



UNIVERSITI PUTRA MALAYSIA

***THE FISHER EFFECT IN CONVENTIONAL AND
ISLAMIC MONEY MARKETS IN MALAYSIA***

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GSM 2014 3



**THE FISHER EFFECT IN CONVENTIONAL AND ISLAMIC MONEY MARKETS IN
MALAYSIA**

By

NURAZILAH BINTI ZAINAL

**Thesis Submitted to the Graduate School of Management,
Universiti Putra Malaysia, in Fulfilment of the
Requirements for the Degree of Master of Science**

December 2014

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DEDICATION

I dedicate my dissertation work to my family and many friends. A special feeling of gratitude to my loving parents, Mr Zainal Hassan and Madam Azizah Hussain whose words of continuous support and encouragement along the progress to finish my research. Their unconditional love gives me the strength to endure obstacles while completing my study.

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirements for the degree of Master of Science

THE FISHER EFFECT IN CONVENTIONAL AND ISLAMIC MONEY MARKETS IN MALAYSIA

BY

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December 2014

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Current volatile environment in the global financial markets provides a challenging avenue to which the Malaysian financial system and economy would be in pressure by negative external forces. The global economy crisis in year 1998 and 2008 has brought many negative consequences to Malaysian economy as inflation is recorded high and increase in unemployment rate. In this condition, the movement between interest and inflation rates becomes tough to estimate. High inflation and high interest rates hamper economy growth by discouraging investment and reducing output of the country.

This study examines the relationship between interest rates and expected inflation rates in Malaysia. Fisher (1930) postulates a theory that explained one-to-one relationship between interest rates and expected inflation rates. In Malaysia, previous empirical studies on the Fisher Effect have focused the relationship on conventional market, leaving Islamic market with no or very few studies. On the first objective, this study aims at assessing the validity of Fisher Effect

between Conventional and Islamic Money Market in Malaysia. Time series data spanning from 2005 to 2012 is chosen as the study duration. Five variables are used in this study; they are Inflation Rate (INF), 3-months Treasury Bills Rate (MTB), Interbank Rate (IBR), 3-months Islamic Treasury Bills Rate (MITB) and Islamic Interbank Rate (IIR). In order to investigate the Fisher Effect, this paper employs the Autoregressive Distributed Lag (ARDL) approach that is capable of testing for the existence of a long-run cointegration between the variables irrespective of whether the time series that are being studied are $I(0)$ or $I(1)$. This analysis has also identified the relationship whether they are in a strong or weak form of Fisher Effect. The estimation results indicate the presence of Fisher Effect relationship on the basis of Islamic money market in Malaysia. However, the relationship appears in a weak form. For conventional market, no evidence of Fisher Effect has been found.

For the second objective, this study examines the direction of relationship between interest rates and inflation rates in the short run. Although the existence of a long-run relationship among these variables has been identified, the direction whether the changes in interest rates is causing changes in inflation or changes in inflation is causing changes in interest rates is still inconclusive. For this purpose, this study employs a Granger causality test developed by Granger (1969). The findings revealed that the IBR, MITB and IIR have unidirectional relationship with inflation rate in the short run. However, no directional relationship has been found between MTB and Inflation rates.

Overall the study provides supportive evidence on the importance of Fisher Effect theory and the results help monetary authorities to formulate better monetary policy in future (Ito, 2009). Other than that, the results also help the investors by giving direction on the behaviour of inflation rates so that they can preserve their value of money and invest in better investment vehicles.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Master Sains

**TEORI FISHER DALAM PASARAN WANG KONVENSIONAL DAN ISLAM DI
MALAYSIA**

OLEH

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Keadaan semasa yang tidak menentu dalam pasaran kewangan global mempengaruhi sistem ekonomi dan kewangan Malaysia yang berada dalam tekanan oleh kuasa luaran yang negatif. Krisis ekonomi global pada tahun 1998 dan 2008 telah membawa banyak kesan negatif kepada ekonomi Malaysia sebagai contoh inflasi direkodkan tinggi dan peningkatan kadar pengangguran. Dalam keadaan ini, pergerakan di antara kadar faedah dan inflasi menjadi sukar untuk dianggarkan. Inflasi dan kadar faedah yang tinggi menghalang pertumbuhan ekonomi dengan kadar penurunan pelaburan dan pengeluaran negara.

