THE CYCLICAL BEHAVIOUR OF ISLAMIC BANK FINANCING

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ABSTRACT

This study aims to examine the claim on Islamic banking offers a more stable financial environment as opposed to their conventional counterparts, from the dimension of their financing behaviour. Business cycle theories suggest that one of the factors that lead to the instability is banks' lending behaviour that tends to over-lend during the booming period and restrict lending during recession.   Islamic finance principles work differently, where banks, while could capitalise the opportunity to lend during the booming period, cannot ignore the need to build up the provision for bad and doubtful financing as the financing increases. This helps to moderate the financing growth of booming period. Employing an unbalanced panel data analysis onto global Islamic banks, the findings suggest that the growth of Islamic bank financing is independent of the growth of business cycle indicators. Even when analysed on the fixed rate financing the results hold, suggests that even if the modes of financing is akin to their conventional counterparts, Islamic bank fixed rate financing behaviour is distinct from the conventional ones.   In addition to that, an examination of bank provision provides empirical support that Islamic banks do build up contingency reserves accordingly following growth of financing. Collectively, these empirical evidences suggest that where financing behaviour is concerned, Islamic banks are able to offer an economic environment that is more stable. Although the evidence did not claim that their operations are counter-cyclical, but their financing growth is independent of the business cycle. Besides, Islamic banks do practice in building up enough provisioning to support their financing growth.

ABSTRAK

Kajian ini bertujuan untuk menilai dakwaan bahawa perbankan Islam menawarkan persekitaran kewangan yang lebih stabil berbanding dengan perbankan konvensional dari dimensi gelagat pembiayaan mereka. Teori kitaran perniagaan mencadangkan bahawa salah satu faktor yang membawa kepada ketidakstabilan adalah gelagat pinjaman bank yang cenderung untuk menyalur pinjaman secara berlebihan dalam tempoh ekonomi mengembang dan menyekat pinjaman semasa kemelesetan. Prinsip kewangan Islam pula adalah berbeza, walaupun bank-bank boleh mengambil kesempatan untuk meningkatkan pemberian pembiayaan dalam tempoh yang berkembang pesat, dalam masa yang sama tidak mengabaikan keperluan untuk membina peruntukan bagi pembiayaan lapuk dan ragu kerana kenaikan pembiayaan. Ini membantu untuk menyederhana pertumbuhan pembiayaan dalam tempoh berkembang pesat. Menggunakan analisis panel data taksetara ke atas bank-bank Islam secara global, penemuan mencadangkan bahawa pertumbuhan pembiayaan bank Islam adalah bebas daripada pertumbuhan petunjuk kitaran perniagaan. Apabila dianalisis ke atas pembiayaan kadar tetap, walaupun bentuk operasi pembiayaan adalah hampir serupa dengan perbankan konvensional, tetapi keputusan turut menunjukkan bahawa gelagat pembiayaan tetap bank Islam adalah berbeza daripada perbankan konvensional. Ujian empirikal ke atas peruntukan rizab kontingensi oleh bank turut membuktikan bahawa bank Islam juga membina rizab kontingensi sewajarnya berikutan pertumbuhan dalam pembiayaan. Secara kolektif, terdapat bukti secara empirikal menunjukkan gelagat pembiayaan oleh perbankan Islam mampu menawarkan satu persekitaran ekonomi yang lebih stabil walaupun tidak ada bukti kukuh yang dapat mendakwa bahawa operasi mereka adalah bergelagat menentang kitaran, tetapi pertumbuhan pembiayaan mereka adalah bebas daripada kitaran perniagaan. Selain itu, bank-bank Islam juga menyediakan peruntukan yang mencukupi untuk menyokong pertumbuhan pinjaman mereka.

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In the Name of Allah, the Compassionate and the Merciful.

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CHAPTER 1

INTRODUCTION

1.0 Introduction

In 1990s, several developing countries faced sudden financial crises shocks followed by severe real economic activity slumps. Many countries experienced instability of their economic environments due to the instability of the financial market, especially, after the 1994 Mexican peso devaluation, followed by the Asian financial crises in 1997-1998, and the Russian default of 1998. This financial market instability has much to do with the improper management of banks' lending operations. The subprime crises in 2007 that shocked the United States economy and the Greece financial crisis that stunned the European nations were the latest twists in the global recession felt globally related to the banks' lending operations.

A more perturbing issue connected to the instability of the financial market and has recently come to the lime light is the interest-based bank lending operation that has an intrinsic tendency to behave pro-cyclically to the business cycle. This pro-cyclical behaviour of the bank lending operation has worsened the economic crisis rather than smoothing the economic activities fluctuation.

Many empirical studies have provided evidence of the existence of a pro-cyclical behaviour of the interest-based bank lending operations to the business cycle episode (example of latest studies such as by Gruss and Sgherri, 2009; Albertazzi and Gambacorta, 2009; Rochet, 2008; Adrian and Hyun, 2008; Bouvatier and Lepetit, 2008; Quagliariello, 2007 and Nan and Hung, 2007). Some studies even show that to some extent it may even exacerbate the swing resulting in "credit crunch" incidents. This is consistent with the economic fluctuation events for the past twenty years.

1.1 Overview of The Study

Scholars, regulators, and financial market participants have expressed much concern about this excessive pro-cyclical behaviour of the interest-based bank lending operations to the business cycle occurrence. This pro-cyclical behaviour of banks lending will intensify the business cycle swing of the macro economy and may hamper the economic recoveries from recessions. The increasing numbers of economic environment turbulence, unpredictable fluctuation, and complexity related to the pro-cyclical behaviour of the interest-based bank lending operations have become one of the hottest issues debated by economists, policy makers, and practitioners.

This pro-cyclical behaviour of the currently practised bank lending activities will create a serious implication on the financial market stability and real economic performances. Pro-cyclical behaviour of bank lending operations without doubt will disrupt the progression of economic growth. This unconstructive bank lending behaviour in fact will increase the unsteadiness of economic growth especially in the developing countries that have integrated largely into international financial markets (Kroszner et al. 2007 and Prasad et al. 2003 provide empirical evidence on this). The pro-cyclical behaviour of the existing banking system will bring a huge negative impact on the banking industry development and other economic sector growth in the short term and long term as well. This bank lending pro-cyclical behaviour will definitely intensify the risks of every economic sector.

This apparent excessive pro-cyclical behaviour of the interest-based bank lending is harmful to the economic atmosphere, it is crucial to economists, regulators, and practitioners to explore the causes, gaining thorough knowledge about the nature of this pro-cyclical behaviour and mitigating it. Public confidence in the banking system will diminish if they failed to do so. For instance, during the 1930's great depression

episode, one of the major reasons that worsen the economic crush on the United States was the deteriorating confidence in the banking system. The bank weaknesses were apparent at that time, banks closing their lending doors followed by a growing number of firms that had failed. Chain reactions started to crop up and spread the economic depression not just in the United States, but also throughout the globe.

The recent financial turmoil that has shaken the global economic environment is a direct result of an unexceptional increase in lending growth and financial leverage within the financial system during an upward growth of the economic activities. The United States 2007 subprime crisis for instance was caused by the excessive lending operation by banks of high-risk customers and the transaction of financial debt instruments such as the Collateralised Debt Obligations and Mortgage Backed Securities. The European Sovereign Debt Crisis of 2010 related to the Greece's financial crisis is the latest financial crisis that is closely related to the excessive rise of credit growth and financial leverage due to the speculative financial and commercial transaction during the economic activities expansion within the interest-based financial system.

There is a similarity between the current financial crisis and other previous financial crisis occurrences. In all the financial crisis occurrences, they started with a period of strong economic growth followed by a rapid growth in credit volume and real asset prices rising sharply. Indiscriminate lending to the corporate and household sector is evident prior to the crises. For example, prior to the Asian financial crisis, investment activity was excessive with the investment to gross domestic product ratios exceeding 35 per cent for many economies in the region (Aziz, 2009). Similarly, the imprudent lending practices originated the subprime crisis. The low interest rate environment also accentuated the build-up of the excesses and rising asset values. Aziz (2009) also reported, Asia domestic credit had increased to unsustainable levels reaching 180 per

cent of gross domestic product during this period and in the United States, the increase was close to 240 per cent in 2007.

In the subprime financial crisis episodes, then again, the excessive increase in lending activities and risk taking have reinforced the formation of asset bubbles. This growth continuously increases to the asset bubbles reached their edges. At this level of the 'overheated' United States economic atmosphere, the economic growth then experiences a downturn and enters a contraction. As a result, the lending activities of banking institutions become slower and the over pessimistic behaviour to the downturn of economic activities worsens the business cycle scenario.

Ivashina and Scharfstein (2009) reported that in the United States' case when the economic condition reversed in the last quarter of 2008, new loans by banking sector to large borrowers fell by 47 per cent during the peak of the crisis relative to the prior quarter. New loans by the banking sector to large borrowers fell by 79 per cent relative to the peak of the credit boom that was in the second quarter of 2007. New lending for real investment of working capital and capital expenditures fell by 14 per cent in the last quarter of 2008, but contracted nearly as much as the new lending for restructuring (LBOs, M&A, share repurchases) relative to the peak of the credit boom.

Many empirical studies show that the interest-based bank's lending operations are behaving in a pro-cyclical manner associated with the loose management practices on the provision for loan losses and credit rating policy (Albertazzi and Gambacorta 2009; Adrian and Hyun 2008; Bouvatier and Lepetit, 2008; Quagliariello, 2007; Bikker and Metzemakers, 2005; and Bliss and Kaufman, 2002). A survey by Economist Intelligence Unit and SAS in 2009 showed that more than 70 per cent of the world leading financial service executives believed that losses stemmed from credit crisis were

largely due to the inherent failure in addressing the risk management issues during the expanding of economic activities.

Empirical studies also show that the profit driven enthusiasm might as well have contributed to the pro-cyclical behaviour in connection with the short term business cycles (Albertazzi and Gambacorta, 2009; Bikker and Hu, 2002). Some commentators also argued, the reforms of international bank regulation (Basel I and Basel II) and accounting rules (IAS 39) are likely to amplify the pro-cyclicality behaviour of the interest-based banking activities in the future (Gruss and Sgherri, 2009; and Rochet, 2008).

Muslim scholars, on the contrary, stated that the root of this undesirable behaviour is the exercise in certain unfavourable financial instruments, investment, and other financial transaction activities from the Islamic ruling or the *shariah* point of view. The most undesirable instrument used in financial and commercial operations, according to them, will be the interest-based instruments that bear the characteristic of *riba* (usury). They pointed out that the international monetary crises largely connected to the institution of interest-based instruments and that trade cycles are in no small measure attributable to the phenomenon of interest (Siddiqi, 1981; Ziauddin et al., 1983; Khan, 1986; Khan and Mirakhor, 1986 and 1989; and Chapra, 2008b).

Others have also argued that interest is not a very effective instrument of monetary policy even in capitalist economies and have questioned the efficacy of the rate of interest as a determinant of saving and investment (Ariff, 1982; Darrat, 1988 and 2002; and many more). Tlemsani and Matthews (2002) in criticising the interest-based instrument mentioned that Fisher (1930), Simons (1948), and Friedman (1969) all agreed that the interest-based financial systems are not sound. Khan (1968) and Ahmad

(1952) in addition, even assured that interest as a financial instrument being a pre-determined cost of production tends to prevent full employment.

The holy Quran and prophet Muhammad (saw) himself does not explicitly spell out the rationales for prohibiting *riba*, however, the Islamic scholars' argument is that the underlying principle of the prohibition on *riba* is the calls for fairness and justice. It is in response to the unfair and unjust allocation of the realised income generated from the interest-based instruments. It is an income created without engaging in any productive effort.

There are also other forms of financial and commercial transactions practiced by the interest-based bank that go against the Islamic values. The existence of forbidden (*haram*) financial and commercial transaction activities involving speculative feature, ambiguous and uncertain transaction, and trading of financial risk instruments by the interest-based banks according to the Islamic scholars are the main contributing factors to the economic instability.

The increase in the volatility of economic activity since 1970s, which became highly erratic after 1990s, has raised concern on the effectiveness of the currently practised interest-based financial system. This has become one of the most debated issues for the last ten years. The issues are whether the current interest-based banking system practices, policies, and instruments that we are using are able to smooth the economic instability.

These continuous financial crises happening to the global financial system during the past decades have signalled the incompetence of the interest-based financial system. The interest-based banking systems, the policies implemented, and even the instruments

currently used by most countries are now opened with discussion of its capability to make the economic atmosphere become more stable and resilient. In some countries, the regulators have even introduced higher capital requirements, tighter loan classification, and provisioning rules, tighter collateral, tighter eligibility criteria, and other constructive rules, yet they have failed to smooth the economic atmosphere. Further instability of economic atmosphere can be expected if the current financial system is still being practiced by the economy.

Many studies have argued that the instability in the banking sector in particular has contributed to the fragility of the economic atmosphere for the past thirty years. There is increasing amount of academic literature discussing both the theoretical and practical viewpoint to reconsider the effectiveness of the existing interest-based financial system and its banking system, in particular, for maintaining the economic stability.

The existing of flaws in the interest-based bank operational systems from the Islamic rulings or the *shariah*, Muslim scholars asserted that the Islamic economic system in general and the Islamic financial system in particular have the solution to stabilise the economic environment. With the *shariah* compliant operations such as applying the sharing of profit and loss instrument as well as sharing the risk and with the nonexistence of interest-based related operations, the Islamic financial system and institutions would be more stable and resilient.

The Islamic banking proponents even claim further that the *shariah* compliant financing operations would make the Islamic bank behaving counter-cyclical to the business cycle. Thus, the Islamic banking operations will be able to stabilise the macroeconomic condition, smoothen the economic activities, and handle the fluctuation of the economic

activity and financial crisis better. Increasing the share of equity and reducing that of debt will reduce the volatility in the financial market.

The failure of the interest-based financial system to play its role in stabilising the economic environment added with the continuous global economic disorder related to the interest-based system has sparked global attention on the Islamic financial system. At present, there are an increasing number of acceptances among the non-Muslim economists and financial practitioners on the Islamic financial instruments. Some of them have even regarded the Islamic financial system to be superior to the interest-based financial system. Interestingly, some major non-majority Muslim countries such as Germany, United Kingdom, and United State have started providing some Islamic financial instruments and even establishing Islamic financial institutions.

The Islamic bank runs the same activities as the interest-based bank operation. The operation of Islamic bank includes practically all aspects of business, commerce, and investment as provided by the interest-based bank institution. From monetary economics stances, Islamic bank plays the role as the matchmaker between the suppliers of funds to those who are short of funds of the economy. The financing portfolio is the major source of income for the Islamic banks' business activities. The only difference compared to interest-based bank institution operation is that Islamic bank operations are without the infringement of Islamic principles.

The pertinent question is that does the Islamic bank financing operation have a tendency to behave counter-cyclical to the business cycle event.

1.2 Problem Statement

For the past 20 years, many studies on the interest-based bank have clearly shown the bank's lending operation acting's pro-cyclically to the business cycle occurrence. The financial crisis of the 1990s until the present has greatly increased the attention to the economists, regulators, and practitioners on the issues of pro-cyclical behaviour of interest-based bank lending.

The pro-cyclicality behaviour of interest-based bank's lending has a lot to do with its failure of managing the provision for loan losses and capital policy in the event of economic fluctuations (examples of recent studies are by Albertazzi and Gambacorta, 2009; Adrian and Hyun, 2008; Bouvatier and Lepetit, 2008; Quagliariello, 2007; and Nan and Hung 2007). Failing to manage the provision for loan losses and capital, thus, the amount of interest-based bank's lending has the tendency to increase excessively from the upward phase of economic activities because of over optimistic behaviour. At the time of economic activities downtrends, the interest-based banks have the tendency to overreact and decrease the credit supply significantly for the reason of over pessimistic behaviour.

On the other hand, Muslim scholars believed that the banking system would be able to manage the economic atmosphere and financial market better with the existence of financial and commercial transactions practice in accordance with the Islamic principles, compared to banks that do not adhere to the Islamic values and norms. Majorities of prominent contemporary Muslims economists' scholars like Siddiqi (1981), Khan (1985), Khan (1986), Khan and Mirakhor (1988), Ziauddin et al. (1994), and Chapra (1996), to name a few, also believe that the virtue of the Islamic financial system will bring stability to the macroeconomic environment.

The superiority over the Islamic financial intermediaries comes with its unique characteristics such as forbidding any financial and commercial transaction involving speculative activities, ambiguous and uncertain financial transactions, and transactions of financial risk alongside with the exclusion of all interest-based instruments practices.

With those unique characteristics, the Islamic bank project financing and investment are more transparent for the reason that its operation is within the moral value structure, very selective and cautious in the selection of projects. For those reasons as well, the scholars further believed that the Islamic bank would be more resilient and stable through its operations especially with the profit and risk sharing instruments.

With unique characteristics underneath the operation of the Islamic financial system, proponents of the Islamic banking promote the idea that it will behave counter-cyclically to the business cycle incidence. They alleged that the Islamic bank operation is able to weather the economy and financial crisis better. They also put forward that long term financing through *shariah* compliant instruments is able to promote a stable economic growth. They even said that the Islamic banking framework would ensure a more stable monetary system that will lead to an equitable distribution of wealth (Siddiqi 1983 and Chapra 1996).

The concern is that much of the views presented by the scholars are theoretical in concepts and descriptive in nature with very little support of empirical evidence. In today's highly developed and objective world, it has become a necessity to unify all the theoretical foundation and conceptual rationalisation with the empirical evidence to support the proposition and consideration brought forward. Thus, in-depth empirical evidence should follow the theoretical and conceptual framework to explain the nature of Islamic bank behaviour and not mere theoretical and conceptual description. Hence,

it is important to provide empirical evidence of the views made on the Islamic bank behaviour, capability, and superiority.

The perturbing issue that needs to be raised as well are the large amount of trade-based financing utilised by the Islamic bank of the present instead of the original idea that is the equity-based financing structure. The more worrying issue is the financing rate for trade-based financing instruments are in the form of fixed rate financing and not in the form of profit and risk sharing instruments as proposed by scholars (Aggarwal and Yousef, 2000; and Bakar, 2006).

This trade-based financing currently used by the Islamic bank is a debt-like instrument with a fixed financing rate of nature that will bring a fixed return to the bank. According to some of the Islamic scholars, this currently practiced debt-alike instrument might resemble the characteristic of *riba* (usury). Some of the scholars condemn the Islamic bank of using the debt-alike instrument as not adhering to the ideal Islamic banking principles.

The volume of fixed rates financing instruments by most Islamic banks on average comprised 60 per cent to 80 per cent of the total financing delivered by the Islamic bank institution. In Malaysia for instance, the profit and risk sharing instrument is less than 5 per cent at present. Currently, the Islamic bank operations in Malaysia are more concentrated on the trade-based financing instrument (Rosly and Bakar, 2003; Sanusi and Ismail, 2005; and Bank Negara Malaysia, 2008). Survey such as by Khan and Bhatti (2008) shows that the use of profit and risk sharing instrument has even reduced in size by an average of 11 per cent since mid-1990s.

With the large amount of debt-like instruments currently used and with the marginal amount of profit and risk sharing financing presently practiced by the Islamic bank, the capability of Islamic bank to smooth the macroeconomic condition is doubtful. With such financing operations and with the vulnerable economic atmosphere at present, will the Islamic bank financing operation behaving counter-cyclical to the business cycle event. With the increasing pressure in economic turbulence, complexity, dynamism, and unpredictable economic atmosphere, will the Islamic bank be more resilient and stable?

