the needs and aspirations of the Islamic moral economy. Conversely, Islamic banking has strengthened the capitalist system by mimicking the products and services of conventional banks.

As mentioned earlier, the objective of the Islamic monetary policy aims at achieving social justice in conducting financing and loans. Therefore, Islamic banks should provide financing for development projects and should also consider productive sectors in their financing rather than mainly focusing on financial sectors and real estate sectors. Islamic banks also shall consider financing project that are

environmental friendly and contributes to sustainable development. Applying the Islamic instrument is no longer the issue. Many of the conventional monetary instruments are also Islamic and some need modification. As outlined by Chapra (1985) that one of the objective of Islamic monetary policy is to ensure equal distribution of wealth. However, current monetary policy system unable to do that and it requires implementation of prudent fiscal policies. Hence, it is important to stress that justice cannot be achieved by establishing more Islamic banks. Thus, to close the gap, some scholars suggest that Islamic banks need to be more responsible and 'Islamic' by applying the concept of corporate social responsibility (CSR). They propose combining the functions of a social or ethical bank with Islamic banks. However, such suggestions still remain within the banking framework.

CSR is considered to be essential for organizations and society, but the implementation should be on a voluntary basis, not enforced by law. Imposition of CSR by law indicates that there is something wrong in society because it indicates that the organization itself is reluctant to fulfil its responsibility and needs law enforcement by the government. The imposition of CSR for Islamic banks indicates a problematic issue, as 'Islamic banks' in the first place are supposed to be following the principles of Islam. The suggestion of having a CSR for Islamic banks again reflects that Islamic banks are not 'Islamic'.

The suggestion of combining ethical banking or social banking with Islamic banks to make them more 'Islamic' again is thinking within the banking framework. If Islamic banks are truly Islamic, then they automatically become exceedingly ethical and serve the community. Most Islamic banks are not serving the community but rather obliging their shareholders. Maximizing the wealth of their shareholders is the ultimate goal of most Islamic banks.

However, banks cannot be blamed if they are not ethical and do not serve the society, because they are naturally established to make more money through providing loans and debt. The objective of the banks is to maximize the wealth of their shareholders and they cannot be expected to provide charity or be forced to provide financing in areas which are not as profitable for them. Even for microfinance schemes, banks are making a lot of money out of poor people.

In concluding, justice in society will be established by the elimination of *riba* in the financial system; it cannot be achieved merely by changing the term ‘interest rates’ to profit rates and through ‘Islamization’ of conventional bank products and services. Furthermore, an Islamic economic system cannot be attained by establishing only ‘Islamic banks’ but it only can be realised in a society that aims to provide a general system of Islamic political economy and achieves homo-Islamicus at a personal level. However, it should be noted that such a process has to start somewhere, and therefore, Islamization of conventional bank products and services should be considered as a good short-term strategy, albeit still far from achieving the objectives of the *maqasid al-shari’ah* as well as the moral economy of Islam. Furthermore, the result of this study has shown that even Islamic banks products and services are Shari’ah compliant with few exceptions of court cases for some Islamic banks in Malaysia, Islamic banks operations are exposed to the interest rates risk where statistically it is proven that Islamic money market granger cause the conventional money market and vice versa. Islamic banks also affected by rerserve requirement ratio set by the Central Bank. Therefore, it is high time to establish Islamic Central bank where its function is not only limited to transy miting the monetary policy through various channels by using Islamic instruments but also to ensure that equal distribution of wealth by transmitting the policy to the right channels and complimented with prudent fiscal policies by the government.

#### 9.4 LIMITATIONS AND DIFFICULTIES OF THIS RESEARCH

The research presented in this thesis falls under the category of quantitative research and explanatory research. Among other challenges of the paper-based research is that the scope is intensely specific compared to primary data research where the whole thesis is depending on the finding from the primary data. Quantitative research is a specialized study and requires specific knowledge and skills. As most research on monetary policy and management and macro-economic fields employ quantitative methods with econometric modelling, this study also opted for econometric modelling as a research methodology.

The availability of statistical data is also a concern in secondary data based econometrics and statistical studies such as this one. In some cases, yearly data are not

sufficient to explain the relationship, and most researchers prefer quarterly time series data or monthly data. A large sample data set is meaningful mainly for prediction and estimation of the future trend or pattern. Another problem with time series data is that the data may have high autocorrelation or multi collinearity.

Autocorrelation or multi collinearity may provide spurious regression consequence or the result may be biased due to the high correlation among variables. However, there are few techniques available to reduce the autocorrelation or multi collinearity within the time series data including converting the data to a logarithm, removing outliers, using first order difference or second order difference data.

In conducting this research, it was undeniably intriguing and thought provoking learning the econometric techniques from scratch. To develop econometric analysis skills, the researcher attended quantitative methods courses as well as undergraduate and master's degree classes at Durham University on econometrics. In addition, learning the use of econometric software and relevant techniques to analyse data required essential effort to develop such skills from beginners' level.