Kajian ini mengkaji hubungan di antara kadar faedah dan kadar anggaran inflasi di Malaysia. Fisher (1930) mengandaikan teori yang menerangkan hubungan satu-ke-satu antara kadar faedah dan kadar anggaran inflasi. Di Malaysia, kajian empirikal sebelum ini mengenai teori Fisher Effect telah menumpukan hubungan di pasaran Konvensional, meninggalkan pasaran Islam

dengan tidak atau sangat sedikit kajian. Kepada objektif yang pertama, kajian ini bertujuan untuk menilai kesahihan teori Fisher Effect antara pasaran Konvensional dan pasaran Wang Islam di Malaysia. Data bulanan dari tahun 2005-2012 dipilih sebagai tempoh pengajian. Lima pemboleh ubah yang digunakan dalam kajian ini ialah; Kadar Inflasi (INF), 3-bulan Perbendaharaan Bil Kadar (MTB), Kadar Tawaran Antara Bank (IBR), 3-bulan Islam Perbendaharaan Bil Kadar (MITB) dan Kadar Tawaran Antara Bank Islam (IIR). Dalam usaha untuk menyiasat teori Fisher Effect, kertas ini menggunakan kaedah Autoregresif Distributed Lag (ARDL) untuk mengenalpasti kewujudan cointegrasi yang panjang yang dikendalikan antara pemboleh ubah tidak kira sama ada siri masa yang sedang dikaji ialah $I(0)$ atau $I(1)$. Analisis ini juga telah mengenal pasti hubungan sama ada dalam bentuk yang kuat atau lemah dalam teori Fisher. Keputusan menunjukkan kewujudan hubungan teori Fisher Effect dalam pasaran wang Islam di Malaysia. Walau bagaimanapun, hubungan yang muncul adalah dalam bentuk yang lemah. Untuk pasaran Konvensional, tiada bukti kewujudan teori Fisher Effect yang telah dijumpai.

Bagi objektif kedua, kajian ini meneliti arah hubungan antara kadar faedah dan kadar inflasi dalam jangka masa pendek. Walaupun kewujudan hubungan jangka panjang antara pemboleh ubah-pemboleh ubah ini telah dikenal pasti, pergerakan pemboleh ubah dimana perubahan dalam kadar faedah yang menyebabkan perubahan dalam inflasi atau perubahan dalam inflasi yang menyebabkan perubahan dalam kadar faedah masih lagi tidak dikenal pasti. Jadi, kajian ini menggunakan kaedah ujian Granger yang dihasilkan oleh Granger (1969). Dapatan kajian menunjukkan bahawa IBR, MITB dan IIR mempunyai hubungan satu arah dengan kadar inflasi dalam jangka masa pendek. Walau bagaimanapun, MTB tidak mempunyai hubungan berarah dengan kadar inflasi.

Keseluruhan kajian ini memberikan bukti sokongan mengenai kepentingan teori Fisher Effect dan keputusan membantu pihak yang menggubal polisi kewangan untuk merumuskan dasar monetari yang lebih baik pada masa akan datang (Ito, 2009). Selain itu, keputusan juga membantu pelabur dengan memberi maklumat tambahan terhadap pergerakan kadar inflasi supaya mereka dapat mengekalkan nilai mereka wang dan melabur dalam pilihan pelaburan yang lebih baik.



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I certify that the Thesis Examination Committee has met on **17 December 2014** to conduct the final examination of Nurazilah Binti Zainal on her thesis entitled "**The Fisher Effect in Conventional and Islamic Money Markets in Malaysia**" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1988. The Committee recommends that the student be awarded the Master of Science degree.