1.3 Research Question

This fragility of economic environment related to the interest-based financial system instability lately needs immediate discussion. Economists have started arguing that the existing system and the policy instrument itself failed to solve or manage the current economic issues. This continuous global financial disorder and the failure of interest-based financial systems to stabilise the economy has sparked the interest in the Islamic financial system, especially so when Muslim scholars proposed that the Islamic financial system virtue will bring stability to the economic environment. Muslim economic scholars for the past three decades have confidently recommended that the Islamic financial model had the answer. They have presented the theoretical foundation and conceptual description on the potential of Islamic bank in mellowing the unpredictable fluctuation of economic activities.

The Islamic scholars theoretically believe the Islamic financial system with the special characteristics and divine guidance underpinning would be able to stabilise the economic environment. The Islamic bank frees of the ordinary interest-based financial and commercial transaction practices and with its special characteristics is expected to be more stable compared to its counterpart. Thus, as believed by most Islamic bank

proponents, the Islamic bank will behave counter-cyclically to the business cycle happening.

With the unpredictable financial economic environment and coarse volatility of business cycle of late, will the Islamic bank financing operations in fact be very independent of the aggregate economic activities fluctuation? With the large amount of fixed rate financing instruments used in its operations, will the Islamic bank financing operations behave counter-cyclical to the business cycle event?

With those questions in mind, the idea of Islamic bank capability to smoothen the rise and falls of economic activities is now questionable. At present, empirical evidence of Islamic bank financing behaviour of the business cycle phenomena is yet to be attempted. Therefore, with the theoretical thought and descriptive explanations on the Islamic bank stability and sturdiness brought up by the Islamic banking proponents, the present research has the intention to investigate empirically the questions on

1. Do the Islamic bank's total financing activities behave counter-cyclically to the business cycle occurrence?

2. Do the Islamic bank's fixed rate financing activities behave counter-cyclically to the business cycle occurrence?

The research questions arise from the reason for the absence of empirical evidence to support the Islamic bank proponents' proposition on the potential of the *shariah* compliant financing instruments to smoothen the economic fluctuations. In addition, the proposition on the Islamic bank stability and resiliency is yet to be proven. The Islamic scholars theoretically believe that the Islamic bank is supposed to be stable and resilient in the event of economic fluctuations, therefore, it is necessary to conduct an empirical

analysis to verify the capability, stability, and resiliency of Islamic banks in the event of business cycles.

As part of the theoretical framework explaining the nature of Islamic bank operations, it should be followed by intense empirical evidence and not merely a theoretical description. It is important to provide empirical evidence on view made of the Islamic bank behaviour and its capability to resolve the uncertain and volatile economic environment. At the least, the present empirical study tries to investigate whether the Islamic banking system practice currently is able to provide a way to minimise the degree of economic fluctuation. Western economists and financial practitioners now have also begun to show some interest and acceptance in the Islamic banking system. Some major countries including the United States and some major industrial countries in Europe have even started providing Islamic financial instruments and established Islamic financial institutions.

It is indisputable that banks behave differently at different stages of the business cycle. It is crucial to examine empirically the propagated effect of business cycle incidents on the Islamic bank financing operations. Analysing empirically the potential of *shariah* compliant financing instruments in stabilising the economic atmosphere is important too.

With the issues on the fixed rate financing instruments, which is widely practised by the Islamic bank currently, the unforeseen and unpredicted consequences might arise from the operation related to the business cycle. Malaysia Islamic banking sectors for example during the 1997 financial turmoil, the excessive use of the fixed rate financing instruments have badly affected the Islamic bank investment operation (Rosly and Bakar 2003). The tight liquidity situation has put pressure on the operations of the

Islamic bank. The 1997 turmoil revealed structural weakness for the Malaysian Islamic banking operations particularly under a volatile economic environment. On the other hand, Aziz (2010) stated the proponents of the Islamic finance system claimed that the current financial crisis impacts on the Islamic bank are very limited. The uniqueness of portfolio asset management are said to be the reason for this mild concussion faced by the Islamic bank.

Therefore, the primary question that requires immediate consideration is whether the aggregate economic fluctuation in reality has any influence on the Islamic bank financing operation. In some ways with the unstable and unpredictable economic environment of the past few years, there is a need to assess the cyclical behaviour of Islamic bank financing. The stability and resiliency of Islamic bank are verified by the influence of economic activity fluctuations on the Islamic bank financing operation since financing is the main source of income to the bank.

The second question queries about the possibility of financing instruments currently used by the Islamic bank, namely the fixed rates financing to counter-cycle the economic fluctuation. With special characteristics underpinning its operation, fluctuation in real gross domestic product, changes in the money supply, and the general price level as indicators of business cycle occurrences should respectively have a modest shock on the Islamic bank financing operation. To prove that the Islamic bank is capable of smoothing out the economic environment and hence behaves counter-cyclically, the financing should increase with decreasing rate relatives of the growth of real gross domestic product, money supply, and the general price level.

To answer the above questions, this particular study investigates and analyses the Islamic bank financing behaviour in the business cycle event. From this study, it is

hoped that it will be able to provide a better viewpoint and bridge the gap between theoretical and conceptual literature with empirical evidence on the potential of the Islamic banking system. It will also determine the source of the problem of Islamic bank operation related to the business cycle event, if there is any.

1.4 Research Objective

The failure of the interest-based financial system in reducing the heat of the business cycle has inspired Muslim economists to recommend the Islamic financial system, and in particular, the Islamic banking system as an alternative to the current ineffective interest-based banking system. With the small amount of profit and risk sharing instrument and with the large usage of the fixed rate financing instrument, whether the Islamic bank financing operation will behave counter-cyclically is a matter that needs an immediate confirmation. With that in mind, in general, this particular study is an attempt to investigate the association of Islamic bank financing activities to the business cycle occurrence. More importantly, the aspiration of the study is to evaluate the cyclicality behaviour of Islamic bank financing.

To be specific, from the issues brought forward in this study, this particular research empirically examines the cyclicality behaviour of the Islamic bank total financing and the cyclicality behaviour of the fixed rate financing activities in the event of business cycle phenomena. Therefore, this paper attempts to:

1. Examine the cyclicality behaviour of the Islamic bank financing operations.

2. Examine the cyclicality behaviour of the Islamic bank fixed rate financing operations.

3. Analyse the Islamic bank management on provision for bad and doubtful financing and contingency reserve growth in order to manage the counter-cyclical behaviour of Islamic bank financing.

This study specifically differentiates between total bank financing operations and fixed rate financing operations. This is because fixed rate financing is akin to interest-based bank modes of financing, which have proven to be pro-cyclical. Hence, it is in the interest of the study to examine into the case of Islamic banks, whether the fixed rate financing also follows the interest-based banks financing pattern or Islamic banks behave differently. If the evidence support that even with fixed rates financing, Islamic bank behave differently from its conventional counterpart, than it offers an indication that Islamic banks financing behaviour is unique as compared to the interest-based bank.

The first objective looks at the association for the expansion and contraction of the business cycle to the Islamic bank total financing operations. This will provide some evidence on the cyclical behaviour of Islamic bank financing activities. The cyclical behaviour is shown by the direction of associations for real gross domestic product growths of the main business cycle indicators to the Islamic bank financing growth activities.

Evidence of Islamic bank counter-cyclical behaviour, the Islamic bank financing growth should have a negative relationship to the real gross domestic product growth. The negative relationship shows that the financing activities are supposed to grow at a diminishing rate or at a slower rate during economic expansions. The diminishing growths of the Islamic bank financing activities during economic expansion are for the institutional safety due to the increase in the economic risk of the expansion of economic activity. If the Islamic bank behaviour is healthy, stable, and resilient as expected by scholars, then the degree of its financing growth is minor and less significant than the degree of growth in the real gross domestic product.

On the contrary, during an economic downturn, the Islamic bank financing growth is supposed to be growing at an increasing rate to boost up the economic environment. During this contraction period of economic activities, the financing operation of the Islamic bank is supposed to grow at a faster rate. The more rapid growth of Islamic bank financing during economic contractions is to augment on economic activities.

The Islamic bank feature mentioned above is because of obeying Allah's (swt) instruction in chapter Yusuf (12:47-48), which is to reduce spending on economic upturns and to increase spending in the event of an economic downturn.

> *"He said, "For seven years you shall sow continuously, then what you reap leave 5 it on the ear, except a little whereof you eat (47). Then thereafter there shall come upon you seven hard years, in which you shall devour all that you have reserved for them, except a little you keep in store (48).* (Yusuf: 46-48).

The study also examines the expansion and contraction of the Islamic bank financing operation when the amount of money supplies circulating in the market change. This will also provide some evidence on the Islamic bank capability to stabilise the economic environment. It is beyond doubt that money supply also tends to increase from economic expansion. Along with the growth of money supply, the Islamic bank financing should be growing at a diminishing rate so that it is able to smooth out the expansion of economic activities. A negative relationship between the growths of money circulating in the market to financing growths provides the evidence of slower Islamic bank financing growth. With the decreasing rate of the Islamic bank financing growth during the economic upturns, it will be able to trim down the overheating of the economic activities.

Another indicator used to measure the cyclical behaviour of the Islamic banking industry to the business cycle is the relationship between the general price level growths and the Islamic banks financing growth. As the economic activities are growing so does the general price level indicated by the increase in the consumer price index. For security reasons, the Islamic bank should tighten its financing activities. Therefore, the consumer price index and the Islamic bank financing growths should be negatively related. The negative growth of financing volumes also shows that it is increasing with diminishing rate.

The second objective of the thesis is to explore the cyclicality behaviour of Islamic bank fixed rate financing instruments as the economic activities expand or contract. With the large amount of fixed rate financing employed currently by the Islamic bank, will the Islamic bank financing operations behaving pro-cyclically to the business cycle event just like how the interest-based bank lending behaves. Thus, the analysis will provide empirical evidence for the cyclical behaviour of the fixed rate *shariah* compliant financing instruments and its likelihood to smooth out the business cycle event.

Besides evaluating the relationship between the business cycle indicator growths and the Islamic bank financing growth as evidence of the counter-cyclicality behaviour, the contingency reserve and provision for bad and doubtful financing growths should also behave positively to the economic growth. It is important to examine the capability of Islamic bank contingency reserve and provision for bad and doubtful financing policy in managing the Islamic bank financing growth in the event of the business cycle. It will verify the capability of these bank buffers to control the Islamic bank financing volume to smooth out the business cycle event. In a way the contingency reserve and provision for bad and doubtful financing movement also shows the effectiveness of the Islamic bank in managing its operation to the business cycle risk.

The Quran, through chapter Yusuf (12), from verse 46 to 49, clearly implies the importance of contingency reserve and provision for bad and doubtful financing instruments for individuals and firms in managing the business cycle. Allah's (swt) instruction in these verses is that the spending activities have to be reduced during high economic growth. In the event of economic downturns to generate the economy, spending has to be raised.

With the intention of reducing the investment, spending, and profit driven enthusiasm in the event of growing economy, the contingency reserve and provision for bad and doubtful financing are able to play that role. In the event of lower income growth, the contingency reserve and provision for bad and doubtful financing will now be used to increase the investment spending in the economy. Hence, the banks' buffering policy provided by the contingency reserve and provision for bad and doubtful financing movement is supposed to moderate the financing growth in the event of business cycle.

The contingency reserve and provision for bad and doubtful financing instruments should be able to control the financing growth so that it is able to put pressure on the financing activity in the event of economic expansion. During the contraction of economic, the contingency reserve and provision for bad and doubtful financing growth should be able to amplify the financing activities. Therefore, the contingency reserve and provision for bad and doubtful financing growth should have a positive relationship with bank financing growth for it to behave counter-cyclically. These buffers policy effectiveness also pictures the cyclicality behaviour of Islamic bank financing operations.

Taken as a whole, the entire objectives of the study are to provide empirical evidence of the Islamic bank superiority and to answer the main issues whether the Islamic bank is

able to smooth out the economic environment. If the Islamic bank is found to react counter-cyclically to the business cycle, hence, the Islamic banking sector is in a good position and this supports the views proposed to the Islamic bank superiority. Thus, the study aspiration is to evidence the capability of the Islamic bank operations to play the role as the economic stabiliser agent.

At this point, with its fast growth and increasing acceptability in the financial scene it is important to observe the likelihood of the Islamic bank operations in contributing to the economic stability. Although the market size of Islamic bank today is still marginal relative to the interest-based bank, the competitive environment is expected to stimulate the Islamic banking growth. Therefore, it is vital to observe the Islamic banking system in terms of its microeconomic behaviour and the macroeconomic capability.

It is essential to observe the potential for managerial and regulatory purposes well as. Without persistent monitoring, existing problems can remain unnoticed and could lead to the financial failure in the future. The strength and speed in utilising the assets for financing activities are also vital for the Islamic bank to perform the monetary transmission mechanism role. The slower the transmitter works and the longer the lag, the slower and lesser will be the effectiveness of monetary policy on business cycles. This particular study will shed some light on the Islamic bank capability in moderating the business cycle events.

1.5 Scope of Study

Evaluating the banking operational behaviour in particular is vital for the reason that the banking sector is one of the key sectors that support and contribute economic growth and development. For the importance of financial markets and institutions, this study focuses on the behaviour of Islamic banks' financing operations to the fluctuation in the

economic activities and relates them to the cyclicality behaviour. As one of the earliest and the most significant Islamic financial institution, it is essential to monitor the institutional development to make it acceptable to the global financial market.

The focus on this study is to examine the cyclicality behaviour of Islamic bank financing to the business cycle occurrences. It investigates whether the trade-based financing instruments with a fixed financing rate tend to behave pro-cyclically to the business cycle event. The study analyses the stability and sturdiness of the Islamic bank institutions in facing the turbulence, complexity, dynamism, and unpredictable economic activity fluctuation. Hence, this study provides some empirical evidence for the bank financing operations potential for stabilising the economic environment and smoothing up the business cycle event if it adheres to the Islamic values or *shariah* compliant.

To comprehend the cyclicality behaviour of the Islamic bank financing operations, this particular research mainly focuses on the direction of the Islamic bank total financing growth and the fixed rate financing growth related to the growth of the real gross domestic product, money supply, and general price level given by the consumer price index. Real gross domestic product, money supply, and consumer price index are the main indicators of the business cycle event.

The study includes the contingency reserve, provision for loan losses and capital items in the analysis. The Islamic bank needs to use the above instruments in order to regulate the banks' financing operation behaviour and protecting their institutions against any changes in the economic atmosphere. The Quran directly mentions the importance of those instruments in chapter Yusuf (12) verses 46 to 49. The contingency reserve and

provision for loan losses will directly control the volumes of credit creation capability by the Islamic banks.

The Islamic bank provision for bad and doubtful financings as an indicator of bank anticipation on financing risk management is included in the analysis and evaluated to confirm the cyclicality behaviour of the Islamic bank financing behaviour. To account for the future losses on financing defaults, the Islamic bank creates provision for bad and doubtful financings. More importantly, the contingency reserve and provision for bad and doubtful financings act as the behaviour regulator on the institution financing activities. To protect the possibility of not getting back the financing provided to the fund borrowers, the institutions set provision for bad and doubtful financing.

In order to obtain a clear and comprehensive understanding on the Islamic bank cyclicality behaviour to the business cycle episode this study analyse across countries Islamic banks time series data.

1.6 Significance of The Study

In spite of the popular notion on the Islamic bank, we do not know of any credible empirical work on the cyclicality behaviour of the Islamic bank financing to the fluctuations in the economic environment. Empirical study of the cyclical behaviour of the Islamic banking financing to economic fluctuations is so far insufficient hence, the topic discussed in this paper is essential.

As far as this study is concerned, it is the breaking ground attempt on providing empirical evidence of the cyclicality behaviour of the Islamic bank financing. It is vital to identify the cyclical behaviour of the Islamic banks financing for its future development and global acceptance. A well functioning Islamic banking system is

supposed to help smoothen the economic fluctuations or the business cycle and enhance the progress of economic growth. A pro-cyclicality of bank financing behaviour then again may worsen the economic fluctuations and hamper economic recoveries from recessions. This is vital because countries with lower macroeconomic volatility tend to grow faster. Gurley and Shaw (1967), Goldsmith (1969), McKinnon (1973), among others have provided considerable evidence for supporting this argument.

The Islamic banking industry is growing at an extreme pace after its introduction thirty years ago with an encouraging acceptance among the business community. With the absence of the interest instrument in the Islamic bank operation, it is crucial to have a good understanding of the Islamic bank cyclicality behaviour. It is important to provide empirical evidence for views made on the Islamic bank behaviour and capability. Apart from the theoretical framework explaining the nature of the Islamic banks, intense empirical evidence is necessary to prove the uniqueness of the Islamic bank. The interest instrument is a powerful tool of the monetary policy particularly in the interest rate regime in influencing the business cycle through the banking activities.

This particular study will bridge the gap between theoretical and conceptual literature and empirical evidence on the potential of the Islamic bank. By pooling various countries Islamic bank data, thus, the findings allowed us to make a generalisation on the Islamic bank cyclical behaviour. This will provide a better viewpoint on the operation and function of Islamic banks in improving the economic environment. The empirical evidence provided with this research is then able to support the scholars' theoretical and conceptual views on the superiority of the Islamic banking system.

Empirical evidence for the capability of the Islamic bank to perform as one of the significant agents in stabilising the economy through its operations is yet to be studied.

Accordingly, this particular study will shed some light on the Islamic bank capability in stabilising the economy through its operation. This study also systematically documents a comprehensive theoretical foundation of an ideal Islamic bank financing behaviour. It also shows how Islamic bank should be operated, including multifactor explanations, not only the religious motivation but also its assets management factors. For a bank to perform as the economy stabilisation agent it has a lot to do with bank management on its contingency reserve, provisioning for loan losses and capital management policy.

Thus far, very few researchers have attempted to analyse empirically on the Islamic bank financing management particularly its relationship to the economic environment. Previous researchers mostly assess on the Islamic banks operational performances. In analysing the Islamic bank performances, they usually compare it with the performance of interest-based banks. They measure the Islamic bank success based on its capability to mobilise and pool the fund resources, then allocate and distribute the fund resources efficiently to generate comparable returns for the depositors and shareholders.

To the best of our knowledge, research focusing on the relationship between the Islamic bank financing activities to the economic activity fluctuation are scanty from the scene compared to the case of the interest-based banks. This is mainly to the recent nature of the Islamic bank. Therefore, this study contributes to enriching the empirical literature on the banking industry and especially for the Islamic bank in particular. It will also provide a deeper understanding of the issues relating to the risk management of the Islamic bank.

For the monetary authority, the information and knowledge on the relative behaviour of the Islamic bank is useful in policy decision making. The result of this research will be useful in gauging the financial standing of the Islamic banking industry, which in turn

can serve as the basis of decision-making. More importantly, the conclusion of this study might be useful in Islamic banking model building and policy making particularly in a volatile, complex, dynamic, and unpredictable economic conditions. Proper understanding of the Islamic bank financing behaviour is crucial to addressing important policy questions about the uniqueness of the Islamic financial system. Understanding of the issues may help in the selection of appropriate policy rule, and enable us to avoid the unexpected and sometimes undesirable consequences associated with the economic policy.

With the empirical evidence provided for the cyclicality behaviour of the Islamic bank financing operation, it will verify the superiority over the system and increase non-Muslims acceptance of the Islamic financial system. More importantly it is to build the confidence and readiness of the major non-majority Muslim countries to start providing the *shariah* compliant financial instrument and establishing the Islamic financial institutions. Although the market size of the Islamic banking industry today is still marginal, the dynamism and competitive environment will be able to stimulate the provision of new Islamic banking facilities. Therefore, it is crucial to evaluate the Islamic banking system in terms of its behaviour to the unpredictable and competitive economic atmosphere.