The availability of the comprehensive data of Islamic banks in Malaysia posed a great difficulty. Even though the first Islamic bank was established in 1984, comprehensive data on the Islamic banks were only available after the financial crisis in 1997, where Bank Negara Malaysia began to compile monthly, quarterly, and yearly data for Islamic banks from January 1997.

Furthermore, there was a limited number of studies and research on the monetary policy impact on Islamic banking operations and *vice versa*. Therefore, there was no sample or model to be followed. Although Iran can be considered as an example in terms of having an (Islamic) monetary policy, there is not much material available for this either. As far as the other limitations of this research are concerned, the researcher was unable to conduct interviews with monetary policy makers due to limited time and inconclusive debate on certain issues, as this was considered useful in making and providing an interpretative understanding of quantitative findings. Among other issues which require further research and deliberations are the facts that Islamic bank's operations under the fractional reserve system, benchmarking of conventional interest as the profit rates, creation of fiat money and monetary policy for the Islamic banks.

It should be noted that some *Shari'ah* scholars have already put their time and effort into Islamizing conventional monetary policy instruments and justified the Central Bank playing a vital role in an Islamic economy. However, the approach and measures taken are still within the conventional banking framework. A comparison cannot be conducted, since there was no Central Bank during the early Islamic period. At that time, there was a treasury (*Baitulmal*) which had different objectives to modern central banks.

## 9.5 SUGGESTION FOR FUTURE RESEARCH

This study employed quantitative method by utilizing econometric techniques to analyse the secondary data. In the field of monetary policy, there are numerous models available that can be used for future research and advanced econometric techniques can also be applied for those who are knowledgeable in the subject of econometrics.

For future research, the qualitative techniques such as conducting structured or semi-structured interviews can be employed depending on the requirement of the subject. As for some issues pertaining to Islamic banks, they could be explained by running time series data, while other issues like, 'why Islamic banks are still subjected to the interest based monetary policy', and 'why *Shari'ah* scholars allow controversial products like *al-bai al-inah*, *tawarruq* and *al-bai al-dayn*' can only be answered if further research is conducted using qualitative methods. Indeed, combining quantitative and qualitative methods is not an easy task, yet it is possible.

## 9.6 EPILOGUE

The aim of this study, as identified in Chapter 1, was to explore and examine the relationship between Islamic banking financing and investment and monetary policy and outcomes as well as macroeconomic outcomes in the case of Malaysia. In doing so, three empirical essays were provided. It can be stated that this study had achieved the intended aims and objectives identified in Chapter 1. As the literature review chapters (2-4); methodology is in chapter five and empirical chapters (6-8) indicates, through empirical analysis and discursive approach and methodologies, the identified aims, objectives and research questions have been fulfilled and responded to.

By conducting a literature review, it was easy to understand the status and identify the existing gaps. For example, through the literature review chapter on conventional and Islamic monetary policy, the researcher was able to identify the key differences between Islamic and conventional monetary policies. In summary, there is a substantial gap in philosophy due to their different ontological roots resulting in different articulation of conventional and Islamic monetary policy. In other words, the former is based on evolution, and the latter is based on certain principles in the *Qur'an* and *al-hadith*. The mechanism of these two policies is also different, as in the conventional monetary policy interest rates and money supply are the main mechanisms for determining the monetary policy. The empirical chapters shed much light on the interaction and intersection between macroeconomic variables and conventional and Islamic banking financing and investment. In particular, this study explores the relationship of conventional and Islamic banking variables with the economic growth thus add value to the existing knowledge in the field of the Islamic finance and banking.

Overall, the findings show that both conventional and Islamic banks are contributing to economic growth, but since the market share of Islamic banks is less than 30 per cent the effect of their contribution is minimal. Besides, Islamic bank transactions are not based on *riba* and the contract applied is *Shari'ah* compliant, but the return rates of Islamic banks are still calculated and based on conventional interest rates. Furthermore, the findings indicate that Islamic banks contribute to the interest rates spread, as more than 60 per cent of Islamic banks' financing is debt based and debt like thus contributing to the spread of interest rates in the financial system.

It is important to also stress that the findings and critical argument developed in this study do not aim to undermine the development and growth of Islamic banking in Malaysia, but to ensure that Islamic banks practise the intended objective of *al-maqasid al-shari'ah*, as it is believed that not only the form, but also the substance of Islamic banking should be '*Islamic*' as such.

It is hoped that an authentic Islamic monetary policy can be executed to overcome the observed difficulties, as without the implementation of an Islamic monetary policy in a holistic approach, avoiding such consequences may not be possible, and hence the 'substance' of Islamic banking will not be realised. To achieve the full fledged Islamic

banking system, it is also recommended to establish Islamic central bank where it does not used non-Islamic instruments for governing the Islamic banks. To sum up, it is timely that Islamic banking be governed by Islamic monetary policy, where ethics and morality become part and parcel of the Islamic banking system. If the system continues operating under the same conventional structure, then it will not be able to achieve the objectives of *al-maqasid al-shari'ah*.

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