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LIST OF ABBREVIATIONS

ADF	Augmented-Dickey Fuller
AIC	Akaike Unfomation Criteria
ARCH	Autoregressive Conditional Heteroskedasticity
ARDL	Autoregressive Distributed Lag
BA	Bankers' Acceptance
BAFIA	Bank and Financial Institution Act
BNM	Bank Negara Malaysia
BNMN	Bank Negara Monetary Notes
BNMN-i	Bank Negara Monetary Notes-i
CPI	Consumer Price Index
CUSUM	Cumulative Sum
DOS	Department of Statistics, Malaysia
ECM	Error Correction Model
ECT	Error Correction Term
GDP	Gross Domestic Product
GIC	Government Investment Certificate
GII	Government Investment Issues
IAB	Islamic Accepted Bills
IBA	Islamic Banking Act
IBR	Interbank Rates
IICS	Interbank Cheque Clearing System
IIMM	Islamic Interbank Money Market
IIMMR	Interbank Money Market Rates
IIR	Islamic Interbank Rates
INI	Islamic Negotiable Instruments
IPDS	Islamic Private Debt Securities
KLIBOR	Kuala Lumpur Interbank Offered Rate
LM	Langrange Multiplier
MGS	Malaysian Government Securities
MII	Mudharabah Interbank Investment
MITB	Malaysian Islamic Treasury Bills
MMO	Money Market Operations
MTB	Malaysian Treasury Bills
NBFI	Non-bank Financial Intermediaries
NICD	Negotiable Instruments Certificate of Deposits
NIDC	Negotiable Islamic Debt Certificate
OLS	Ordinary Least Square
OMO	Open Market Operation
OPR	Overnight Policy Rate
OTC	Over The Counter
PP	Phillips-Perron
RA-i	Ar-Rahnu Agreement-I
RENTAS	Real Time Electronic Transfer of Funds and Securities

REPO	Repurchase Agreement
RESET	Ramsey Regression Equation Specification Error Test
SAC	Syariah Advisory Council
SBBA	Sell and Buy Back Agreement
SBC	Schwarz Bayesion
SC	Securities Commission Malaysia
SMC	Cagamas Mudharabah Bonds
SPEEDS	Sistem Pemindahan Elektronik Untuk Dana dan Sekuriti
STAR	Smooth Transition Autoregressive
US	United States
UECM	Unrestricted Error Correction Model
VAR	Vector-autoregression
VECM	Vector Error Correction Model
WI	When Issue



CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter covers the background of the study, problem statement, objectives, research questions and significance of the study. The main objective of this chapter is to provide a clear description on the validity of Fisher Effect relationship in the Malaysian money market from the aspects of conventional and Islamic market perspectives.

1.2 Overview of the Study

Over the past three decades, the Malaysian economy has achieved annual Gross Domestic Product (GDP) growth averaging about seven percent, placing the country in the category of fast growing Southeast Asian economies. The impetus to growth originated from higher exports, and strong domestic consumption and investments. The sustained boom in economic activity is partly fuelled by heavy capital inflows and credit creation. All have maintained reasonable macroeconomic stability through small government debts and deficits.

The current situation in the global financial markets provides a challenging avenue to the Malaysian financial system and economy. After the United States (US) subprime mortgage crisis in 2007, the reality in the financial markets has brought to light not only

the weaknesses in cross-border banking, but it also seriously wounded the faith of many academicians, economists, and governments in financial globalization and capitalism. As the world headed towards a global recession, Malaysia was not left off the hook. This situation has brought stagnation to the growth of the economy and driven the inflation to reach the highest.

High inflation and high interest rates hamper economic growth by discouraging investment and reducing productivity of the country. Understanding the relationship between inflation and interest rates has been a long standing concern for economists and policymakers. The Fisher hypothesis forms the basis in understanding the relationship between inflation and interest rates. Irving Fisher (1930), the founder of Fisher Effect theory explains that nominal interest rates adjust one for one with respect to the changes in the expected inflation rate. This forms the foundation to the interest rates theory. On top of this, his hypothesis is one of the most studied and is an influential theory in economics since it has important policy implications.