Monitoring the Islamic bank financing cyclicality behaviour is essential for managerial and regulatory purposes as well. On behalf of the Islamic bank regulators, they are concerned about the safety and soundness of the Islamic banking system itself and the economy as a whole. Without persistent monitoring of the Islamic bank financing cyclicality behaviour, existing problems can remain unnoticed and will lead to financial failure in the future. It is worth noting that the understandings on Islamic bank financing cyclicality behaviour will improve our knowledge on the Islamic bank's ability to play

its role as the transmission mechanisms for monetary policy, which is important to the policy makers. The findings also will likely shed some lights on the issues of Islamic bank market stability. Through this study, it will show that the Islamic banking system outcomes may have important real effects on the economy and may have a significant contribution to the real economy.

1.7 Research Contributions to The Bodies of Knowledge

The most significant contributions to knowledge enhancement of this study come especially in the forms of providing a systematic theoretical account of how the banks should be able to behave counter-cyclically to the economic fluctuations of directly providing the needs of banks' buffer instruments. The study anticipates that fluctuations in the macroeconomic environment might influence significantly the Islamic bank financing operation if the contingency reserve, provision for loan losses and capital management policy fail to put weight on the Islamic bank financing growth. The Quran in chapter Yusuf (12:46-49) clearly states the importance of the contingency reserve and provision for loan losses.

A further significant contribution to the body of knowledge comes especially in the forms of providing empirical evidence and valuable information on the Islamic bank financing cyclicality behaviour to the business cycle. Previous researchers concentrate a lot on conceptual and theoretical ideas of the Islamic bank. Empirical research is very scanty and difficult to come across. Thus, this study provides empirical evidence of the Islamic bank financing cyclical behaviour whether it follows the theoretical expectation or vice versa. This will enrich the evidence of the feasibility of Islamic banking and financing principles to be adopted as the main framework for the new financial architecture.

To the best of our knowledge, compared to the case of interest-based banks, studies directly concerning the cyclicality behaviour of the Islamic bank financing in the event of business cycles are yet to be attempted. The limited analysis of the Islamic bank cyclicality behaviour is attributable to the recent nature of the Islamic banking industry and the availability of comprehensive data. In this regard, this study contributes to enriching the literature on the cyclicality behaviour, sustainability, and healthiness of the Islamic bank. It also provides a deeper understanding of the issues relating to the market behaviour of the Islamic bank.

Finally yet importantly, the analyses also provide empirical evidence of the Islamic bank financing cyclicality behaviour from using the trade-based financing instrument in its operations. Empirical evidence of this research will verify the theoretical and conceptual design brought forward by the proponents of Islamic bank and the superiority of the Islamic bank institutions. Indirectly it gives some near the beginning verification on the capability of Islamic banking system in stabilising the economy. This study also highlights the needs for the existence of a banking system that is able to reduce economic fluctuations should it adheres to the Islamic principles.

1.8 Organisation of The Research

In conducting the research, this study is organised into six chapters and in this first chapter, the background of the research has been given. This chapter discusses the major issues related to the pro-cyclical behaviour of the interest-based bank lending and the potential for Islamic bank financing in stabilising the economic fluctuations that encourage the need of this research. The following chapter provides a literature review of the business cycle phenomenon, theories, and empirical evidences of pro-cyclical behaviour of the interest-based bank lending. This chapter discusses the analysis and theoretical foundation by previous researchers on the pro-cyclical behaviour of the

interest-based bank lending activities. The pro-cyclical behaviour of the interest-based bank lending activities and the theories brought forward by scholars is critically examined in this chapter. The chapter also looks at previous studies on the Islamic bank financing operations and the existing gap that brings in the need of this research.

Chapter three of the study discusses both the modern financial intermediary's foundation and the Islamic banking sector background including the historical perspective and the pillars underpinning its operations. The framework of modern financial intermediaries and the role of banking institutions in the economy are also discussed in this chapter. This chapter also discusses the mode of financing instruments currently used by the Islamic bank.

Chapter four describes the research methodology. This research methodology chapter consists of various subtopics including the theoretical framework, conceptual framework, and the research framework. The foundation and conceptual idea of Islamic bank cyclicality behaviour is thoroughly described in this chapter. The chapter also describes the research design of the thesis including the research model and statistical inference method. In this part the definition of the analytical tool for measuring Islamic bank market reaction to changes in macroeconomic performance indicators is given.

The subsequent chapter discusses the empirical evidence, statistical inference, and analysis. The last chapter provides the research conclusion and recommendations.

CHAPTER 2

LITERATURE REVIEW

2.0 Overview

For the past thirty years, the global economy has experienced hundreds of distinct economic crises related to the unsoundness of the financial market. According to Aziz (2009) out of those, more than 124 global economic crises are related to the instability of the interest-based banking sector. The 1990's and 2000's global economic disorder are empirically proven to be directly related to the unsteadiness and pro-cyclical behaviour of the interest-based bank lending. The recent business cycle event related to the financial market turmoil without a doubt is a direct result of an intolerable increase in credit growth and financial leveraging within the interest-based financial system during soaring economic growth.

At present, this apparent excessive pro-cyclical behaviour of the interest-based bank lending activities have become one of the most attention-grabbing issues discussed in many monetary and financial economics conferences. Concerns and empirical investigations on the possible pro-cyclical behaviour of the interest-based bank lending to the business cycle occurrence in actual fact started to arise at the end of 1980's and early 1990's.

Among the earliest empirical evidence for the pro-cyclical behaviour of the interest-based bank lending is provided by Guttentag and Herring (1984), Bernanke and Lown (1991), Rajan (1994), and Asea and Blomberg (1998). The wariness on the pro-cyclical behaviour of the interest-based bank lending is for the reason that it will amplify the economic environment instability, complexity, and unpredictable rise and fall of the economic activities.

The issue on pro-cyclicality behaviour of the interest-based bank lending has attracted worldwide attention on the Islamic financial system. With the unique characteristics guided by the *shariah* (Islamic law), proponents of the Islamic banking system theoretically believe the Islamic bank financing operations have the tendency to behave counter-cyclically to the business cycles. They also believe that the system will eventually stabilise the economic environment.

While a broad empirical analysis literature exists surrounding the pro-cyclical behaviour of the interest-based bank lending to the business cycle event, empirical analysis of the Islamic bank financing behaviour, quite the opposite, is absent from the scene. Due to the lack of empirical evidence for supporting the academic study of the Islamic banking system, leads to this study.

This present paper assesses and provides empirical evidence on the possible potential of Islamic banking system in managing and stabilising the economic atmosphere. Whether the Islamic bank financing operations have the tendency to behave counter-cyclically and whether the financing activities of the Islamic bank are tied to the fluctuations in the economic activities, surely need some empirical verification.

Reflecting the study aim to obtain a comprehensive empirical analysis and understanding of the cyclicality behaviour of the Islamic bank financing to the business cycle, the review of literature is divided into three parts. Firstly, the review of literature is on the business cycle concepts and theory, followed by the literature on the related issues and theories on the role of modern banking institutions, money and credit operations in contributing to the business cycle phenomenon. Secondly, the chapter reviews previous studies on the pro-cyclical behaviour of the interest-based bank lending operations to the business cycle and their relevant theories. The literature

explores and analyse on the pro-cyclicality behaviour of the interest-based bank lending operation that aggravated the business cycle happening. The last part reviewed literature on the Islamic bank related to the business cycle phenomena.

2.1 Literatures on Business Cycle Phenomenon

Modern economic history has recorded a large number of macroeconomic fluctuations occurrences of the 19th century, which the business activities recorded an outstanding rise of aggregate output, followed by an undesirable increase in the general price level. Occasionally, there is sudden shock of market declines followed by corporate failures and bankruptcies as well as mounting unemployment. Movements towards this undesired economic activity may also extend over periods of years because of the dynamism and complexity of today's modern economic atmosphere. The economists refer to it as the business cycle. The level of changes in national production, prices, and employment measures this episodic rise and fall phenomenon in the general rate of economic activities.

Business cycle is the upswing and downswing or the fluctuation of aggregate economic activities of which may span over months or even years. The growth rate of real gross domestic product is the main indicator used to measure these upswings and downswings of economic activities. The nature of this economic activity fluctuation shown by the expansion and contraction of real gross domestic product does not actually follow any mechanical or predictable periodic pattern.

During the period of economic upswings, the real gross domestic product increases the amount of money circulating in the market and the general price level tends to increase. On the contrary, throughout an economic downturn, decreases in the real gross domestic

product appear with slower growth of money supply and the unemployment rate starts to increase.

Economists are conscious of this apparent cyclical behaviour of the economic growth development since the works of 'classical economist' such as Adam Smith in 1776, David Ricardo in 1810, Clement Juglar in 1860 and many others. The works of some classical economists and other early modern economists show the awareness and anxiety on the economic growth fluctuations and certain characteristics of the swing.

Marx and Engels (1848) on the other hand, in their 1848 Communist Manifesto, referred the incident of economic activity fluctuations or the business cycle as the 'commercial crises'. Alternatively, Burns and Mitchell (1946) provide the now standard definition of business cycles. In 1946, Burn and Mitchell (1946) produced a manuscript entitled 'Measuring Business Cycles' and their effort is considered as one landmark study on business cycle phenomenon. Their empirical writing was among the first that analyse the fact about business cycles and had a worldwide acceptance by the economists.

The National Bureau of Economic Research (NBER) pioneers the business cycle research in the United States. They are the final arbiter of the dates of the peaks and troughs of the business cycle in the United States. The National Bureau of Economic Research develops and continues to update the business cycle chronology, a detailed history of business cycles in the United States. National Bureau of Economic Research defines recession as a persistent period of declining in total output, income, employment, and trade, usually lasting from six months to a year and marked by a widespread contraction in many sectors of the economy.

The alternating period of this economic growth situation is the 'expansion' or 'boom' and 'contraction' or 'bust' of the economic activities. In the event of economic expansion, the economy reaches its prosperity with growing real gross domestic product rates and low rate of unemployment. Periodically interruption in declining national output, contraction of aggregate income and aggregate spending and rising of unemployment are a common phenomenon during this economic expansion.

Sometime this downturn can be severed and extended for several years. A new phenomenon adding to this economic fluctuation problem arises from the third quarter of the last century is the stagflation problem. Stagflation is a period of slow economic growth and high unemployment (deflation) added with a sustained rise in the general price level (inflation). In simple word, the occurrence of inflation situation is accompanied by a stagnant economic growth and high unemployment rate or the recession.

The western economists have come up with lots of views and theories to explain on the business cycle phenomenon since the 19th century. Two categories of theories identified with explaining the characteristics and causes of business cycles are the traditional business cycle theory and modern business cycle theory.

Schumpeter in 1911, 1931, and 1939 reviewed the types and causes of business cycle based on the traditional business cycle models and named them after their discoverers or researchers (Legrand and Hagemann, 2007). Some main types of business cycles based on time duration reviewed are:

1. Juglar fixed investment cycles of 7 to 11 years (after Clement Juglar, 1860),

2. Kitchin inventory cycles of 3 to 5 years (after Joseph Kitchin, 1923),

3. Kondratieff wave or cycles of 45 to 60 years (after Nikolai Kondratieff, 1925),

4. Kuznets infrastructural investment cycles of 15 to 25 years (after Simon Kuznets, 1940),

5. Forrester cycles of 200 years (after Jay Wright Forrester).

6. Toffler civilization cycles of 1000 to 2000 years (after Alvin Toffler).

Clement Juglar (1860) is among the first researchers to use the statistical methods originally, intensively, and rigorously to explore the business cycle phenomena. He is a French physician and statistician that appeared as a founder of the modern business cycle model. Legrand and Hagemann (2007) noted that Juglar in his writing, call for an economic theory explanation of the cycle, to investigate the causes, and to signal the effects of commercial crises that happened in Europe and the United States during the nineteenth century.

Clement Juglar, in 1860, identified the business cycles base on periodicity of roughly 7 to 11 years (later known as the Juglar cycle). The crisis rooted during the prosperous period in 1860 is the basis of Juglar analysis of business cycles. He argued that the speculative activities fuelled by easy credit are the causes for the overheated economy and the alternating periods of crisis and prosperity. On the other hand, Schumpeter suggested that the technological innovations of medium size are the driven factor of the occurrences of classical business cycles (Legrand and Hagemann, 2007).

Over the years, alternative interpretations of business cycles have come from two most significant modern theories. They are the Real Business Cycle theory and Endogenous Business Cycle theory. Both of the theories describe the characteristics and causes of the business cycles from the perspective of the modern economic environment. The Real Business Cycle theory explains that the economic fluctuation arises from the

exogenous shocks, otherwise the economic environment is stable (Slutzky, 1927; Frisch, 1933; and Kydland and Prescott, 1982).

The Endogenous Business Cycle theory proposition, on the other hand, suggests that it is the intrinsic processes that endogenously destabilise the economic system and creates the economic fluctuation (Harrod, 1939; Samuelson, 1939; Goodwin, 1967; Chiarella et al., 2005). Both hypotheses have their strengths and limitations. Currently in economic literature, it is the Real Business Cycle theory garners the consensus (Hallegatte and Ghil, 2007).

The theory that currently becomes the mainstream approach in analysing the business cycle event is the Real Business Cycle theory. The approach was popularised by Finn E. Kydland and Edward C. Prescott in their 1982 seminal work "Time to Build and Aggregate Fluctuations". The Real Business Cycle theory originally comes from the efforts of Slutzky (1927) and Frisch (1933) are based on the idea of rational expectations and hypotheses of perfect markets.

Kydland and Prescott (1982) envisioned that the factors contributed to the business cycle event are technological shocks and processes rather than purely monetary. They envision that the random fluctuations in the productivity level that shifted up or down the constant growth trend. Examples of such shocks include innovations, bad weather, imported oil price increases, stricter environmental and safety regulations, and so forth. The general gist is that something occurs that directly changes the effectiveness of capital and (or) labour. This in turn affects the decisions on workers and firms, who in turn change what they buy and produce, thus, eventually affects output.

Real Business Cycle models predict time sequences of allocation for consumption, investment, and so forth that give these shocks (Kydland and Prescott 1982). They implied that the economic environment could be modelled as stable, that is, after any exogenous shocks that perturb the economic environment, the economy will return to its stable condition.

Kydland and Prescott's (1982) analysis that followed this Real Business Cycle theory using the dynamic General Equilibrium Model approach provides a breakthrough for the business cycle theory. Their analysis went further than just the qualitative assessment on model properties that had dominated the macroeconomics theoretical work. In their analytical paper, Kydland and Prescott (1982) introduced the mathematical model in explaining the Real Business Cycle. Their model explains the condition that is capable of reproducing the economic fluctuations. However, Hallegatte and Ghil (2007) stated that The Real Business Cycle models, while reproducing rather well the standard deviation from most macroeconomic variables, encounter substantial difficulties in reproducing the co-movements of and correlations between variables.

2.1.1 Islamic Views in Business Cycle Phenomenon

Looking at the business cycle phenomenon from the Islamic view, it is directly mentioned in chapter Yusuf (Quran: 12:46-49) and was reported in the hadith (a tradition based on reports of the sayings and conducts of Prophet Muhammad (saw) and narrated by his companions). Despite the fact that the business cycle phenomena are not odd in the Islamic economy, however, to our knowledge it is difficult to trace any exhaustive academic literature by the scholars on the business cycle.

Verses in the Quran from the chapter of Yusuf (12:46-49) provide a clear incident of the business cycle phenomena and the guideline on managing this unwanted observable fact:

" O truthful Yusuf, explain to us, seven fat cows which seven lean ones devoured, and seven green ears, and seven other dry, that I might return to the people that they may know (46). He said, "For seven years you shall sow continuously, then what you reap leave 5 it on the ear, except a little whereof you eat (47). Then thereafter there shall come upon you seven hard years, in which you shall devour all that you have reserved for them, except a little you keep in store (48). Then there shall come after that a year in which the people shall have rain and in which they shall press (fruit & oil) (49). (Quran; Yusuf (12):46-49)

Besides the Quran, there are also hadith mentioning the occurrence of market disturbances during the life of Prophet Muhammad (saw). Based on the hadith narrated by Anas ibn Malik (ra), there was a time when price levels went up.

"The people said: Apostle of Allah, prices has shot up, so fix prices for us. Thereupon the Apostle of Allah (saw) said: "Verily, Allah (swt) determines the climate of economic affluence and gloom. I do not want to take any action to fix the prices because I do not want, later in hereafter, any among you to demand for the return of your property and blood from me because of my tyranny (in fixing the prices)." Narrated by Anas ibn Malik in Sunan Abu Dawud.

In other incidence,

> *A person came to him asking him to fix the market price of a certain good at lower than the market price. The Prophet (saw) said no! After 2 more requests from the person and the same reply, the Prophet (saw) told the person to ask Allah to decrease the price that is to increase supply."* Narrated by Abu Dawud.

Narrated by Abu Hurayrah and by Ali Ibn Abi Talib:

> *"A man came and said: Apostle of Allah, fix prices. He said: (No), but I shall pray. Again the man came and said: Apostle of Allah, fix prices. He said: It is Allah Who makes the prices low and high. I hope that when I meet Allah, none of you have any claim on me for doing wrong regarding blood and property"*. Narrated by Abu Dawud.

Based on the Quran verses (Yusuf; 12:46-49) and the hadith cited above, the occurrence of business cycles is definitely not an out of the ordinary and nevertheless it is an undesirable phenomenon. Chapter Yusuf (12:46-49) and hadith in a way inform us on the alternating periods of the ups and downs in the economic activities, the economic crisis and prosperity with the role of market mechanism, and the mechanism needed in managing and avoiding the happening of the economic fluctuations.

On the other hand, one of the most influential early descriptive writing by Muslim scholars was by Ibn Khaldun (1332-1406 AD). He described the first ever explanation of the business cycle phenomena. Khaldun indirectly explained the role of market mechanisms in determining the progression of economic growth of his famous "*Muqaddimah*" (M) about six hundred years ago.

Chapra (2008a) discussed Khaldun's view in business cycles where Khaldun described a rise in incomes and wealth leads to the expansion of economic opportunities and greater development. The immigration of skilled and unskilled labour and scholars from other places furthers strengthening the human and intellectual capital. This in turn, induces a natural rise in populations. Such a rise in population boosts the supply and demand for goods and services in the market and thereby promotes industries (*al-sanai*), raises incomes, promotes sciences and education, and further accelerates development (M: p. 363 and p. 403; (Rozenthal (R) (1967) II: p. 277 and p. 351-52).

In the beginning, prices tend to decline from the rise in development and production. However, if demand keeps on rising and the supply is unable to keep pace of it, scarcities develop, leading to a rise in the prices of goods and services. The prices of necessities tend to rise faster than the luxuries and prices in urban areas rise faster than in rural areas. The cost of labour also rises and so do tax. This leads to a further rise in prices, which creates a hardship for people and leads to a reversal in the flow of population, development declines and along with it prosperity and civilization (M: p. 168 and p. 363-5; R: I. p. 339-42 and II: p. 276-85), hence, when incomes decline so do the tax revenues. The state is in turn unable to spend on development and well-being. Development declines, the recession deepens further and the forces of decay are accelerated (M: 168 and 279-82; R: I. 339-42 and II. 89-92) (Chapra, 2008).

The business cycle occurrence mentioned in the Quran (Yusuf, 12: 46-49), hadith and the early works by Khaldun from the Islamic worldview went missing after the fall of the Muslim empire. It was then continued by the western scholars that explore the knowledge but with the absence of the divine guidance values and principles revealed by the almighty Allah (swt) as the guidance. In other words, the self-interest (*nafs*) and

the animal spirit was the guiding mechanism of the western scholars in their attempt to maximise the wealth of nations lying within the concept of 'homoeconomicus'.

Only in the early 20th century, new effort arose with some significant efforts and works by Muslim scholars to recognise and reinstate the Islamic economic system particularly in the Muslim majority countries. Islamisation effort in the field of modern economics and finance started more than fifty years ago and the hard work in establishing the Islamic financial institutions started to emerge some forty years ago.