Ito (2009) states that when nominal interest rates tend to move in accordance with the expected rate of inflation, it tends to drive the effectiveness of monetary policy. In other words, central bank operates monetary policy by using different tools to control money supply for stabilizing interest rates and inflation to accelerate economic growth and productivity.

As one of the role stated in Central Bank of Malaysia Act 1958, Bank Negara Malaysia (BNM) is an authorized organization that permitted to issue currency of Ringgit

Malaysia. Furthermore, they also have been responsible to keep the reserves to safeguard the value of our currency. Usually, in order for BNM to maintain the stability of the prices is through monetary effectiveness. Money market is the largest market in Malaysia, they tend to use this market as a tool for implementing monetary policy by controlling the amount of money supply. For example, when inflation is high BNM will issue government securities to mop up excess liquidity and this will drive the interest rates to be higher. Practically the BNM can influence the interest rates through the effectiveness of monetary policy. This will help the government to stabilize the amount of funds in the market and to improve economic growth.

Since the money market comprises the largest market in Malaysian Financial market, usually money market rate was chosen as a basis rates in measuring interest rates. For the purpose of this study, the researcher used money market rates as proxies for nominal interest rates in investigating the validity of Fisher Effect relationship with inflation rate.

1.3 Overview of Fisher Effect Theory

One of the oldest and simplest ways to model the relationship between nominal interest rates and inflation is the Fisher Effect theory pioneered by Irving Fisher (1930). He developed an equation; nominal interest rate is the sum of real rate of return plus expected inflation rate. He postulates that changes in expected inflation leave the real return unaltered by creating equal changes in the nominal interest rate. In other words, if real rate of return is determined in the real factors by 'technology and investor

preferences' then the nominal interest rate moves one-for-one with expected inflation (Al-Khazali, 1999 and Kinal and Lahiri, 1998).

The theoretical equation of Fisher (1930) hypothesized that the nominal interest rate is made up of two components: the real rate of return plus the expected rate of inflation

$$\text{Nominal interest rate } r_t = R_t + \beta\pi_t^e + \varepsilon_t \quad (1.1)$$

Where:

- i_t = nominal rate of interest
- r_t = real rate of return
- ρ_t^e = expected rate of inflation

This equation is based on the rational assumptions that the agents must be compensated for any loss in purchasing power of money due to price increase.

Obi, Nurudeen and Wafure (2009) define nominal interest rate in the Fisher Effect theory, as the price a borrower has to pay for temporary usage of capital. In other words, it also indicates the return expected by a lender by having their liquidity postponed and from which parted. Generally, when the interest rate goes up, it will bring discouragement to the borrower as there is increase in the cost of borrowing, while there is encouragement when only the interest rate is low. In a state of equilibrium, interest rates are reflected from the demand and supply in the capital market (Deutsche Bundesbank, 2001).

The importance of real interest rates in the growth and development of an economy is inevitable since they are the determinants of saving and investment behaviour of households and businesses. According to Hakan and Kamuran (2000), the real return on asset holding is the main concern shared by both households and firms. Compared to nominal interest rate, the real interest rate remains intact to inflation. Fisher effect implies that real interest rate remain constant in time since they are not affected by anticipated changes in inflation rate and money supply (Carneiro, Ângelo, Divino, and Rocha, 2002). The study conducted by Peng (1995) notes that the case of the real interest rate responding to change in economic factor has attributed to the critic of the assumption of a constant real interest rate. Nevertheless, Jorion and Mishkin (1991) found the result by using a changes specification in their methodology, as the change in real interest rate is constant, thus supported the assumption.

In general definition, inflation is the reflection of the increase in the general level of prices of goods and services in an economy over a period of time, which in other sense can be an indicator of purchasing power of money. As inflation increases, aggregate demand, production, trade deficits and balance of payments decreases. On the other hand, encouragement of economic activity derives low and moderate inflation which results in raising of GDP, reducing of unemployment and easing of balance of payment problem (Obi *et al.*, 2009).

Inflation rate is gauge by looking at the Consumer Price Index (CPI) over a period of time. Obi *et al.* (2009) stated that CPI examines inflation rate, the annualized percentage change, the effect of inflationary expectation on financial market and market interest

rates. Traders will demand their wanted compensation for the expected rise of inflation as the decreasing value of money. Therefore, there happens to add inflationary premium into real price of credit in order to hedge against inflation which is not delegated scenario to all of us. In small conclusion, the realized rate of return is equal to the nominal interest rate subtract with the expected inflation. This is consistent with the Fisher Effect theory to conclude that the increase in inflationary premium can dominate the increasing in the nominal interest rate.

An investigation of the Fisher hypothesis provides an indicator to predict inflation in future. In general, inflation has given high impact to economy growth as well as to the public. BNM on behalf of the government uses the direction of inflation for the effectiveness of monetary policies because monetary policy changes would reflect on financial markets. Based on the study by Ito (2009), he states monetary policy is effective when nominal interest rates tend to move in accordance with the expected rate of inflation as explained in the Fisher Effect theory.

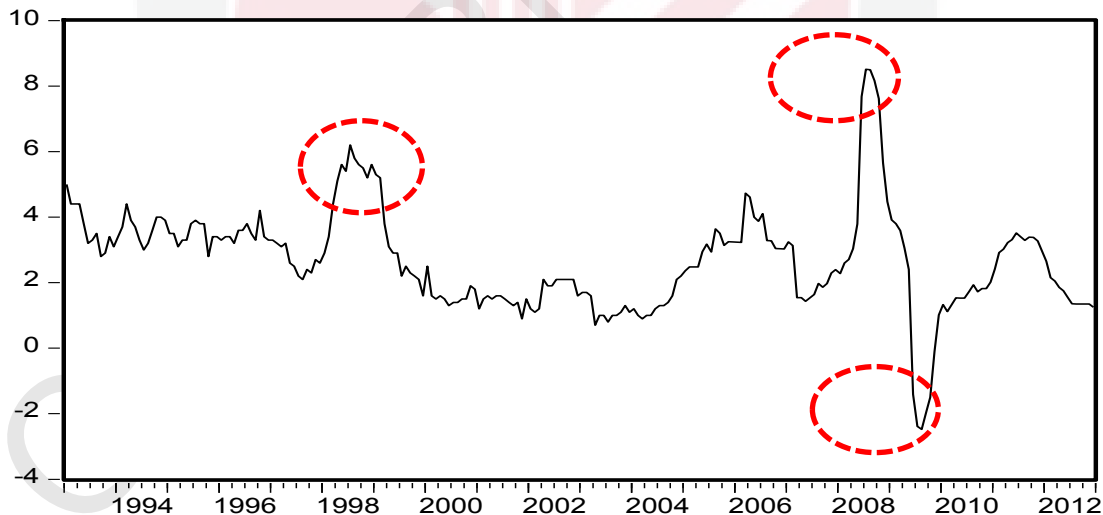
1.4 Problem Statement

Current volatile environment in the global financial markets provides a challenging avenue to which the Malaysian financial system and economy would be in pressure by negative external forces. The global financial crisis of 2008-2009, with its epicenter in the US, has brought negative consequences for the world economy. After the implosion of the US subprime mortgage crisis in 2007, the US economy began contracting sharply. Later, its systemic effect sent ripples across export-dependent Asian economies, which

began to face a contraction as a consequence. As the world heads towards a global recession, Malaysia would not be left off the hook. This situation has brought close to severe recession to the growth of Malaysian economy and it drives the inflation rate to reach the highest peak at 8.5% in the year 2008 (Ghani, 1996. *Development of the Money Market, Interest Rates, and Financial Reforms in Malaysia*. Washington D.C, US: International Monetary Fund).