Regarding the inflation phenomenon, mentioned by the hadith, early Islamic scholars realised the existence of this episode as the consequences of a mismatch in the market supply and demand in causing the sustained increase of general price level. Chapra (2008a) mentioned in his writing, Al-Jahiz (869 AD), Taymiyyah (1328 AD) and Khaldun (1406 AD) had explained how the movement of the market supply and demand had caused the market price level to fluctuate.

The unemployment and inflation phenomena might also occur in an Islamic economic environment. Based on the Quranic verses (Yusuf; 12:46-49) and hadith, the business cycle happening is not impossible though the fundamental underpinning of households and producers behaviour in an Islamic economy is guided by the Quran and hadith. The pillars underpin the behaviour of economic agents' behaviour from the Islamic economy perspective is the Quran and hadith that describe how men as the economic units should behave.

With respect to the effort in hunting for wealth and ways of spending the wealth, the Quran and hadith describe what is right and what is wrong. Ebrahim and Safadi (1993) wrote that Al-Shiabani (750-804 AD) gave an in depth discussion on this area in his

book *Al-Iktisab* or 'Earnings'. However, in reality, the majority of men do not act as instructed by the Quran and Hadith; although they were repeatedly instructed and reminded to do so (Quran, 3:110). With the decline in religious consciousness, then the self (nafs) guides the norms, values, and behaviours, hence, the instability of the economic environment tends to transpire due to the overconsumption by households and overinvestment by the firms.

From the Prophet Muhammad's (saw) and Khaldun's description on how an economy develops, they indirectly described the three main economic units that have a role in developing the economy, that is, the households, producers and the government. They also described the interaction of market supply and demand (the market mechanism forces as they are called today) determines the market price and brings to the economic expansion and prosperity. They also described the mismatch of market supply and demand in the market will finally bring to the expansion and contraction of the economic activities.

2.2 Financial Intermediaries, Money Market, and The Economic Fluctuations

The thesis will not be proper without discussing the relationship between financial institutions as the intermediaries in the financial market and the use of money as the medium of transactions in facilitating and prospering the economic activities. Therefore, this particular section explores the relationship of financial intermediaries, money market, and the economic activities.

Comprehensive academic discussions on the relationship between the economic activities with money and financial institutions have already existed since the beginning of the 20th century. Literature on the role of money and financial intermediaries, banks in particular, has existed since the period of 'classical economist' as the mainstream

economics school of thought from roughly 1775 to 1930. Adam Smith through his writing in 1776 recognised the importance of money and financial intermediary roles that could make the economy grow. The most influential writing of the 'Classical Economist' on the relationship of money with the economy will be the Fisher's 'Quantity Theory of Money' (Fisher, 1911).

Currently there are three well-known competing hypotheses concerning the influence of money in business cycle phenomena. They are the traditional monetarists, real business cycle economists, and new classical economists. The traditional monetarists lead by Brunner and Meltzer (1993) as Keynesians claim that changes in the money supply will affect the production activities for the reasons of sticky prices and wages. Real business cycle economists on the other hand believe that changes in the money supply have no significant effects on real output (King and Plosser, 1984). Whilst Lucas (1973 and 1975) on the new classical economists, conjecture that changes in the money supply affect output only as much as they induce producers to deviate from their plans.

Literature on money from Islamic scholars on the other hand, is traceable even before the era of 'classical economists'. Conventional Muslims' scholars gave discussants on the concepts and role of money. Ahmad ibn Hambal (d. 23/644) was among the earlier scholars discussed the concepts of money. He concluded that anything that generally accepted by the people could be adopted as currency. Ibn Hazim (d 456/1064) in his discussion on the concepts of money did not find any reason for the Muslims to confine their currency to gold and silver only. The dirham and dinar according to Ibn Taymiyyah (d 505/1328) were not desired for their own sake but rather because of their ability to serve as media of exchange (Chapra, 1996). These early views on the role of money and literature contributed by the Islamic scholars, however, went missing after the collapse of the Muslims empire.

From the Islamic view, money is simply a potential capital and not considered as capital (Akacem and Gillian, 2002). Thus, to get a return to holding money requires the services of other economic agents such as firms or the producers for instance, to transform it into a more productive use. Hence, transforming money into a productive use and undertaking a risk is necessary to justify for any return out of it. In an interest-based banking system, converting money into capital or by using it productively has nothing to do with the depositors. From the *shariah* view, obtaining a return to money placed in a bank of no transforming it into a productive use is definitely unacceptable. Furthermore, even though the depositors' money is transformed into any productive and risky used no fixed returns to the depositors can be set regardless of the profits.

2.2.1 Contemporary Views on Money, Credit, and Banking

Today's households and firms rely heavily on debt to finance the consumption expenditure spending and working capital expenses. In most cases, the internally generated funds are not enough to finance the households consumption spending and firms investment spending for any additional assets. Therefore, the economic agents will have to consider the external sources of funds to cover the deficit. Households represent the ultimate source of funds of the economic agents with most of the loans is channelled through the financial intermediaries, particularly banking institutions.

With the advancement in modern economic activity and with it becomes very much complicated, bring to the needs for the existence of modern financial intermediaries to facilitate and support the growing economic activities. Without the financial intermediary active participation, the banking system in particular, the progress of economic growth is inconceivable. The economy will grow faster with financial intermediation deepening or more advance, active, and develop financial intermediation system. The existing of these highly advanced and sophisticated credit facilities,

however, can create a serious mismatch of aggregate supply and demand that will bring to a severe fluctuation of the economic activity.

An economist by the name of Schumpeter (1911) explained the role of financial intermediaries in spurring innovations and growth by identifying and funding productive investment. According to his theory, the role of financial intermediaries acts on behalf of the society in general to satisfy the demand for credit by entrepreneurs' selection of firms that are regarded as worthies of obtaining the loans. It also assesses the firms' risks and evaluates the borrowers' creditworthiness.

Following the famous Keynes' "General Theory of Employment, Interest, and Money (1936) and the monetarist theory (1960s), the early consideration brought by the classical economists on the important role of the credit markets was largely forgotten and ignored. It was until 1970's, the literature and foundations being redeveloped that conjecture the important role of the credit market. The idea embarks upon the recognition of the presence of asymmetric information issue caused by the imperfect market and imperfect information phenomenon.

New theoretical foundation and empirical work developments started to revive the concerns on the bank's lending role in the business cycle phenomenon after the beginnings of Frediric S. Mishkin's empirical work in 1978 involving reconsideration on the part of financial markets and institutions role in the Great Depression episode. Analysing the data onto a more sophisticated statistical method, Mishkin (1978) determines whether the financial factors have an effect on consumer spending in the event of the Great Depression. The study shows the households' net financial positions significantly determined the consumer demand. With the deflation condition and declining incomes, the consumer real indebtedness also increased. This observable fact

has driven the consumers to reduce their spending in the economy. This scenario consecutively magnifies the recession and further deteriorates the economic depression phenomenon.

Bernanke (1983) analysed further on the significance of monetary variables relatively against the financial aspects in the event of the Great Depression. One important determinant of the depression's intensity was the collapse of the financial system. The extensive number of debtors' insolvency and the loss of faith with the financial institutions, particularly the commercial banks are the two major gears that collapsed the financial system of that undesirable economic event.

The view raised by Bernanke's (1983) is that, the 1930-33 market disturbances had disrupted the financial market effectiveness in performing the nontrivial market making and inflation gathering services. As markets for financial claims were imperfect, intermediation between lenders and borrowers needed those services. In that economic events, some borrowers found that the credit facilities had become so expensive and difficult to obtain as the real costs of intermediation had increased. The impact on the aggregate demand of this credit squeeze had contributed to the turning of severe economic downturns of 1929-30 to an extended economic depression.

Mishkin (1978) and Bernanke (1983) analyses provide support on the significance of the debt-deflation theory brought by Fisher's (1933). The results of their studies prove that the condition of financial markets has a role in propagating the Great Depression event in particular and the business cycle phenomenon in general.

Following the historical fact after a long absent, literature on significant relationship between economic growths and efficient financial markets actually arose in 1950's. It

began with the publication of writing by John Gurley and Edward Stone Shaw that is the "Financial Aspects of Economic Development" in 1955. Gurley's and Shaw's (1955) writing emphasis on the financial intermediation function in credit creation processes. The financial intermediation deepening and a very much-organised financial system exist in the developed countries. They argue that the economic development is hindered if merely self-finance and direct finance are accessible and financial intermediaries are not involved. Thus, the existence of financial intermediaries improves the efficiency of intertemporal trade, which is an important factor that governs the smooth running of the economic activities.

2.3 Interest-Based Bank Lending's and Business Cycle

The idea of banking institutions plays a significant role in creating a real economic effect of the credit creation activities is not new. Adam Smith in 1776, through his writing, recognised the importance of money and financial intermediary role that could make the economy grow. A more technical discussion of the classical economists' views on how the role of banking institutions affected the economic activities through the credit creation process began with the writing by Knut Wicksell in 1906 in 'Monetary Dynamics' and Irvin Fisher's in 1933 in 'The Debt–Deflation Theory Of Great Depressions'. In their writing, they explain the fluctuations of economic activities are because of the expansion and contraction of credit and they explain how the banks' lending activities have augmented the cyclical fluctuations.

According to Wicksell's (1906) through the 'loanable fund theory', banks' lending and money supply have the tendency to expand in the periods of growing economy and strong demand for loanable fund. He used the concept of "natural rate of interest" (the rate of interest at which the demand for loan on capital and the supply of savings exactly

agrees, which depends on the expected profitability of an investment) to explain the scenario.

Wicksell (1906) explains that the market interest rate tends to be sticky or the market interest rate responds slowly and with a delay to any changes in the demand for funds. Because of the market interest rates stickiness, an increase in the natural rate makes the natural rate go above the market interest rate for some time. This will lower the supply of saving and increase the demand for loans. With the increase in investment and borrowing activities, spending and prices will increase. This will lead to higher expectations on the investment profitability. This in fact will further the investment spending and increase prices. This snowballing process continues until the banks' excess reserve run-out and the banks raise the market interest rate.

On the other hand, according to Fisher (1933), the Great Depression experience is the consequences of "over-indebtedness". Falling prices further aggravate the economic downturn. High leverage of borrowers and heavy burden of debt, consequently attribute to the severity of the Great Depression. Business downturn precipitated a wave of bankruptcies and enhancing the downturn.

Fisher (1933) elucidated that "easy money" as the "great causes for over-borrowing". The "over-indebtedness" of highly leveraged borrowers led to the "over-production". Due to excess supply, thus, prices start to fall. The large decrease in the market price led to the occurrence of under production. Falling output created excess demand and causing severe cyclical fluctuations in the output market. The direct effect was an increase in bankruptcies and furthering the economic downturn. The indirect impact was price deflation.

The real debt burdens increase greatly with the extended fall in prices and real incomes, given the fact that the debt contract is in nominal terms. Deflation and falling output pressured the economy further down and continued the twisting of economic depression. Fisher (1933) furthers to show that creditors had to cut back on current expenditures and future commitments due to the decline in distribution of wealth from debtors to creditors.

Views on the important role of credit markets went missing after Wicksell (1906) and Fisher (1933) developed the foundations. Reconsideration and redevelopment of the foundations on the important role of credit market began with the acknowledgment of the economics of imperfect information or information asymmetry in 1970s. Before the 1970s, the focused of analyses were more on the role of money in the economy. The early works of Wicksell (1906) and Fisher (1933) were left by the wayside following the famous Keynes "General Theory of Employment, Interest and Money (1936), and monetarist theory (1960s) further reinforced this abstraction.

Following the influential writing by Keynes (1936), the macroeconomics literature largely ignored any links between the credit market conditions with economic activities and growth in output. Despite the fact that the credit market condition is important to influence the investment behaviour, Keynes (1936) argued that the financial institutions have a less explicit role in the determination of aggregate output. Rather than the credit market, the most relevant financial variable determinant of economic activity is the money.

The key determinant of investment is the 'state of confidence'. State of confidence is the borrowers' belief considering the condition of credit and the potential yields from an investment. The lenders' confidence in financing the borrowers determined the state of

credit and the prospective yields from the investment. A distraction from confidence either of the lenders' or borrowers' is sufficient to bring about an economic downturn.

The work of Gurley and Shaw in 1955 redirected the attention towards the interaction between financial structure and the real economic activity. The attempt made by Gurley and Shaw (1955) highlighted on the efficiency of intertemporal trade and economic growth that can be improved by the existence of financial intermediaries. Their works highlight on the important role of financial intermediaries in extending borrowers' financial capacity, particularly the credit creation processes. The basis of their proposal was on the observed connection between the financial intermediation system and economic development. According to them, a more significant determinant compared to money in determining the macroeconomic behaviour is the overall economic 'financial capacity'.

Financial capacity measures the capability of the borrowers in absorbing the debt, without having to reduce spending to avoid default. It is one of the significant determinants of firms' balance sheets and economic aggregate demand stability. Financial capacity is the key determinant of intertemporal trade. The economic growth will augment the changes in spending and amplify the economic fluctuation or business cycles. This earlier works of Gurley and Shaw (1955) was however sideways with the work of Modigliani and Miller's (1958) on theory of investment.

According to Modigliani's and Miller's (1958) theory of investment, the financial structure has no influence on the real economic decisions. The theorem explains when the capital markets are perfectly competitive and information is costless whether a firm finances a given project or its investment decisions through debt or equity is irrelevant. In other words, they stated that sources of finance are irrelevant to the firm's value and

decisions on investment. Firms could rely on other financial institution or to the equity market in obtaining the required funds if a bank declined to finance the firm's valuable project. Modigliani and Miller (1958) theorem proposed that in this frictionless world, given an appropriate set of prices, all markets would be at equilibrium, including the credit markets.

In the early 1960s, Milton Friedman and his disciples published a series of studies that promoted the case of a strong effect of money on economic activities. They emphasised on the basic principle of stabilisation policy of a steady growth of money supply. Friedman and his followers, later known as the 'monetarist', argued the fiscal policy on itself having no significant impact on the course of real economic activities or on the economic fluctuation.

Friedman's and Schwartz's (1963) work in explaining the Great Depression, emphasised on the importance of money and the role of financial markets. Friedman and Meiselman (1963), by using single equation estimation, conducted a study on monetary and fiscal policy effectiveness in determining the nominal income. Their study shows the relationship between money and output is much more statistically significant and stable compared to the relationship between government expenditure and output. Andersen's and Jordon's (1968) later study in the United States supported Friedman and Meiselman (1963) finding with a significant correlation between money and nominal income.

Both contended Keynesian economists and monetarists further toughened the idea. Keynes (1936), with the liquidity preference theory deliberately directed economists to focus on the interaction of money demand and money supply as the determinants of the interest rate. Monetarist theory, alternatively, also led to an emphasis on money but not

credit. The most influential writing comes, in particular, in Friedman's and Schwartz's (1963) "A Monetary History of the United States, 1867-1960" that describes the United States monetary system history.

Apparently, views on the economics of imperfect information and the economic role of financial intermediaries started to appear in 1970s. Early literature on financial markets generally discussed the existence and foundation of financial intermediaries and its association with the information asymmetry and costs of transaction. Akerlof (1970) and Spence (1973) were among the pioneers in contributing its literature. The assumption of zero information or the perfect information and zero transaction costs has come with growing criticism from the work of Akerlof's (1970). Akerlof (1970) seminal paper points on how the market can be malfunctioned with the existence of imperfect information on buyers and sellers.

There are two strands of theories established in the literature explaining the existence and foundation of financial intermediaries. The first path emphasises on the financial intermediaries as the liquidity provider. The other path focuses on the ability of financial intermediaries' in transforming the asset risk features. Theoretically, both strands describe the capability of financial intermediation in achieving a more effective and efficient allocation of resources through reducing cost in channelling funds between lenders and borrowers.

An effective and efficient financial market entails a systematic financial market and mechanisms to overcome the problem of asymmetric information or imperfect information. Asymmetric information exists on lenders and borrowers in the financial markets. Lenders generally know less about an investment project than the borrowers do therefore this creates the asymmetric information. Hence, the financial intermediaries

who are specialised in collecting, gathering, and assembling information are able to evaluate and monitor on the borrowers' and project performance. Consequently, this can prevail over the information asymmetry problem. Thus, the need of financial intermediaries is because of the increase in information and transaction costs that come from asymmetric information between lenders and borrowers. This argument with asymmetric information implies that the assumptions of Modigliani-Miller theorem do not hold.

2.3.1 Contemporary Theories on Interest-Based Bank Cyclical Behaviour

In view of the fact that the empirical study of the Islamic bank cyclicality behaviour is difficult to trace, it is necessary to look at studies on the cyclicality behaviour of interest-based banks. The intention of analysing the literature on interest-based bank's lending is to have a good grip on the cyclicality behaviour of banks' financing activities and the appropriate methodology used in evaluating their behaviour. More importantly, the empirical works of literature on interest-based bank cyclicality behaviour is more apparent and significant in contributing to the economic instability since 1990s.

The works of literature have statistically very well documented the pro-cyclical nature of the interest-based banks' behaviour. Hypothetically, the pro-cyclical nature of the interest-based banks' behaviour originates from the asymmetric information on lenders and borrowers as proposed by Bernanke and Lown (1991), Bernanke and Gertler (1995), Kashyap and Stein (1994). During the upswing of economic activities, the interest-based banks' attitude is upturns. Households and business enterprises, with loose conditions in obtaining loans as well as easy to obtain loans, facilitating and strengthening the process of economic growth. During economic downturns even profitably projects and without problems are not guaranteed of obtaining loans due to

asymmetric information. Accordingly, this interest-based banks' behaviour will aggravate further the existing crisis.

Albertazzi and Gambacorta (2009), Adrian and Hyun (2008), Quagliariello M (2007), Nan and Hung (2007) provide the latest empirical evidence on the interest-based banks' pro-cyclical behaviour. Their studies show that the interest-based banks increase their leverage and reduce it when the asset price starts to fall in the event of increasing asset price. Quagliariello (2008), in his meta-analysis study, shows that the interest-based bank distress is usually associated with the significant fall in gross domestic product growth, increase of real interest rates, slower growth of households and firms spending, extensive swings in the general price level, decrease in the asset prices, and depreciation in the real exchange rate.

Empirical evidence shows that debtors' loan repayment competency is stronger during economic upturns and weaker during downturn periods. Accordingly, during this phase, it is observable that the interest-based banks tend to overreact to the swing. During economic upswings, in order to increase or protect their market share, the interest-based banks reduce their loan prices. During this promising economic condition, the interest-based banks take on greater risks as regards to the optimistic prospect of the economy and future trends due to the profit enthusiasm behaviour.

It is observable that the interest-based banks are enthusiastic to enlarge their lending operation and ease the requirements for collaterals during this phase. Throughout the economic expansion, the collateral's value increases significantly, this greatly led to the cyclical behaviour. The value of collateral may decline significantly from the event of economic contractions. This worsens the banks' pro-cyclicality behaviour.

Another observable fact of the interest-based bank is that the bank tends to tighten the credit supply and increase the loan loss provisions during economic downturns. Bouvatier's and Lepetit's (2008), Bikker's and Metzemakers' (2005), and Laeven's and Majnoni's (2003) empirical evidence shows that the interest-based bank's policy on the provisions for loan losses made to cover the expected future loan losses has amplified the credit fluctuations. Acting pro-cyclically and decreasing the loan loss provisions, consequently, the interest-based banks will worsen the problem of adverse selection. This behaviour will increase the probability of resource misallocation and amplifying fluctuations in economic activities.

The cyclical character of the profitability enthusiasm is another key feature of the interest-based banks' pro-cyclical behaviour, which is connected to their expectation on the future economic trends (Albertazzi and Gambacorta, 2009 and Bikker and Hu, 2002). On average, during cyclical upturns, the banks' earnings grew and in the event of economic recessions, in general the banks' profitability performances decline. Thus, the interest-based banks have a propensity to take on greater risks due to over-optimistic towards the upward trend of the economic condition and generally become over-pessimistic when the economic condition reverses.

This credit policy approach will reinforce the economic fluctuation in the upturn and downturn cyclical, thus, generates stronger pro-cyclical character. This loose policy of assessing the credit standards becomes the trend by all banks as a whole this will build up and strengthen the pro-cyclically character of the banks' lending activities.

2.3.2 Hypotheses on Interest-Based Bank Pro-Cyclicality Behaviour

A number of hypotheses on the interest-based bank pro-cyclicality can be extracted from the literature. Theoretically, Gertler (1988) and Gertler and Gilchrist (1993 and

1994), supported by Kashyap and Stein (1994) and Bernanke and Gertler (1995) emphasise on the interest-based bank debt and the role of market imperfections. They used the bank debt and the role of market imperfections framework to estimate credit market equilibriums to test for the credit channel hypothesis and the relevance to a credit crunch incident.

Bernanke's and Lown's (1991) analysis of the United States credit crunch episodes, by controlling the stages of the business cycle and previous five recession occurrences from the 1960s, documents the decline in the supply of credit for the 1990-91 recession. They show that the causes for the interest-based bank to cut the loan supply of the 1990s are related to the combined effect of shortage of financial capital and decline in the quality of borrowers' financial health. In their analysis, they compared the contraction in credit during 1990-91 recessions to those in the previous recessions and they concluded that there had been a credit crunch.

Through their survey, the total loans at domestically chartered commercial banks grew at an average of 7.1 percent during the previous five recessions, compared to the period during the 1990-91 recessions when it grew only by 1.7 percent. This reduction in lending activity according to Bernanke and Lown (1991), attributed to the supply and demand factors. The supply of credit had reduced because of a decline in the interest-based bank capital caused by severe loan losses during the recession. Concurrently, the borrowers' balance sheets had been weaker than normal, thus, the borrowers became less creditworthy than usual. As a result, market loan demand started to decline.

Earlier, Guttentag and Herring (1984) emphasised on the 'disaster myopia' syndrome that made the interest-based banks tend to underestimate the probability of shocks over time. The interest-based bank might underestimate the risk exposure and ease the credit

standard during economic expansion and might increase the magnitude of losses when the economy contracted. They emphasised on the creditor behaviour in formulating, and acting on the shock probabilities rather than the business cycle as the mechanism through which the vulnerability of the system might increase. They also argued that an abrupt increase in the extent of credit rationing was the central feature of a financial crisis. They showed how risk premiums were set in competitive markets in response to subjective probabilities of credit shocks. They also demonstrated how the moral hazard could lead to the credit rationing and the imposition of minimum capital requirements.

Rajan (1994) hypothesised that the interest-based banks' management was obsessed with short-term concerns and perception of reputation and this is relevant to the 'herd behaviour' model. His paper argues that rational interest-based bank managers with short horizons will set credit policies that influence and be influenced by other interest-based and demand side conditions. Evidence of the interest-based banking crisis in New England in the early 1990s was consistent with the assumptions and predictions of his theory. This leads to a theory of low frequency business cycles driven by the interest-based bank credit policies.

Asea and Blomberg (1998) provided another set of views. During strong economic condition added with low default rates, the interest-based bank had the inclination to enlarge their portfolios in business loans exceeding the prudent level. Their view held that the interest-based bank loans underlying quality might deteriorate during economic expansions. Excess levels of lending volume increased the problem of adverse selection of drawing in an unwarranted volume of bad loans. This positioned the bank of higher than expected default rates that subsequently brought about an unnecessary tightening of the interest-based bank lending. The economy then slowed down as credit tightened.

Van den Heuvel (2002), based on the hypothesis of an imperfect market for the bank equity mentioned that the bank capital channel contributed to the fluctuations of the bank profitability. He addressed the issue of the effect of bank capital and its regulation on the role of interest-based banks' lending in transmitting the monetary policy. Following the bank capital channel view, the monetary policy will affect the interest-based bank lending through its impact on the bank equity capital. Increases in interest rates will lower the bank equity even further, causing some interest-based banks cut lending to reduce the risk of capital inadequacy.

Results from simulating the calibrated model, Van den Heuvel (2002) from the perspective of optimal monetary policy, suggested that the economic amplification size was large to moderate. Perhaps the dynamics of the effect and size were highly dependent on the distribution and initial level of capital among the interest-based banks. Van den Heuvel's (2002) reasoning is that the capital requirement affects the interest-based bank behaviour more when the interest-based bank equity is low.

Another model explaining the pro-cyclical behaviour of the interest-based bank is the 'unifying model' by Bliss and Kaufman (2002). The model emphasises on two constraints to credit expansion and contractions, the capital requirement and reserved requirement. If either constraint is binding, earning assets could not grow further. During the period of economic recession and monetary expansion, capital constraint implication may become the binding constraints on the interest-based bank. Reserve requirements, which are under the central bank control, are the likely effective constraints on interest-based bank during periods of economic boom and restrictive monetary regime.

Berger and Udell (2003) through the 'institutional memory hypothesis' explained that the current loan officers ease of credit standards over time creates the pro-cyclicality of interest-based bank lending. Loan officers obtain the skills to identify poor loan risks of recession but as the recessionary economic environment recedes into the past, they gradually lose this skill. The previous loan bust is not remembered with loan officer turnovers. Deterioration in the capability of loan officers will result in an easing of credit standards. The loan officers' attempt to lower the loan standard will deteriorate the loan quality and creating for high default rates when the economic condition reverses. Berger and Udell (2003) provided empirical analysis to support for the hypothesis. This view is consistent with the persistent weakness for the volume of business loans as the economy enters the recovery phase of an economic business cycle.

Bank for International Settlement (2001b) on the other hand, describes the contribution factor of the pro-cyclical manners of the banking sector and the financial system is the improper banks risk management policy. The failure of treating the time-dimension of risks correctly by the money market participants causes the pro-cyclical behaviour. The money market participants in general fail to assess the progression of risk over time accurately. The financial institutions even fail to act based on the appropriate assessment even though they are able to determine the time-dimension of a certain risk correctly. Bank for International Settlement (2001b) also explains that the incentives affect the attitude of market participants and the regulatory environment as well contributes to the pro-cyclical behaviour.

Laeven and Majnoni (2003) supported by many researchers such as by Bikker and Metzemakers (2005) and Bouvatier and Lepetit (2008) argued that the bank loan loss provision also played a part in contributing to the interest-based bank lending cyclicality. They empirically showed that many interest-based banks all over the world

delayed their provisioning for loan losses and bad loans until it was too late. When the economic condition reversed, it magnified the economic downturn impact on the interest-based banks' returns and capital.

Bikker and Metzemakers (2005) and Borio et al. (2000) study shows that banks provisioning for loan losses turned out to be substantially higher when the real gross domestic product growth was lower. This reflected the increase in risk of the credit portfolio when the economic condition was at a downswing trend that increased the risk of a credit crunch. This observable interest-based bank pro-cyclical behaviour of upswings or downswings of business cycle are the progression of interest-based banks' provisioning for loan losses policy (Laeven and Majnoni, 2003).

The banks' ratio of loan loss provisions to total loans decreases in the economic upswing event with the increase in economic activities and consequently the costs of provisioning decreases. While during economic downturns, the ratio and costs increase quickly and significantly. Therefore, erosion of the interest-based bank earnings immediately accompanies the turning point in business cycles with an abrupt decline in banks' inclination to take on risk. Then, this is followed by a decrease of credit supply. Then, banks' began restructuring on their lending portfolios to increase security as well as an adjustment of banks' risk pricing by increasing the interest rates.

Summarising all the hypotheses explaining the pro-cyclical behaviour of the interest-based bank lending is related to the misevaluation and misestimating of the credit risk and liquidity risk over the business cycle phases.

The hypotheses model of the pro-cyclicality behaviour of interest-based bank lending activity is summarised in Table 2.1 below.

Table 2.1: Interest-Based Bank Lending Pro-cyclical Behaviour Model

Researcher/s	Model	Bank Pro-cycle	Variables
Guttentag and Herring (1984)	Disaster Myopia Syndrome. Underestimate the probability of shocks and the risk exposure.	Economic Expansion: Ease the credit standard. Economic Contraction: Increase the magnitude of losses	Loan Supply
Bernanke and Lown (1991)	Credit Channel Hypothesis. Combined effect of shortage of financial capital and declining in the quality of borrowers' financial health.	Economic Contraction: Borrowers' balance sheets weaken; Loan demand weaker, borrowers less creditworthy than usual. Decline in bank capital caused by severe loan losses during recession; Supply of credit reduced	Loan Supply and Loan Demand
Rajan (1994)	Herd Behaviour Model. Manager's with short horizons	Bank's Manager short horizons set credit policies that influence and being influenced by other banks and demand side conditions.	Loan Supply and Loan Demand
Asea and Blomberg (1998)	Underlying Quality of Bank Loans. Business loan supplied beyond a prudent level.	Economic Expansion: Excess lending activity creates adverse selection problem inordinate volume of bad loans. Economic Contraction: Sets higher-than-expected default rates when the economy slows.	Loan Quality
Van den Heuvel (2002)	Bank Capital Channel Hypothesis. The imperfect market for bank equity.	Bank capital and its regulation affect the role of bank lending. Increase in interest rates lower bank equity, causing some banks to cut lending to reduce the risk of capital inadequacy.	Bank capital and profit-ability
Bliss and Kaufman (2002)	Unifying Model. Capital requirement and reserved requirement constraints on credit expansion and contractions.	Either constraint is binding earning assets cannot grow further. Economic Expansion: Reserve are the likely effective constraints on banks. Economic Contraction: Capital constraint implications may become the binding constraints on banks.	Bank Reserve and Capital
Berger and Udell (2003)	Institutional Memory Hypothesis. The ability of loan officers deteriorate over the bank's lending cycle resulted in an easing of credit standard.	Economic Recession: Loan officers gradually lose the skill to recognize poor loan risks as the recessionary economic environment recedes into the past. Loan officers' turnover, previous loan bust is not remembered. They begin lowering standards, and loan quality deteriorates, setting the stage for high default rates at some future date.	Loan Risk Quality

Table 2.1: Interest-Based Bank Lending Pro-cyclical Behaviour Model (continued)

Researcher/s	Model	Bank Pro-cycle	Variables
Laeven and Majnoni (2003)	Loan losses provisioning policy	Loan loss provisions to total loans ratio and costs of provisioning. Economic Expansion: decline Economic Contraction: increases quickly and significantly	Provision for Loan Losses

Table 2.2: Islamic Bank Financing Behaviour Model

| Islamic Scholars View | Based on Quran and Hadith – Divine guidance *Shariah* compliant instruments | Application of interest-based instrument that resemble the characteristics of usury. Not free from exploitation and excesses brings unfairness and unjustness to parties involved financial transaction. Involvement of speculative trading, ambiguous financial transaction and financial risk trading Unethical investments and consumption spending loans make the operations within immoral value structure. Non-asset backing in financial transaction. | Financing supply |

2.3.3 Empirical Evidence on The Interest-Based Bank's Cyclicality Behaviour

From various forms of financial institutions, banks are the most important source of external fund provider especially to small and medium firms to finance businesses, particularly, in small open economies. The reliance on bank credit is inescapable as the proportions of small typically bank-dependent firms are higher in small open economies compared to larger economies. Studies furthermore show that banks are also the source of liquidity for large firms during times of economic slumps (Trautwein 2000, and Saidenberg and Strahan 1999).

With a huge amount of loans delivered through banks and large fractions of credits supplied to the firms, hence, the banking system may well have significant impact on the economic development. If banks are so essential in the economy, thus, financial deregulation and innovations are not likely to improve bank-dependent firms to borrow from the capital markets in this near future.

In achieving the stability in the economic environment, financial intermediaries' steadiness, the banking institutions in particular, are one of the most significant gears. Through banking activities, the monetary impulses have direct and immediate reactions to correct the disturbances in economic activities. Specifically a well functioning banking system is supposed to help smooth the economic fluctuations or the business cycle and enhance the progress of economic growth. This is vital because studies have clearly shown that countries with lower macroeconomic volatility tend to grow faster (Ramey and Ramey 1995, Fatás and Mihov 2005, Aghion et al. 2006, and Elbers et al. 2007).

In most developed countries, it is a common phenomenon to observe steady financial growth as an access to real growth of output. Gurley and Shaw (1955, 1967), Goldsmith (1969), McKinnon (1973), among others have provided considerable evidence of supporting this argument. Early examples of literature on the relationships between financial intermediation and economic growth include Cameron (1967), Patrick (1966), Goldsmith (1969), McKinnon (1973), and Shaw (1973). Goldsmith (1969) and McKinnon (1973) believed that the financial market is the central of the economic activity.

From the monetary economic perspective, the nature of banking activities and bank's position of one of the most influential financial intermediaries makes it relevant as a channel in transmitting the monetary policy operations. This is well recognised for the banking sector than in most of the other sectors of the economy. Perhaps it is one of the most important nerve-centres of modern economic monetary transmission mechanisms. They provide the demand deposit services, which are the largest part of money supply components and they are the major provider of credits in the system.

However, empirical studies such as by Adrian and Hyun (2008), Bouvatier and Lepetit (2008), Kroszner et al. (2007), Quagliariello (2007) and Nan and Hung (2007) have shown that there is evidence of pro-cyclical behaviour of the interest-based bank lending activities and this will not encourage the economy to grow. For instants, the Asian and Russian financial crises impact on the United States is a reduction in the lending supply in early 1999 due to the tightening of lending criteria (Lown's et al., 2000). The same pattern was observed in the period of 1973–1975 as well as in the early 1990s, when banks reported a tightening of credit standards. Hence, the interest-based bank lending operation has an intrinsic tendency to worsen the economic activity fluctuations rather than smoothing them out. To some extent, it may even exacerbate the swing resulting in credit crunch episodes.

Concerns on the pro-cyclical behaviour of the interest-based bank lending activities began to appear at the end of 1980s and early 1990s. This is revealed in studies such as by Guttentag and Herring (1984), Bernanke and Lown (1991), Bernanke and Blinder (1992), Kashyap and Stein (1993 and 1994) and Asea and Blomberg (1998). However, Guttentag's and Herring's (1984) works are more theoretical in view.

There are two categories of literature relating to the interest-based bank operations relationship to the business cycle. The first category of study is on the cyclicality behaviour of the interest-based bank lending towards the business cycle. This study examines the tendency towards the interest-based bank's operations to follow suit the upswing and downswing of the business cycle. Another category of study looks at the correlation between the business cycle and interest-based bank distress. This study analysed the interest-based banking crisis and the failure of interest-based banks of the business cycle occurrences.

Studies in 1990s were more concerned on the excessive pro-cyclical behaviour of the interest-based banks that empirically had proven to make worse the cyclical behaviour of the macroeconomic and sometimes hampered the recoveries from recessions. Among the studies are by Bernanke and Lown (1991), Bernanke and Blinder (1992), Rajan (1994), and Asea and Blomberg (1998).

The earlier literature provides partial explanations of the stylised facts about the interest-based bank lending operations with business cycle events. Empirical works such as by Bernanke and Blinder (1992) and Kashyap and Stein (1993 and 1994) through the IS-LM model framework estimates the interest-based credit market equilibriums and test the credit channel hypothesis and its relevancy to the credit crunch episode. This earlier study neglected the behaviour of interest-based bank's lending during the expansion and contraction of the economy. At the end of 1990s and as the new century took place, the empirical literature on the pro-cyclicality behaviour of the interest-based bank lending became more apparent.

In the 2000s, the analysis was more on the determinants that contributed to the pro-cyclical behaviour in the interest-based bank lending activities. Researches related to the pro-cyclical behaviour of the interest-based bank hypothesised two related causes. One premise focused on the behavioural finance that analysed the interest-based bank management on risk associated with the bank policy on loan loss provisioning and reserve as the economy grew (De Lis et al, 2000; Bliss and Kaufman, 2002; Laeven and Majnoni, 2003 and Bikker and Metzemakers, 2005). The other hypothesis looked at the implementation of capital standards (Bernanke and Lown, 1991; Berger and Udell, 1994; Peek and Rosengren, 1995; Hancock and Wilcox, 1998; Wagster, 1999; Goodhart, 2005; and Jokipii and Milne, 2006).

Most of the empirical research in the 2000s shows that the banks' provisioning for loan losses practices and credit rating policy contributed to the pro-cyclicality behaviour of the interest-based bank lending operations (among them are studies by Bouvatier and Lepetit, 2008; Quagliariello, 2007 and Bikker and Metzemakers, 2005). Furthermore, in the current financial crisis, Bank for International Settlement (BIS, 2008) stated that the main factors which had contributed to the event could easily be narrowed down to two reasons, that is, the excessive lending of money to high risk customers and the trading of that debt as a commodity.

Another determinant that is found to be contributing to the pro-cyclical behaviour of the interest-based bank is the profit driven enthusiasm (among them are Albertazzi and Gambacorta, 2009 and Bikker and Hu, 2002). One more contributing factor is the capital regulations such as the international bank regulation (Basel I and II) and accounting rules (IAS 39) (among them are Gruss and Sgherri, 2009 and Rochet, 2008).

Jordan and Jain (2009) stated that banks driven by shareholder interest and the desire for profit maximisation started to indulge in excessive and imprudent lending activities. Over the long period of low interest rate regimes, lenders were extending loans to borrowers that borrowed more than they could afford. According to the Bank for International Settlements (2008), the excessive and imprudent credit growth over a long period is the causes for the current global financial crisis. Mizen (2008) takes account of the fact that the lower interest rate has lured the borrowers to borrow more than they could handle and financial institutions devised new products and grant excessively risky loans in search of high profits. Lax lending standards during that period also contributed to the excessive and imprudent lending activities.

Another significant factor contributing to the current global financial crisis is the ability of interest-based banks to transfer the risk to the third parties by selling their loan portfolios. When the interest-based banks are able to transfer the risk through securitisation, collateralisation debt obligations, and other risk-transfer mechanisms, they are incentivised to assume excessive risks in pursuit of greater profit (Hakenes and Schnabel, 2010; Dell'Ariccia, Igan and Laeven, 2008).

Bernanke (2010), Chapra (2008), and Mishkin (1997) on the other hand, pointed out the syndrome of 'too big to fail', also contributed to the problem. They believe that the central bank will bail the bank of in order to contain a systemic risk of the economy. For this reason, many commentators firmly believed that banks ended up taking greater risks than they would have otherwise sustained independently.

Another reason brought up by Roubini (2008) is that banks are less careful about investing depositors' money with the existing of the deposit insurance. Given deposits are either deliberately guaranteed by deposit insurance schemes or implicitly guaranteed by the central bank as the lender of last resort, the depositors were oblivious to the excessive risk taking appetite for the banks.

Other latest studies confirming the existence of pro-cyclicality behaviour of the interest-based bank lending behaviour to the business cycle among others is conducted by Albertazzi and Gambacorta (2009), Adrian and Hyun (2008), Bouvatier and Lepetit (2008), Quagliariello M (2007), Nan and Hung (2007). Albertazzi and Gambacorta (2009) empirically analysed the link between business cycle fluctuations and the interest-based banking sector profitability for 10 industrialised countries over the period of 1981 to 2003. The data set includes yearly figures of the balance sheet and the income statements of the aggregated national banking industries. Their study shows that

pro-cyclicality of the interest-based bank profits are derived from the effect that the economic cycle exerts on net interest income via the lending activity and loan loss provisions via the credit portfolio quality. The empirical finding shows that the interest-based bank profitability is also an important predictor of financial crises.