Generally low and stable inflation has been one of the main features of the Malaysian economy in the last two decades (Crichton and Guimares-Filho, 2006). Nevertheless, in the event of financial crisis, it has brought to rapid increase in inflation rate in Malaysia.

Figure 1: Inflation in Malaysia



Source: Department of Statistic Malaysia

According to Figure 1, we can see that inflation rate in Malaysia is highly volatile specifically when an unfavorable event occurs. Inflation rate recorded extremely high and negative in year 1998 and 2008 due to global currency and financial crises

respectively. High inflation and high interest rates hamper economic growth by discouraging investment and reducing output of the country (Fatima and Sahibzada, 2012). According to the study from Munir and Mansor (2009), the Asian financial crisis in 1997 has brought inflation rate increased to 5.3% in 1998, compared to the 2.7% in 1997. Consequently, in 1998, Malaysian economy experienced a sharp decline in the growth rate of GDP from positive growth rate to negative at -7.4%, compared to 7.3% in 1997. From the findings, the authors suggest the existence of one threshold value of 3.89% that implies, inflation is detrimental GDP when it is above the threshold level.

High inflation not merely gives negative impact to the country, it also affects the individual, i.e. household, savers and pensioners, mainly due to lower in value of money. According to the Economic Report from Ministry of Finance of 1999, the unemployment rate recorded the lowest in the year 1997, but increased again in 1998 that is from 2.7% to 3.2% due the slowdown of the economy caused by the Asian Financial Crisis whereby our economy is hit by the large depreciation of Ringgit Malaysia (RM) relative to American Dollar (USD).

Interest and inflation rates are two most important macroeconomic variables that act as indicators for economic growth and development in any countries. Understanding the relationship has been a long standing concern of economists and policymakers. The Fisher hypothesis forms the basis for understanding the relationship between inflation and interest rates. Irving Fisher (1930), the founder of Fisher Effect theory explained that nominal interest rates adjust one-for-one with respect to the changes in the expected

inflation rate and it forms the foundation to the interest rates theory. He also suggests the short run nominal interest rates can be good a predictor for future inflation rate.

In Malaysia, economists have debated over the issue of Fisher Effect about its role on inflation background for decades (Hawati, Ruzita, Hasimi, and Izani, 2010). The inconsistencies of results and comments come from previous researchers are still an issue to determine the significant relationship between nominal interest rates and expected inflation rates. Some provided evidence to support Fisher effect while others failed to find any relationship. Therefore, the researchers are in difficulty to reach a consensus for the Fisher Effect.

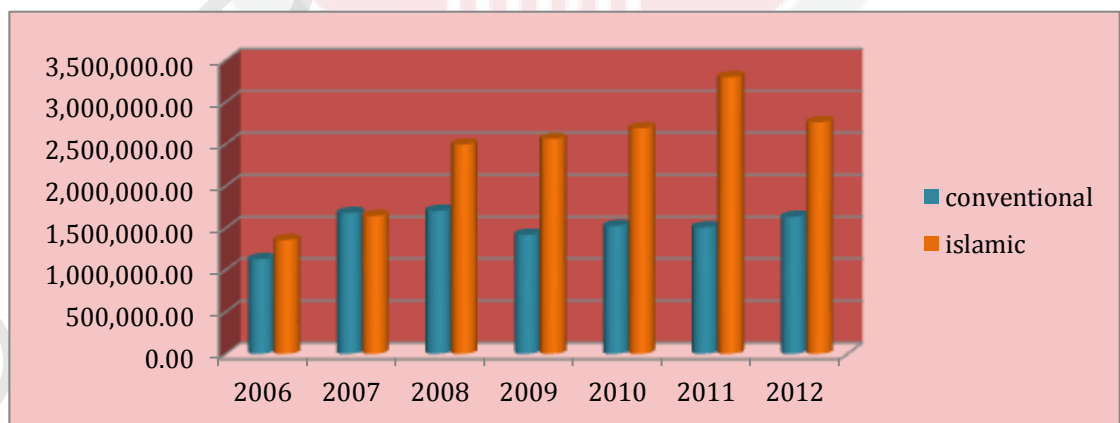
What motivates the researcher to undertake this analysis is that while the Islamic financial market has been rapidly developed all over the world, there are many evidences that have been found to support Fisher Effect in Islamic countries. Several studies (Ahmad, 2010; Alsmadi and Almsafir, 2013; Mahdi and Masood, 2011; Gul and Acikalin, 2008 and Fatima and Sahibzada, 2012) have investigated the Fisher Effect relationship in Saudi Arabia, Jordan, Iran, Turkey and Pakistan. Most of the studies support the Fisher hypothesis and conclude nominal interest rates as a predictor of inflation rate in future.