Adrian and Hyun (2008) also empirically proved the existence of pro-cyclical behaviour of the interest-based financial intermediaries. They regress the Taylor Rule model onto 1991(Q3) to 2007 (Q1) quarterly data of the United States bank holding company Repo, financial paper, federal funds and the consumer price index and they found that the interest-based banks increased their leverage during the asset price booms and reduced it during economic busts.

The interest-based bank cyclicality behaviour is also observable from the bank loan loss provisions behaviour. Bouvatier and Lepetit (2008) conducted the study with panel data of 186 European banks from 15 countries for the period of 1992 until 2004. In their study, they examined if the bank provisioning system and capital adequacy constraint induced and amplified the bank credit fluctuation. Three main variables used in their study were the loan loss provisions, the ratio of non-performing loans to gross loans and total capital ratio. The variables utilised represent the risk of a bank's portfolio. Various interest-based bank items were regressed to a dynamic adjustment of provisions for loan losses and they found that poorly capitalised interest-based banks were constrained to expand credit. They also found that the loan loss provisions made to cover expected future loan losses that were the non-discretionary loan loss provisions had amplified the credit fluctuations.

Earlier in Italy, Quagliariello (2007) conducted a similar study by applying the Least Square Dummy Variable (LSDV) model for 200 interest-based banks quarterlies

financial data, macroeconomic data, and bank specific information for 1985 to 2002. The study shows that the interest-based banks tend to tighten the credit supply of some stages of economic downturns. The growth of loan loss provision and various financial ratios, gross domestic product, interest rates and the asset prices shows a pro-cyclical behaviour of the interest-based banks.

In addition, Nan and Hung (2007) through the three stage least square method on long term and short term borrowing data from 1991 to 2001 in Taiwan shows that the interest-based bank lending in Taiwan also act pro-cyclically, worsening the problem of adverse selection, increasing the probability of resource misallocation and amplifying fluctuations in economic activity. The variables included in their study are the amount of loans, interest rate spread, liquid assets, sales, total assets, and type of loans.

The failure of the interest-based bank financial risk management through soft provisioning policy was empirically evidenced by Bikker's and Metzemakers' (2005), and Laeven's and Majnoni's (2003) works. Bikker and Metzemakers (2005), by pooling the data of the individual interest-based banks' balance sheet items (such as the loan growth, earnings, loan to total assets ratio, and capital to total assets ratio) examined the pro-cyclicality behaviour created by the loan loss provisioning. They used banks yearly observations from 29 OECD countries from 1991 to 2001 and country specific macroeconomic indicators for these countries (including gross domestic product growth and unemployment rate).

Bikker and Metzemakers (2005) study shows that when the growth of gross domestic product is slower, the provisioning for loan losses turns out being considerably higher reflecting increased riskiness of the credit portfolio during business cycles turns downwards and increases the risk of a credit crunch. This effect is mitigated somewhat

as provisions rise in time when earnings is higher suggesting income smoothing and loan growth is higher indicating increased riskiness.

Laeven and Majnoni (2003) regressed on the interest-based bank's loan loss provision to the earnings, loan growth, and gross domestic product growth with a total of 1419 banks and 8176 bank yearly observations from 1988 to 1999, from 45 countries. They empirically showed that many interest-based banks delayed their provisioning for bad loans until it was too late. When the economic conditions reversed, this magnified the business cycle impact on the interest-based banks' income and capital.

Borio's et al. (2000) study on 10 developed OECD countries from 1980 to 1999 also revealed a strong negative correlation between the interest-based banks' provisioning to the business cycles. Their study shows that the provisions to shield for future losses by the interest-based banks in general only begin to increase after the economic growth rate has fallen significantly. Those phases of economic upturns are followed by a significant increase in the ratio of private sector credit to the gross domestic product. On the contrary, this indicator generally falls with the downswing of economic activities. Their study also shows that the pro-cyclical behaviour of the interest-based banks' provisioning for credit risk is also stronger than the changes in credits granted.

Eichengreen and Arteta (2000), by considering a vast range of explanatory variables, analysed 75 emerging markets in the period of 1975 to 1997. The results verify that the financial distress is because of the unsustainable boom in the domestic credit. Macroeconomic policies leading to rapid lending growth and financial overheating generally set the stage for future problems. They also show that domestic interest rate liberalisation often accompanies the excessive lending activities.

Examining the lending cycle in Australia for the period of 1986 to 1993, Tallman and Bharucha (2000) described from their observation that a strong decrease in lending is because of a strong increase of lending activities then followed by an undesirable economic downturn. Substantial increase in loan losses, rising margins and a significant rearrangement of portfolios were also observable. The interest-based banks facing with problem assets larger than the average, restrained their lending more than the aggregate lending average. They even reduced their risk-weighted assets growth rates.

De Lis et al. (2000) analysed the cyclical behaviour of the Spain interest-based bank credit and provisions for loan losses. By using the panel data method, they conducted the study on the commercial and savings banks from 1985-1997. In addition to the supply-side factors, they described the pro-cyclical lending behaviour with the cyclical changes in demand. They uphold that the credit demand is also determined by the real interest rates. The three variables are strongly cyclical in Spain. During economic uptrend, borrowers normally spend on products that engage a higher financing obligation. From the consumer side, this includes the consumer durables and residential property investments. For the corporate side, this includes business related investments. At the same time, borrowing for financial investments as well exhibits very strong cyclical movements.

Asea and Blomberg (1998) conducted a study on United States interest-based bank lending criteria related to the unemployment rate cyclical changes. Their finding shows that during economic downswings, banks entail higher risk premiums and higher collateral. In the event of economic upswings, the average size of loans increases as well. According to them, when the bad loans are jointly delivered to the good loans during expansionary economic condition, deficiencies may as well exist and not just during economic contraction.

Throughout this period of economic upswings, customers with high default risks also have the access to financing. Altering the criteria of banks lending standards of tightness to laxity during this optimistic economic period pressure the expansion and performances of the real economy and add to the excessive risk-taking. This behaviour finally heated the economic condition before reversing the cycle. On the reverse side, the bad loans will eventually crowd out the good ones during an economic slump with an increasing counter-selection.

Most of the studies show that the pro-cyclicality behaviour of interest-based banks has much to do with the realisation of risks driven. Throughout the expansionary phase of the business cycle, the interest-based banks are excessively optimistic and when the economy reverses become excessively pessimistic. Bank for International Settlement (BIS, 2001) supported this assertion. Their study explains that the money market participants fail to treat the time-dimension of risks appropriately is the primary causes of the pro-cyclical lending behaviour of the financial system to the business cycle event in the economy. The main reason for this is that they generally incorrectly assess the evolution of risk over time.

Bernanke (2009) in his speech at the Federal Reserve Bank of Chicago Conference on Bank Structure and Competition in Chicago, Illinois mentioned that risk management is paramount for a safe and sound banking system. Effective liquidity risk management is an important internal determinant of bank stability because it can be a source of bank failures.

2.3.4 Interest-Based Bank Credit Supply and The Business Cycle

To comprehend the lending behaviour impact on the economic condition, it is vital to understand how the credit market works. Most of the literature on banks' lending pro-

cyclicality behaviour based their work on Bernanke and Blinder (1988) works who introduced the credit market equilibrium through the IS-LM model. Bernanke and Blinder (1988) initially analyse the association between the credit market and monetary policy.

Literatures explaining the works of credit markets usually look at the credit view. The credit view puts a special emphasis on the role of financial intermediaries and the banking sector in particular in the economic activity aggregately. Many empirical works applied this model in estimating the credit market equilibriums and test the credit channel hypothesis and its relevancy to the credit crunch episode (such as by Bernanke and Lown, 1991; Kasyap and Stein, 1994; Peek and Rosengreen, 1995; Hancock and Wilcox, 1998).

Bernanke (1983) attempted the pioneering effort in empirical study on the credit channel. Bernanke explains the credit view relevancy by fitting output equations with United States monetary variables and by adding proxies for the financial crisis in his work. Consequently the model suggested by Bernanke and Blinder (1988) extended the traditional IS-LM model to incorporate the effect of bank loan or credit on the economic activity fluctuation or the business cycle happening.

From the credit crunch literature, the empirical evidence suggested that one of the main factors of the reduction on loan demand had a significant consequence of the real economy production activities (Bernanke and Lown, 1991; Berger and Udell, 1994; and Furfine, 2001). Bernanke and Blinder (1988) contends that the existence of direct credit channel of monetary policy to bank lending makes it possible to carry out monetary policy without large changes in the interest rate. It assumes that firms could finance

their investment of bank loans and bonds as well. The banks' asset portfolio now consists of loans besides reserve and bonds in simple terms.

Following this view, the direct effects of monetary policy on the interest rates amplified by the endogenous changes in the external finance premium that is the difference in cost of funds raised externally through the issuing of equity or debt and funds that is generated internally by retaining the earnings. The size of the external finance premium reflects imperfections in the credit market that drives a wedge, between the expected return received by lenders and the costs faced by potential borrowers.

A change in the monetary policy that changes the open-market interest rates will be likely rises or lowers the external finance premium in the same direction. Because of the additional effect of policy on the external finance premium, the monetary policy effects on the broadly defined cost of borrowing and consequently on the real spending and real activity is magnified (Bernanke and Gertler, 1995).

This view explains what has been termed as the 'liquidity puzzle' – a situation where monetary drainage fails to raise interest rates. In this context, a prediction based solely on the traditional money view channel will underestimate the policy impact on the real variables. The direction of the bank's lending does not influence the level of liquidity and inflation in the system alone but also productivity, resource allocation and the social economic order envisioned by the government.

Central bank can manage bank's loan supply either by raising the reserve requirements or through conducting an open market operation. The ultimate effect will not only reduce the total volume of the commercial bank loanable funds but also the proportion of the commercial banks earning assets to their total assets. An open market sale of the

treasury bills for instance, will reduce the commercial banks reserve as purchaser's issues checks against their accounts in commercial banks. Hence, open market sales will drain liquidity from the economy.

A distinctive feature of bank's lending channel is the ability of a tight monetary policy to reduce the supply of loans beyond what ordinarily predicted by a rising interest rate. A rising interest rate resulting from a tight monetary policy will reduce private investment. As a result, a reduction in bank loans supply mostly to the small and medium scale entrepreneurs who rationed out of the credit market because of higher cost of capital.

There are two descriptions of the credit channel in the literature, the bank lending channel and the balance sheet channel. The bank lending channel central attention is on the possible effect of monetary policy on the supply of loans by financial intermediaries. The balance sheet channel, on the other hand, looks on the possible response from the monetary policy on borrowers' income statements, balance sheets, liquid assets, cash flows, and net worth. Those variables are the indicators of borrower's creditworthiness. Weaken in any of those variables disrupt firms' likelihood to obtain loans.

The foundation of the bank lending channel is based on the nature of banks in mobilising deposits and utilising it in term loans and its ability to solve asymmetric information problem. For bank lending channel to exist, a reduction in reserve requirements by the monetary authority must increase the bank's lending volume. Banks must not cut off their loan supply of a shock to reserve for simply rearranging their portfolio of other assets and liabilities. Bank's lending channel requires that some firm without costless replaces losses of bank credit with other types of finance, but rather must curtail their investment spending (Mishkin, 2010).

The balance sheet channel explores the supply of funds of the overall fund markets. The channel arises from the presence of asymmetric information problems in credit markets. A tight monetary policy directly increases lower net worth of business firms and the more severe the adverse selection and moral hazard problems are in lending to these firms. Lower net worth means that lenders in effect have less collateral for their loans and therefore losses from adverse selection are higher. A decline in the net worth raises the adverse selection problem, thus, leads to the decreased of lending to finance investment spending.

The lower net worth of business firms increases the moral hazard problem it means that owners have a lower equity stake in their firms, giving them more incentive to engage in risky investment projects. Taking on riskier investment projects makes it more likely that lenders will not be paid back. A decrease in firms net worth leads to a decrease in lending and hence in investment spending (Mishkin, 1997).

The analyses on the credit channel discussed by previous researchers provide only partial explanations of the stylised facts about the pro-cyclicality of the interest-based bank behaviour. Earlier research neglected banks' behaviour during the expansion and contraction of the business cycle. Later study such as by Albertazzi and Gambacorta (2009), Gruss and Sgherri (2009), Bouvatier and Lepetit (2008), Rochet (2008), Quagliariello (2007), Bikker and Metzemakers (2005) and Bikker and Hu (2002) have provided a more comprehensive study on the pro-cyclical behaviour of the interest-based bank lending.

2.3.5 Capital-Based Regulation and Bank Cyclicality Behaviour

Following the 1988 Capital Accord introduction, a wide theoretical and empirical literature thoroughly analysed the cyclical effects of bank capital regulation. A Lot of

empirical research shows that the introduction to capital-based regulation like Basel regulatory framework likely will create a pro-cyclical behaviour of the interest-based bank's operations (Saurina and Trucharte 2007, Brambilla and Piluso 2007, VanHoose 2007).

The argument and concern raised by the researchers on the new regulation was that higher capital ratios might lead to a reduced in credit supply during the periods of economic downswing. A typical line of researcher's argument is that the default risk of firms in the real sector increases if a shock decreases productivity or increases the risk in the real economy. Assuming that the regulatory constraint on the interest-based banking sector was binding, the credit volume will decrease. Without additional financial resources, firms have to reduce their invested funds and consequently their production volume. Therefore, the common view is that regulations of the interest-based banks amplify a downturn (upturn) in the real economy and causes pro-cyclical effects in comparison to a non-regulated banking industry.

A number of empirical studies have demonstrated that the declines in the bank loans in the period around 1990 are explained by the declines in the interest-based bank capital, loan delinquency, and local economic conditions (among them are Berger and Udell, 1994; Hancock and Wilcox, 1994 and 1998 and Peek and Rosengren, 1995). Hancock and Wilcox (1998) presented estimates of how much the interest-based bank loans and real activity of businesses of all sizes declined when the bank capital and loans declined and other bank portfolio and aggregate economic conditions deteriorated in the United States.

Using the state year data of 1989 to 1992, Hancock and Wilcox (1998) estimated the effects of those factors on employment, payrolls, and the number of firms by firm size,

as well as on gross state product. In response to the decline in their own bank capital, small banks shrank their loan portfolios considerably more than the large banks. Large banks tended to increase loans more when small banks were under increased capital pressure than vice versa. Other than that, the capital declines and loan declines of small banks reduced the real economic activity more than the large banks.

Hence, based on the literature, a number of hypotheses provide with empirical evidence show that the implementation of tougher capital standards had some implications on the interest-based bank pro-cyclicality behaviour. The hypotheses included the risk-based or leverage-based and explicit or implicit (Berger and Udell, 1994; Hancock and Wilcox, 1994; Peek and Rosengren, 1995; Wagster, 1999; Furfine, 2001). Increase in supervisory toughness, such as worse CAMELS ratings; higher classified assets; and more formal actions for a given portfolio; also contributed to the behaviour (for example, study by Peek and Rosengren, 1995; and Furfine, 2001). Bank retrenchment or reduced risk taking due to portfolio risks, losses, impaired capital, changed risk tolerance, and so on (for example, study by Hancock and Wilcox, 1994 and 1998; Berger and Udell, 1994; Peek and Rosengren, 1995; Wagster, 1999; and Furfine, 2001).

2.3.6 Real Estate Market and The Bank Lending Cyclicality Behaviour

Another extensively studied area by researchers is the pro-cyclical behaviour of the interest-based bank lending in the real estate market. Real estate loans, commercial and industrial loans represent the riskier loans relative to consumer loans. Berger and Udell (1994) argue that the commercial and industrial loans as well as the real estate loans are the higher risk loans since they are in the riskiest component of the regulatory bank capital category. The consumer loans are relatively less risky because of low variations in return.

McCarthy's and Peach's (2004) study on the real estate sectors shows that relatively long construction lags of real estate hinder the match of demand and supply for real estate. Due to these particularities, real estate prices are prone to deviate from their fundamental values, which imply the potential for turmoil in financial systems. Evidence from Hoggarth and Pain (2002) documents that growth in the interest-based bank loans for real estate and construction sectors in the United Kingdom increases disproportionately in the boom period of the economy in the period December 1987 to December 1989, lending to these sectors to grow by 55% and 40% respectively, compared to around 25% for other sectors.

Hilbers's et al. (2001) study evaluates the real estate bubbles contribution to the financial distress by estimating a probit and logit model on 11 Asia and Latin American countries with data gathered from 1970 to 1999. The variables included in the study are money supply (M2) multipliers, real interest rate, and real residential property price index. The interest-based banks, during the periods of increasing property prices, also tend to provide loan more to the real estate projects, given the collateral market value rises and the risk of lender decreases.

This bank lending behaviour makes the bank defenceless to the macroeconomic shocks. Economic condition overturns will decrease the interest-based banks real estate assets and collateral value, thus, affecting the interest-based bank soundness. In their survey on a number of studies that theorise on the mechanics of such bubbles, shows that the behaviours are primarily driven by combinations of constrains of the real estate supply of the short run, lenders' limited ability to assess project risks, and herding behaviour of investors.

Mei and Saunders (1997) documented that the interest-based bank lending behaviour in the United States to the real estate sector follows a pro-cyclical or a "trend-chasing" pattern. Returns to investments in the real estate sector are mean reverting. The interest-based banks appear to lend more to this sector when its performance has risen above the trend.

2.4 Literatures on Islamic Bank Financing Cyclical Behaviour

To our knowledge, there is no existing empirical work with the intention of focusing on the specific question considered in this study. Empirical study of the cyclicality behaviour of the Islamic bank operation has never been attempted yet. Whilst various factors contributed to the lack of empirical study of this area, its basic causes can be summed up to its generally new industry and standardised systematic data recording, which is yet to be achieved.

Without any empirical verification, the Islamic banking proponents like Siddiqi (1981 and 1983), Khan (1984), Khan (1986), and Chapra (1992, 1996 and 2008b) confidently proposed that with the *shariah* based instrument the Islamic banking operations will be able to stabilise the economic atmosphere. With the existing of *shariah* compliant instruments, theoretically, the proponents of Islamic banking system believe that the Islamic bank institutions will be more resilient, stable, and ultimately be able to stabilise the economic atmosphere. They also believe the Islamic bank financing operations will behave counter-cyclical to the business cycle episode (Siddiqi, 1981; Ziauddin et al., 1983; Khan, 1985, Khan, 1986; Khan and Mirakhor, 1988; Chapra, 1985 and 1996; Bashir, 1996; and others). Much of the views is yet theoretically in concepts and descriptive in nature with very little support of empirical evidence.

Compare to those of Islamic bank's operations, empirical literatures concentrating on the relationship between the interest-based banks and macroeconomic indicators are more evident, even in Malaysia, which is currently considered as the hub of Islamic finance. However, this study able to depict some of the relevant concepts from related literature dealing with the Islamic bank operations relationship to some of the macroeconomic variables, which are also the business cycle indicators. Hence, this section reviews some of the related literature on the relationship between the banks financing behaviour to the incidence of macroeconomic shocks.

Empirical analyses of the Islamic bank industry were arisen in 1990's. Early empirical studies on the Islamic banking industry were mostly on the financial management performances (example studies by Wong, 1995; Rosly, 1999; Samad; 1999; Aggarwal and Yousef 2000; Yusoff et.al. 2001; and Bakar, 2001). By assessing the Islamic bank performances, they usually compare the Islamic bank financial returns to those of interest-based banks. They also examine the Islamic bank capability in mobilising and efficiently allocating the resources to generate comparable returns to their shareholder and depositors. The early intention was not only to produce comparable returns, but also to phase out the interest-based payments and receivables for the benefit of the stakeholders.

To the best of our knowledge, the empirical evidence of the cyclicality behaviour of Islamic bank financing operations is missing from the scene despite the strong believes by the proponents of Islamic financial system on the capability of the Islamic bank of stabilising the economic environment. The closest empirical studies that provide symptoms of the cyclicality behaviour of the Islamic bank are by Bakar (2001 and 2006), Ismail and Sulaiman (2006), and Shahimi et al. (2006).

Macroeconomic condition is essential in determining the Islamic bank operations, for instance, the Asian financial crises of 1997 had significantly affected the volume of Islamic banks financing in Malaysia. Financing-deposit ratio declined from 104.1 per cent as at the ends of 1997 to 64.9 per cent as at the ends of 1998. The total Islamic banks financing declined by 1.4 per cent or RM149 million in the first half of 1998 (Bank Negara Malaysia, 1998). Malaysia economy improved rapidly in 1999 and the total Islamic bank financing expanded RM3.1 billion or 28 per cent and RM7.2 billion or 52.2 per cent in the year 2000. Moreover, financing-deposits ratios of the Islamic bank grew from 55.3 per cent in 1999 to 58.2 per cent at the end 2000 (Bank Negara Malaysia, 1999 and 2000).

Connect to the Malaysian financial crisis, empirical study by Bakar (2001 and 2006) in Malaysia through the ratio analysis method observed that the Islamic bank investment margin was fluctuating stronger than its rival that is the interest-based banks during an upswing and downswing of the interest rate. The interest rate is one of the leading indicators for the occurrence of business cycle episodes. The finding show that the Islamic bank returns to its investment is more sensitive to the interest rate volatility compared to its counterpart that is the interest-based banks.

Ismail and Sulaiman (2006), on the other hand, analysed the link between macroeconomic variables to the recovery rates and default rates for the Islamic bank. By using an unbalanced panel data set for 15 Islamic banks of Malaysia over the period from 1994 to 2004, their study shows that real gross domestic product is negatively related to the financing recovery rates. Other than that, the money supply M3 has a positive sign and there is a negative correlation coefficient between default rates and financing recovery. This shows that the default rate is low when the economic activities are expanding and the opposite will happen when the economy is contracting.

Study conducted by Shahimi et al. (2006) was more to risk management. They examined the relationship between the net income margins and the financing and loan loss provision of the Malaysia Islamic banks. Their study shows that the net income margin is positively affected by the financing and loan loss provision. The higher the provision made by the bank the more secured the margins of the external shock.

Kassim and Majid in 2010 conduct a study on the 1997 and 2007 financial crises financial shocks affect on the Malaysia Islamic banks. The study finds mixed evidence of the macroeconomic shocks impact on the Islamic banks. The descriptive statistic indicates that the Islamic banks are relatively resilient to the financial shocks, however, based on a more robust econometric analysis the results reveal otherwise. The results based on impulse response function shows the Islamic financing responded significantly to the macroeconomic shocks in non-crisis and 2007 crisis periods. The vector auto-regression results suggest that Islamic banks are vulnerable to financial shocks. This is contrary to the belief that the Islamic bank is sheltered from the financial shocks due to its interest-free nature.

Numerous studies have been done on Islamic bank profitability performances, which include some of the macroeconomic variables such as the national income, money supply, inflation rate, and interest rate. For instance, Bashir (2003) evaluated over the years of 1993 to 1998 Islamic bank profits data of eight Middle Eastern countries. The finding shows strong positive impact on the macroeconomic variables involved. Haron and Azmi (2004) on the other hand, statistically proved direct relationships of inflation rate and indirect relationship of real interest rate on ROA of five major Islamic banks over a period of 1984-2002.

Whilst studies by Bacha (2004), Choong and Ming (2006), and Kader and Leong (2009) on the other hand shows that the Malaysia Islamic bank operation is still influenced by the operation of its counterpart that is the interest-based bank. The close association of the Islamic bank operations and the interest-based bank operations makes it not entirely interest-free, but closely pegged and move fairly closed to the interest rate.

Study by Aggarwal and Yousef (2000), Bakar (2001, 2006), Choong and Ming (2006), Rosly and Bakar (2003), Sanusi and Ismail (2005), and Khan and Bhatti (2008) shows that the financing activities by the Islamic bank are mostly in the form of debt-like instrument in nature and not the profit and risk sharing. The profit and risk sharing instrument is almost absent from the financing services provided and debt-like instrument is found to be dominantly used by most of the Islamic bank. The amount of profit and loss sharing instruments currently applied by the Islamic bank financing operations is less than 5 percent.

Bakar (2001 and 2006), and Rosly and Bakar (2003) studies suggested that with high application of debt-like and fixed rate financing instrument, there is a possibility that the Islamic bank will be trapped in a negative fund gap strategy. Whereby in the event of rising interest rates, the Islamic banks will not able to increase the profit rate and will gain more during a falling interest rate.

Empirical analyses on the Malaysian Islamic bank industry shows that there is possibilities that through debt-like instruments practiced by the Islamic bank of Malaysia will behave pro-cyclical to the business cycle. Somehow, Bakar (2001 and 2006), Ismail and Sulaiman (2006), and Shahimi's et al. (2006) studies did not look at the cyclicality behaviour of Islamic bank operations to the business cycle. Therefore, their finding could not be used to draw conclusions in business cycle effects. Moreover,

their studies looked at the behaviour of Malaysia Islamic bank industry only and therefore could not be generalised for the Islamic bank operations behaviour as a whole.

2.4.1 Research Gap

Previous studies on the Islamic banking industry usually can be groups of three broad subjects comprising the areas of financial management efficiency, criteria and profile of Islamic bank patronage, and the theoretical concept. Among the three areas, earliest attempts focused mostly on the conceptual issues underlying the interest-free banking, for examples in Malaysia among others are studies by Ismail (1983), Ariff (1988) and Nawawi (1995). From the management side, studies mainly focused on the financial management efficiency especially the profitability performances. Among others are by Bakar (2006), Shahimi et al. (2005), Sanusi and Ismail (2005) and Rosly and Bakar (2003) that looks at the profitability performance of Malaysian Islamic banking industry.

From the literature survey, it is evident that empirical analyses on the Islamic bank behaviour to the business cycle are not present in the scene. The idea of Islamic bank capability to smoothen the business cycle swing is theoretical and conceptual in nature, and currently without any empirical evidence. Therefore, this particular study try to fill up the vacuum by providing empirical evidence to prove the superiority over the Islamic banking industry compared to its rival that is the interest-based banks.

With its existence of more than thirty years, the Islamic banking industry recorded a remarkable growth and with better acceptance among the global market players. Therefore, it is timely to evaluate the cyclicality behaviour of Islamic bank financing to the economic activity fluctuations or the business cycle phenomenon. With the marginal amount of profit and risk sharing instrument in used by the Islamic bank, therefore, the

capability of the Islamic bank of smoothing the business cycle viewed by the scholars is questionable. Add with its operations that are not totally free from the interest rate movement makes the Islamic bank financing might behave pro-cyclical to the business cycle happening.

2.5 Conclusions From The Literature Survey

Following through the literature survey on banks' lending cyclicality behaviour to the business cycle suggests that all of this past empirical research had concentrated on the interest-based bank behaviour. Empirical analysis on the Islamic banking sector on the contrary provides very little empirical evidence. Despite of Muslim economists making enormous strides in the last three decades of understanding the relationship between the Islamic bank operations with the economic stability, most of the works are still mainly theoretical and conceptual presented.

There continues to be a number of theoretical and empirical gaps in the literature in the Islamic banking industry. The reason that can be raised forward is most of the Islamic financial institution's operation only made way of the financial market in the 1980s and 1990s. Following to that limitation, this brings to another constraint on the form of data adequacy. Therefore, early scholars descriptively explained the ability of Islamic financial system to stabilise the macroeconomic condition with simulation models and this contributed to the absence of empirical evidence.

Another reason that has contributed to this very little empirical study of the Islamic bank operations is that the worldwide domination of prevailing mainstreams interest-based banking system practiced including those in the Muslim majority countries. With less than forty years of the financial market inception and with inadequate data,

therefore, only a small number of empirical studies on the Islamic financial system are inevitable.

Nevertheless, there are also few good empirical papers that can be traced to certain Islamic countries like Pakistan, Iran, Sudan, and Malaysia. However, the previous studies did not look into the cyclical behaviour of the Islamic bank but more to the management side and the Islamic bank operation efficiency and its relationship to the monetary instruments such as study by Elhiraika (2004), Kiaee (2007), and Kia and Darrat (2007). Therefore, in general this study is an effort to fill the existing gap between the theoretical and descriptive concepts with the empirical evidence on the superiority of the Islamic financial system.

With bank's financing activities concentrating more on the debt-like instrument instead of the profit and risk sharing, there is a possibility that the Islamic bank operation will behave pro-cyclically to the business cycle. Evidence from Bakar (2006) investigation into Islamic bank investment margin, and Ismail and Sulaiman (2006) that analysed the link between recovery rates and default rates, thus, their findings need some consideration concerning the cyclicality behaviour of the Islamic bank financing.

The study anticipates that macroeconomic fluctuations will influence significantly the operation of Islamic banks, particularly, on the assets utilisation due to the debt-like instrument although in essence the fixed rate financing instruments are complying with the *shariah*. This expectation is based on Bakar (2001 and 2006), and Rosly and Bakar (2003) studies. On the other hand, the study also foresees that the Islamic bank operation will behave pro-cyclically if the Islamic bank contingency reserve, provision for loan losses, and capital failed to give a positive impact on the financing growth as instructed by the Quran in chapter Yusuf (12:46-49).

From the review of literatures on the interest-based bank lending cyclicality behaviour, the excessive expansions and contractions of the interest-based bank lending activities have real economic implications. The empirical study identifies that the interest-based banking operational structure of its nature has contributed to the occurrence of pro-cyclical behaviour.

Past empirical studies also showed that the reasons for the pro-cyclical behaviour of the interest-based bank are due to the exercise in those unfavourable financial instruments and investment activities from the *shariah* viewpoint. The most undesirable instrument will be the practices of interest-based instruments that being a pre-determined cost of production is not a sound and a steady financial system. Furthermore, other forms of financial transaction practices of the interest-based bank that is also against the Islamic values are the existing of trading activities involving speculative activities, ambiguous and uncertain financial transaction, and trading of financial risk instruments.

Such practices of financial and commercial transactions by the interest-based banks believed to be the main contributing factors to the economic instability. The interest-based financial and commercial transaction that is not tied to any ethical and moral standard guidelines, investment, and financial transaction that is unlimited to only the genuine assets makes the impact of its operation of the economy more difficult to predict. The financial crises in the global financial system existing on the past decades signal the incompetence of this interest-based financial system in managing the economic agents' behaviour.

There are two scenarios that generally observed by researchers, practitioners, and regulators on the supply of credit by the interest-based bank over the business cycle. The first scenario, the interest-based bank lending activity normally increases

significantly from the expansions of business cycles. During the business cycle downturns, it reduces considerably and sometimes can be worse enough such as the credit crunch event. The second scenario is that observed to measure of the interest-based loan performance problems appear to follow a distinct pattern of the business cycle. Past due, nonaccrual and higher loan loss provisions start to appear at the end of the expansion and rise dramatically during the downturn. This suggests that the interest-based banks may take significantly more risks of the expansion, but the risk only revealed later because it takes time for the loan performance problems to appear.

Many theories focus on the increase and decrease of lending by the interest-based bank. The theories explain these changes in lending are generally more than proportional to the changes in economic activity, suggesting that changes in the interest-based bank loan supply tend to stress the business cycle. Islamic scholars argued that the main reason for the pro-cyclicality behaviour is the practices of various financial transactions that go against the *shariah* conditions in the interest-based banking system. This changing behaviour of the economic unit in the event of business cycles can be visualised through the bank's balance sheet movement, the deposits, and credit items.

According to Khan's (1986) when there is a downswing in an interest-based economy, the depositors' existing claims remain a liability for the interest-based banking institution, hence, forces the interest-based bank into debt management. That is, the creation of new and more costly debt against the interest-based banks in the form of new deposits and borrowings from other sources in order to retire existing debt to the depositors. This action reinforces the process of the downswing and hampers the pace of recovery in the economy.

In addition to the practice of interest-based instruments behind their operations, the speculative activities and trades involving ambiguous criterion, is also the contributing factors to the pro-cyclical behaviour of the lending activities. As against this, the Islamic bank has the advantage due to the principle of profit and risk sharing. The Islamic bank obligations to depositors will automatically be adjusted to downswing and recovery phases.

Wrapping up the literature survey, with the empirical evidence on the pro-cyclical behaviour of the interest-based type of bank, Islamic economists suggested that the Islamic financial system with special focus on the Islamic bank operations able to weather the turbulence, dynamic, complexity, unpredictable economic condition fluctuation, and financial crisis better.

In running its financial transaction operations, it is an obligation of the Islamic banks to follow the guidance of the Quran and sunnah (the saying or hadith and conduct of the prophet). Failing to do so, will no doubt make the Islamic bank operations behave as what their counterpart behaves. Failing to adhere to the above Allah's (swt) instruction in managing the contingency reserve and provision for loan losses will invite instability to the banking institutions', particularly in this unpredictable economic surroundings.

Besides complying with the *shariah* major financing principles, this study brings forward another proposition that the financial institutions need to follow in order for them to behave counter-cyclically to changing economic environment. The financial institutions need to adhere to Allah (swt) instruction related to the management of contingency reserve and provision for loan losses as mentioned in Quran (chapter Yusuf, 12: 46-49).

CHAPTER 3

MODERN BANKING AND THE ISLAMIC BANKING BACKGROUND

3.0 Banking Industries and Economic Growth

Banks are crucial in promoting greater economic growth of the financial market effectiveness by channelling funds more efficiently from people who do not have a productive use for them for those who do. Activities in banking markets also have direct effects on the households' personal wealth and consumptions, the behaviour of businesses, and the performance of the overall economy. Of late, researchers and policymakers have also acknowledged that a critical role of banks is to manage and control various forms of risks in the financial market. These functions give banks a central position of saving and investment allocation.

Indeed, a well functioning banking industry is a key factor of producing higher economic growth. This relationship has widely been accepted by the economists, bankers, financiers, and policymakers. From monetary economics theoretical points of view, bank's operations should able to stabilise the economic environment. The nature of banking activities and bank's position of one of the most influential financial intermediaries makes it relevant as an agent in achieving the stability in the economic environment.

It is well believed that the monetary impulses will have a direct and immediate reaction to correct the disturbances in the economic atmosphere through the banking lending activities. Specifically, a well functioning banking operating system is supposed to help smoothen the economic activities and fluctuations or the business cycle occurrence, and able to enhance the progress of economic growth. Studies have clearly shown that countries with lower macroeconomic volatility tend to grow faster (Ramey and Ramey,

1995; Fatás and Mihov, 2005; Aghion et al., 2006; and Elbers et al., 2007). Thus, in achieving the stability of the economic environment, financial intermediaries' steadiness and the banking institutions in particular, is one of the most significant gears. Undesirable disturbances to the financial market structure and information delivery system, banks' equity levels and capability in providing loans, and firms' collateral will have an impact on firms' access to loans and consequently to investment and output.

With the increasing concerned on the pro-cyclical behaviour of the interest-based bank lending to the business cycle, the pertinent question is that does the Islamic bank financing activities have the inclination towards a pro-cyclical behaviour too. Therefore, analysing the Islamic bank financing cyclicality behaviour, understanding the work and the importance of the Islamic bank financing for efficient operations of the economy, and understand the role of Islamic bank financing in contributing to the economic development are essential.

Islamic bank as a whole provides the same functions and activities as the modern interest-based bank that is as the financial intermediaries. The Islamic bank plays the role as the matchmaker for those who have excess of funds to those who are short of funds of the economy. It is important to the Islamic bank, as it is in the interest-based bank to play this financial intermediary role and to support a sustainable, healthy, and growing economy. The operations of Islamic bank include practically all aspects of business, commerce, and investment but without infringement of the Islamic *shariah* or ruling principles. The Islamic principles must be the foundation of all Islamic bank operations. All of its financial and commercial transaction actions and activities must stay within the limits of the *shariah*.

The financing portfolio is the major sources of income for the Islamic bank business activities. With the *shariah* compliant instruments, added with high ethical and moral (*akhlaq*) value underpinning the Islamic financial system and adhering to the instruction of Quran (Yusuf, 12:46-49), the Islamic bank commercial financing and investment activities supposedly will not react excessively to the changes in the macroeconomic activities. Thus, it is likely that the operations of Islamic bank will be able to bring a more stable and resilient economic environment.

In order to understand the operation of Islamic banking system it is worthwhile to comprehend the working of present day's financial intermediary systems. The following chapter discusses the role of current financial intermediaries in facilitating the present economic activities. This is followed by the description of the Islamic bank background, the operational system, and how it fits in into the modern economic landscape.

3.1 Banking Operations and Economic Activities

Banks' play a significant role in the economy by providing credit facilities to a large fraction of firms, thus, the amount of credit channelled through the banking system may well have significant macroeconomic effects. For a small open economies in particular, the numbers of small and medium scale firms and naturally bank reliant firms are high, thus, the reliance on bank credit is essential. Small and medium scale firms may have difficulties in acquiring funds from the non-banking sources. Existence of scale economies in the financial market makes the small and medium scale firms in particular more reliant on bank lending or financing. At least for the near future, the small and medium enterprises are likely to remain bank reliant.

Study also shows that even during times of economic recession, banks are also the main source of liquidity for the large firms (Trautwein, 2000 and Saidenberg and Strahan,

1999). Adverse shocks to the banks' equity levels and capacity to provide loans may all have impact on firms' access to credit, consequently to investment and output. Thus, financial deregulation and innovations are improbably will help improve bank dependent firms' ability to borrow from the capital markets and are likely to remain bank reliant at least for the near future.

There are three players involved in the operation of a bank. They are the bank institution themselves, depositors, and the borrowers. The depositor places his fund in the bank and the bank will provide credit services to those who are short of funds called the borrowers. In the interest-based type of banking systems, the fund owner will receive interest from the bank as a reward for parting with his capital for a given time. The borrowers on the other hand, are charged with the loan rate by the interest-based bank of the amount borrowed.

The interest-based bank as the financial intermediary will receive the interest spread. Interest spread is the difference between loan rates and interest paid to the depositors. Loan rate is the additional amount paid by the borrowers, which are over and above the principal amount borrowed. The loan rate depends on the size of the principal and the length of time the borrowers take to repay the whole amount they borrowed. Loan portfolios are one of the major forms of business activities for the interest-based bank. Hence, it is vital for the bank to monitor the market interest rate movement so that the interest spread margin of the interest-based banks is determined competitively.

Majority of Islamic jurists view the collection and payment of interest has a resemblance to the characteristic of *riba* (usury), and for that reason, Islam prohibits the practice. In view of the fact that injustice laid at the root of interest-based instruments, thus, receiving and paying of interest is not permissible. *Shariah* strictly prohibited the

receiving and paying of interest, regardless of the loan purpose and regardless of the rate of interest charged.

With the prohibition on interest-based instruments, as an alternative, Muslim scholars proposed the sharing of profit and risk for financial and commercial transaction activities between the fund suppliers, fund demanders, and the financial institutions (Qureshi, 1946; Ziauddin, 1984; Khan, 1984; Khan and Mirakhor, 1986 and others). For this alternative, the lender, borrower, and intermediary's relationship have transformed into a partnership through the sharing of profit and risk in an investment. As for the consumption financings, these are done according to trade-based (*al-bay*) financing that is by a mark-up price or the hire purchase formula. The Islamic bank simply buys the product and sells it back to the customer at a profit rate and payments are made in instalments.

Based on the proposed interest-free instruments, the scholars put forward that the financing operation of the Islamic bank will drive to fairness and justice for each contracting party. The profit and risk sharing instruments will create the awareness of the unity concept through partnership and cooperation among members of the society. More importantly, they believe by adhering to the *shariah* requirement the operations of financial and commercial transactions will able to stabilise the economy better than the interest-based financial system.