Malaysia is a unique country as the banking system allows to be operated in dual banking system which means conventional market operates in parallel with Islamic market. There is no study being undertaken to determine the relationship among nominal rates of interest and expected inflation rates particularly in Islamic market. The present

study is motivated to take this as an opportunity to follow the conventional theory (Fisher Effect) in an attempt to investigate the Fisher Effect relationship in Islamic money market. A study from Kassim and Manap (2008) has found high information content of the Islamic Interbank Money Market Rates (IIMMR). The author suggests that the IIMMR could be an effective trigger variable to influence movements of the macroeconomic variables as a direction of the economy as intended by the central bank.

After 19 years since the establishment of Islamic money market, it has experienced a rapid growth, in tandem with the vibrant and progressive Islamic financial sector in the country. This is well reflected by the large amount of funds channelled by the Islamic money market, which range from RM30 billion to RM40 billion monthly. Figure 2 explains the volume of transaction for conventional and Islamic money market in Malaysia.

Figure 2: Volume of Conventional and Islamic Money Market



Source: Bank Negara Malaysia

From Figure 2, it is clearly seen that both markets are highly competitive for the first two years in terms of volume transactions. It was after a gradual period that the volume transaction in Islamic market is greater than conventional market. Due to the supportive policy environment, as well as the increasingly high demand for Islamic financial products by the local and global players, the Islamic money market has become one of the most attractive markets in Islamic banking industry in Malaysia

As the Islamic and conventional money markets experience high competitiveness with each other, the issue that the researcher is going to solve in this study is explained as below:

“Is the conventional or Islamic money market in Malaysia efficient to predict inflation in future?”

According to Fama (1975), he reveals that market are said to be efficient when the validity of Fisher Effect is supported. He also tests the Fisher Effect theory to support his Efficient Market hypothesis. Furthermore, the study from Law, Tan, and Baharumshah (1999) state that market is efficient, in a sense of interest rates, when the nominal interest rates are fully reflected with the changes of expected inflation.

Since the commencement of Islamic money market in Malaysia, it indirectly gives a great competitiveness to its conventional market. The performance of the Islamic money market has been comparable to its conventional counterpart. The Shariah principles distinguish Islamic market from conventional market, as they are not restricted to similar principles in managing its activities. Islamic market is free from interest (riba), gambling (maisir) and uncertainty (gharar) elements because the funds are restricted from being

invested in the non-halal activities. However, there is no such restriction for investments made by conventional counterpart. For this distinction, the adjustment between interest and inflation rates in Islamic market might be moving in different way from the conventional market. Perhaps the findings from this study may provide information on which market is efficient to predict inflation in future.

1.5 Research Questions

The main interest of this paper is to determine the existence of Fisher Effect between conventional and Islamic money markets. Market is said to be efficient if the result found existing of the Fisher Effect on the variables. Thus, it shows that the market correctly uses all the available information to predict inflation in the future (Fama, 1975). This study also attempts to test the granger causality to find any direction of the relationship between the variables in Malaysian money market. Specifically, the research questions in this study are the followings:

- i. Does Islamic Money Market rate behaviour move in the same way with Conventional Market rate to predict future inflation?
- ii. What is the directional relationship between Money Market Rates and inflation in Malaysia?

1.6 Objectives of the Study

There are two main objectives of this study:

- 1) To investigate the existence of long run Fisher Effect in Conventional and Islamic Money Markets
- 2) To test the short run causality relationship between nominal interest rates and inflation rates in both markets.

1.7 Significance of the Study

This study extends the finance literature by making several important contributions. In Malaysia, it has less empirical studies of Fisher relationship in numbers especially in Money Market. Most of previous researches have been done to test the Fisher Effect in conventional market and some of them face difficulties to find evidence of Fisher Effect to take place in their study area. Therefore, the focus of this study is to go deeper in investigating Fisher Effect relationship by including Islamic Money Market in this study.

Firstly, the study would contribute to the body of knowledge on Malaysia money market by addressing some of the gaps in recent literature in particular, i.e. the lack of extensive research in Malaysia money market, especially in Islamic Money Market that shows rapid growth through various forms of deposits and trading of Islamic instrument.

Islamic money market is vital in the function of Islamic finance in Malaysia. Moreover, for several years back, volume transaction of Islamic money market is leading as compared to conventional money market. This research is going to use the theory of Fisher Effect as the solid layer for the research to further confirm relationship between

nominal interest rates and inflation rates for accuracy of predictive power of expected inflation from the view of Islamic market.

Secondly, Fisher equation has been important to analyze the relationship between nominal interest rates and expected inflation (Mitchell-Innes, Aziahkpono and Faura, 2008). One of the important roles of BNM is to transmit its monetary policy. BNM was appointed by the government as a regulator that is responsible for monetary policy implementation. It has been taken into account by central banks in making decision for effective monetary policy. The study by Van Der Merwe (2004) shows that policy changes have to depend on the expected development in inflation under the inflation targeting monetary policy regime. BNM is pursued to sustain monetary stability by ensuring that growth in bank credit and money supply are just adequate to nurture growth in the economy, without causing inflationary pressure. When the inflation is relatively high BNM may use monetary tools to mop up liquidity or tighten the credit in the market. The policy involves are contractionary and expansionary monetary policies, aiming at controlling money supply. The examples of monetary tools used by the government are Open Market Operation (OMO), Statutory Reserve Requirement and Discount Rate. A study from Granville and Mallick (2004) states if the study holds the Fisher theory, they conclude the short-term interest rates will be a good predictor to predict inflation in future. Thus, the significance of the Fisher relationship needs to take into account by BNM, for better understanding of the dynamics between nominal interest rates and inflation.

Third, this study would be beneficial, especially to the participants in Money Market such as government, corporation and commercial banks. As the role of money market is to provide liquidity, the participants are always in demand for liquid funds to adjust their portfolios through the short-term funding facility provided. Money market is if the study found the evidence of Fisher Effect. Such situation can improve the availability of short-term financing in money market and this can help corporation as well as commercial banks to solve their liquidity issues. Muslims prefer to invest in Islamic financial instruments as it adheres to the Shariah principles as cited in the Qur'an and Sunnah. The returns from the trading are that the activities do not contradict with the ethics of Islam.

Last but not least, the Fisher Effect has great implications to debtors and creditors, as a result from the effectiveness of monetary policy and efficiency in banking sector. According to Ito (2009), he states when monetary policy is effective, nominal interest rates tend to move in accordance with the expected rate of inflation. This will give the direction to the debtors and creditors an appropriate time to borrow and lend out the money. When inflation goes up, regulators tighten the liquidity in the market and this causes increase in interest rate. This will bring discouragement to debtors and creditors as interest rates increase, the cost of borrowing money will be high for a debtor and drop the value of money for creditors who have given out the loan earlier.

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LIST OF APPENDICES