The Islamic bank presently performs a variety of functions in addition to the deposits and financing services. For the last two decades, the Islamic banking industry has been doing well in formulating creative, flexible and *shariah* compliant financing instruments that have enabled them to compete with the interest-based bank. Historically, the Islamic bank has provided payment processing services and money changing. The

functions have gained its recognition of the international level owing to the greater integration of financial services.

Presently, the Islamic banks primary function is the transformation of assets in terms of their maturity, quality, and denomination. In attempting to maximise the shareholders' investment value, the Islamic bank institutions are as well exposed to risks. Such interaction of risks can lead to a systemic crisis. Therefore, from the policy standpoint, Islamic bank management should also consider developing a portfolio management plan or strategy that will balance the risks and returns.

3.2 Islamic Banking Background

Banking industry is a crucial sector in supporting the development and growth of an economy locally as well as globally. The fundamental function of banking institutions comprises the mobilisation of funds of those who have an excess to those who are in need of funds of deploying them as credits for a variety of purposes. The existence of banks is to connect the lenders and borrowers mutually, and help allocate credits. Bank credit facilities are a special service from the standpoint of the bank or the borrower with no perfect substitute. The monetary policy will directly influence the banks' lending operations.

Islamic bank of a complete financial institution run the same activities as the interest-based bank. The operations of Islamic bank include practically all aspects of business, commerce, and investment as provided by the interest-based bank institution, but without infringement of the *shariah* or the Islamic rules and regulations principle. The original meaning of *shariah* is "the way to the source of life". Now it is referring to the legal system in keeping with the code of behaviour called for by the Holy Quran (Parashar and Venkatesh, 2010). The economic objectives of *shariah* among others are

to protect the wealth of people and morally upright society all the way through ensuring fairness, justice, and equitable distribution of wealth. *Shariah* will ensure the financial and commercial transaction and the exchange and transfer of wealth will take place in an orderly manner.

Presently, the Islamic banking industry is still in its emerging stage. However, it is a fast growing industry with an increasing number of acceptances among the non-Muslims on the Islamic financial system and its instruments. The Islamic financial industry is growing at the rate of fifteen percent every year (Islamic Financial Services Board website). The fast spread and growing of the Islamic financial institutions for the past thirty years have elevated high attention, discussions and debates among the academicians, regulators, financial discipline practitioners, and policy makers.

The setting up of the Islamic Financial Services Board in 2002 is one of the efforts in developing effective and prudent standards to supervise the Islamic bank operations and development. The Islamic Financial Services Board has issued a standard document on risk management guidelines in order to monitor the Islamic financial industry's stability and resiliency. The risk management guidelines are in the form of fifteen principles general requirements in the six major areas of risk management. The areas are namely the credit risk, liquidity risk, market risk, equity investment risk, rate of return risk or displaced commercial risk, and operational risk including *shariah* non-compliance risk.

An increasing number of theoretical and empirical researches in the Islamic finance and Islamic banking system are now underway. There are three phases of existing research on the Islamic banking industry since their establishment of this modern world. Research in the first phase that is in the late 1970s and early1980s can be regarded as

theoretical and descriptive in nature with focus on the conceptual issues underlining the interest-free financing (among the researchers are Chapra, 1982 and Karsen 1982).

In the second phase, the proponents of Islamic financial system examine the theoretical framework of the institutions and analyse their behaviour by using more rigorously analytical modelling techniques. Among them are Khan (1986), Haque and Mirakhor (1986), Bashir and Darrat (1992). Hitherto, the short of comprehensive Islamic finance and banking data hindered the progress of empirical analysis on the Islamic finance and banking experience of the last three decades.

According to Bashir (1999), many factors contributed to the lack of information about Islamic banks. Firstly, most of the Islamic bank financing contracts are private and therefore, unavailable to researchers. Secondly, in most of the countries where the Islamic banks operate, financial markets are not well developed. Thirdly, there is no private agency specialising in gathering and selling information about Islamic banks. Finally, regulators do not hold periodic disclosure of sufficient information about the Islamic banks.

The third phase of Islamic financial system research began some fifteen years ago with the application of more robust statistical technique analysis in evaluating the Islamic banking industry. The earliest pathway to the valuable empirical study on the Islamic financial among them was the works of Darrat (2002) where he did empirical analyses on the Islamic bank efficiency in managing the monetary systems.

3.2.1 Historical Background of Islamic Banking

In the past, the introductions of interest-based banking systems in the Muslim countries were after the fall of Muslim government especially in the early 19th century during the

colonial period. The main interest-based banks of the home country of the colonial power established the local branches in the capital of the subject countries. The purpose of introducing the bank branches of home country locally was to cater for mainly the colonials' economic purposes and the colonial trade requirements in particular.

With the passage of time and other political and socio-economic forces, it became difficult to engage in trade and other activities without the banking institutions. As a result, saw the establishment of the local interest-based banks of the same lines of foreign interest-based banks. The interest-based bank was very well established and deep-rooted in the Muslim countries financial system since the end of the 19th century. This has resulted in the small shares of the Islamic banking industry in the market scene of every Islamic country. Based on this reason, the interest-based banks become well experienced in the banking industry compared to the Islamic bank.

It appears that, the history of Islamic financial institution is however traceable to the time of the prophet Muhammad (saw) with the existence of *Bait-al-Mal* or the 'House of the Treasury'. It dealt with both business transactions and charity. During the glitter stage of the Islamic empires, the *Bait-al-Mal* plays an important role as the 'central national finance house', with its branches all over the Islamic state. *Shariah* principles were the basis of their operations that adopt the social justice, introducing laws, and instruments that help in the maintenance and dispensation of justice and equality.

The period of 8th to 14th centuries saw the emerging of a systematic economic system in the Islamic empire that became the major references to the modern interest-based economic system then. Some of the Muslims authors, such as Labib (1969), even refers to it as the emerging of the 'Islamic Capitalism'. The early form of merchant capitalism emerged during that period. In the 13th century of the medieval Europe, the Europeans

adopted and enhanced the systematic economic system practiced by the Muslim empire (Banaji, 2003). Global economic prosperity was the result of that systematic economic system practiced by the Muslim empire.

The sprout of much multidiscipline knowledge follows the development in Islamic civilisation during that period. High growth of business activities invites the creation of many financial instruments. Throughout the Abbasid Caliphs (750 AD – 960 AD), Muslims had banks, preliminary court bankers, and even the use of letter of credits and other sorts of financial instruments (Labib, 1969). According to Banaji (2003), the concepts of profit, capital and the accumulation of capital are found in the Arabic sources. Thus, the Islamic empire has made a powerful contribution to the growth of economic knowledge and capitalism especially in the Mediterranean. The Islamic system had been able to maintain a stable and sustainable economic environment for hundreds of years without any reports of major economic environment disturbances.

Following the erosion of Muslim government political control, the Islamic banking system was mainly the subject of theoretical discussions. The efforts to introduce the Islamic banking system were only private and individual initiatives in some countries and by laws in others. Gafoor (1996) recorded that the earliest references to the theoretical discussions of modern Islamic banking systems can be found in Anwar Qureshi, Naiem Siddiqi and Mahmud Ahmad in the 1940s. Sayyed Abul A'la Mawdudi and Muhammad Hamidullah did a more elaborate exposition of interest-free financial system in the 1950s. With the increase in awareness and the desire to see Islam becoming a pillar and as a way of life, works specifically devoted to this subject began to appear in the 1960s and 70s. Young Muslim economists like Abdullah al-Araby, Nejatullah Siddiqi, Baqir al-Sadr and Ahmad al-Najjar were the main contributors (Gafoor, 1996).

The practical effort of modern Islamic banking systems finally began in 1963 in Egypt with the establishment of an interest-free bank of an experimental basis. It was launched by Ahmad al Najjar in the rural Egyptian town of Mit Ghamr, however, it was closed in 1967 (Bakar, 2001). The pioneering effort, led by Ahmad al-Najjar himself, took the form of a savings bank based on profit and risk sharing.

At the same time in 1959, an economist from the University of Malaya made an effort in Malaysia. The honorary Ungku Aziz bin Ungku Abdul Hamid in his working paper, 'Programme for the Improvement of the Economy of Haj Pilgrims', wrote a proposal for the establishment of a financial institution based on the interest-free economic activities to solve the financial problems faced by Malaysian pilgrims. Creatively he brought the original idea, which finally saw the establishment of Muslims Pilgrims Savings Fund Corporation in November 1963.

Muslims Pilgrims Savings Fund Corporation then evolved into the Pilgrims Management and Fund Board in August 1969. The board was set up to coordinating and promoting all aspects of activities connected with Muslims going on pilgrimage as well as to mobilise the savings of its depositors (Bakar, 2001). It provides financial services to Muslims through the concept of *halal* (allowable or permissible) savings and investment.

Following the successful implementation of Pilgrims Management and Fund Board a continuous pressure made on the government to establish an Islamic bank in Malaysia. A more formal demand for the establishment of the Islamic bank was first made in 1980. The "Bumiputera Economic Congress 1980" passed a resolution urging the government to allow Pilgrims Management and Fund Board to establish Islamic banks

in Malaysia in order to mobilise savings from the Muslims and invest them in a more productive manner (Bakar, 2001).

On the global perspective, the early seventies saw the international institutional involvement. The Finance Ministers of the Islamic Countries conference held in Karachi in 1970, the Egyptian study in 1972, the Mecca First International Conference on Islamic Economics in 1976, and the 1977 International Economic Conference in London were the results of such involvement.

In 1972, the Egyptian government revived the al Najjar's experiment. The experiment began attracting the attention to bankers, thinkers, and economists in the Muslim countries who were concerned with economic and social progress of individuals, as well as nations, in accordance with the principles of the s*hariah*. The bank was designed to promote savings, investment in development projects, and productive enterprise and at the same time as being interest-free. In 1972, the Egyptian government established the first ever-official Islamic bank, the Nasir Social Bank as an introduction to Islamic banking with a comprehensive scale (Nawawi, 1995).

The first private interest-free bank, the Dubai Islamic Bank was eventually set up in 1975. A group of Muslim businessperson set it up from several countries. In 1977, another two private interest-free banks were founded under the name of Faisal Islamic Bank in Egypt and in Sudan. Following the establishment of the Nasir Social Bank, the number of Islamic Banking had increased and spread not just among the Muslim countries but also outside the Muslim world, such as Great Britain, Switzerland, Cyprus, and the USA (Nawawi, 1995).

For the past thirty years, it is beyond doubt that the growth of Islamic banking industry is much links to the rising of oil revenues then. The Islamic bank business has largely developed of from the rising of world oil prices. More than 50 Islamic banks institutions have come into being in the first ten years after the establishment of the first private interest-free commercial bank of Dubai. Nearly all of them are in Muslim countries, though, there are some in Western Europe as well. The Islamic Banking System (now known as the Islamic Finance House) established in Luxembourg in 1978, represents the first attempt on Islamic banking with the Western world. There is also an Islamic Bank International of Denmark, in Copenhagen (founded in 1982), and the Australia Islamic Investment Company which has been set up in Melbourne, Australia (Bakar, 2001).

3.3 Islamic Economic System Framework

The global financial crisis related to the instability of financial markets has highlighted the weakness for interest-based banking and finance on which the global financial system built for hundreds of years. The interest-based bank lending tendencies to behave pro-cyclically to the business cycle event have raised much concern on its ability to stabilise this dynamic and unpredictable economic environment uncertainty. The International Monetary Fund based on a number of their studies have recommended that the Islamic financial system might be in better positions to absorb the international financial shocks compared to the interest-based financial system.

Thus, the intention of this particular study is to evaluate the cyclicality behaviour of the Islamic bank financing. To confirm this behaviour of Islamic bank financing towards the business cycle event, it is worthwhile to start with the foundation description of the Islamic economic framework. To begin with, it is necessary to elaborate the basis of Islamic teaching underpins its economic views and is applied in every organisation

including the business organisation especially the financial intermediaries that directly plays an important role in the development of an economy.

Six philosophic pillars that become the foundation of the Islamic economic management are:

1. The concept of Allah (swt) alone determines the sustenance and nourishment of His creation and will direct those who believe in Him towards success (*rububiyyah*)

2. Men's role as Allah's (swt) *khalifah* (vicegerent) on earth

3. The growth and purification of men as a necessary prerequisite before men undertakes the responsibilities laid out to them (*tazkiyyah*)

4. The concepts of trustworthiness (*amanah*)

5. Men's is accountable for their actions and deeds during the present world in the hereafter (*masulliyat/hisab*).

6. The principles of brotherhood in the society (*ukhwah*).

The above-mentioned pillars underpin every action and activity performed either by individuals or by organisations as the economic units. The divine guidance governing the economic activities is the Islamic laws and regulations or recognised as the *shariah* in the Arabic term. It stands for believing in Allah (swt) (*aqidah and takwa*) and the concept of moral and ethics (*akhlaq*). Its principles are the utilisation of property and wealth provided by Allah (swt) according to His order for human welfare and benefits.

The discussion of economic issues under the Islamic system is under the discipline of '*fiqh muamalat*', which is governed by the *shariah* or the Islamic law. The main principle of Islamic economics is the full utilisation of the property and wealth provided by Allah (swt) according to His instruction. The objectives of the economic agents are

to achieve the prosperity and success in this world and in the hereafter (*falah*) rather than maximising one's own self (*nafs*).

The concept of fearness to Allah (*tauhid*) reflects the economic doctrine of Islam. The key to economic philosophy of Islam lies in man's relationship to Allah (swt) the almighty, His people and His universe that is other human beings and the nature. The basic sources of the Islamic code of conduct are the holy Quran and the Sunnah (the saying or Hadith and the conducts of the Prophet Muhammad (saw)). Following the Quran and Sunnah is of paramount importance in Islam and nothing could replace this. It is a complete misguidance to take one's Islam out of these revelations-based sources.

Islamic bank, other than it should be in conformity with the ethos of Islam. It should help to realise the socioeconomic goals that Islam emphasises. Some of the most important goals in an Islamic economic system as mention by Chapra (1983) are:

1. Economic well-being with full employment and optimum rate of economic growth.
2. Socioeconomic justice and equitable distribution of income and wealth.
3. Stability of money value. To enable the medium of exchange to be a reliable unit of accounts, a just standard of deferred payments, and a stable store of value.

Kahf (1978) lists four main objectives of the Islamic macroeconomics policy view that is the economic development, full employment, price stability, and redistribution of wealth and income.

Therefore, in an Islamic economic system the role of any financial institution, banks in particular are to smooth the progress of the macroeconomic environment.

Most of the Muslims economists' scholars have very well accepted the above-mentioned macroeconomics goals. Despite the fact that there is an apparent similarity in the policy objectives as those of capitalism, there is a significant difference in emphasis arising from the divergence in the commitment to the spiritual values of the two systems, socioeconomic justice, and unity. Hence, the short run objectives of macroeconomics according to Islamic framework are to achieve:

1. optimum rate of economic growth

2. full employment

3. price stability

4. redistribution of wealth and income.

The long run Islamic policy objective is to achieve the wellbeing and success in this world (particularly for the non-Muslim) and as well as the hereafter (the concept of *al-falah)* for the Muslims. According to Ariff (1982), the choice and role of the policy tools of an Islamic economy would depend greatly on the policy objectives pursued. Four broad objectives seem to have gained wide recognition are (a) internal stability (b) distributive justice (c) external equilibrium and (d) economic growth.

With the above-discussed foundation of the economic systems, the Islamic bank operations need to follow accordingly to the instruction of *shariah* in order to arrive at the ultimate objectives of the economy. Thus, the main principle is the full utilisation of the property and wealth according to Allah (swt) instruction.

3.4 Islamic Financial System Framework

In Islam, the foundation of all institutional development in a given society is the principles of *shariah* with the objectives to realise the socioeconomic goals of Islam.

The concept and operations of Islamic financial institutions should be consistent with the *shariah* principles, derived from the Quran and the Sunnah.

Islam prohibits all such transactions that depend on chance and speculations (Quran, 2:219; 5:90). The essence of disapproved business conduct comprises unjustified appropriation of others' wealth and rights, regardless of the forms. (Quran, 2:188; 4:29; 38:23 and 83:1-2). This is exactly what the Quran has strictly forbidden by calling it as *zulm* or injustice (Quran, 2:188; 4:29; 38:24). Allah (swt) also unambiguously declared nothing could be having without effort or labour (Quran, 4:32; 53:39). Islam emphasises the duty of every individual to work for his living and productive enterprise is looked upon as a means of serving God (2:195).

In the case of Islamic banks, it plays a special role in the financial system. In principals, similar to the interest-based bank roles, the Islamic bank is well suited to solve the asymmetric information problems of the financing markets but without the infringement of the Islamic principle. The Islamic bank financing operations practices differ from the interest-based bank lending practices as it is based on the *shariah* or the Islamic law principles. The major principles are the ban on interest-based financial instruments in whatever forms for the reason it resembles the characteristics of usury or *riba*.

Majority of Islamic jurists views the collection and payment of interest as practiced by the interest-based banking system has a resemblance to the characteristic of riba or usury, and for that reason it is prohibited in Islam. The Holy Quran and the hadith or the saying of the Prophet Muhammad (saw), had explicitly prohibited *riba* or usury (Quran: 2:275-281; 3:130-132; 4:161; 30:39).

Thus, the prohibition on interest was not based on economic theory per se but on the *shariah* instruction that is the divine guide, which considers the charging of interest resemble the characteristics of *riba* (usury). It is an act of exploitation and injustice. From the Islamic economic views, income that receives from a *riba*-based instrument is a return to an unproductive effort of no labour activities.

Therefore, the interest-based instruments viewed as something that will bring unfairness and injustice to the parties involved in financial transactions no matter whether the charged is low or high. Since unfairness and injustice lay at the root of interest-based instruments on all undesirable business conducts, therefore, Islam strictly prohibited the receiving and paying of interest, regardless of the rates at which interest is charged and regardless of the purpose for which such loans are made. In the case of loans, it is *riba al-Nasiah*. *Riba al-Nasiah* is the additional amount sought on loan and usually based on time. It is also known as *riba al-Jahiliyyah* and is the one expressly prohibited by the Quran. In some cases, the injustice may not be apparent and in order to nip the evil in the bud, Islam seeks to block all those channels that eventually lead to the injustice.

Despite the fact that the principles of *shariah* governed the Islamic bank, it essentially performs the same economic functions as those in an interest-based banking system, that is, they act as financial intermediaries. The aimed of Islamic banking system are meeting the requirement of those who ask for capital for a specific investment. It provides the financing of working capital, industry, agriculture or any other lawful investments and services, but without charging interest in any form. The Islamic bank operations also avoid all forms of impermissible activities based on the *shariah* order. Other than it should be in conformity with the rules of Islam, it should also help to realise the socioeconomic goals that Islam emphasises.

3.4.1 Islamic Bank Framework

Muslim jurists and scholars generally accepted the used and function of the modern banking system and modern form of money as one of the economic gears in today's world. In Islam, money is merely as tools of potential capital and not capital by itself. A risk must be undertaken to justify a return, for this reason, money has to be transformed into a productive use.

It is against the Islamic rationality to stock up on money (Quran; 9:34 and 35). Thus, money kept as saving and unused will be charged with *zakat* (alms). *Zakat* (alms) is an obligatory charity and is a levy on certain categories of wealth in Islam. It follows that savings must be put to good use. To transform money into productive use, it requires the services of someone else such as entrepreneurs. One who cannot go into business himself can supply funds bases of partnership or on a profit and risk sharing. Therefore, the money and Islamic banking sector somehow should stand for contributing to the achievement of major economic goals following the Islamic worldview.

The practices of Islamic financial institutions proceeded with the basis that it must be derived based on the *shariah* principles. The major principles that apply to *shariah* compliant financing activities are:

1. Ban on interest for the reason that it resembles the characteristics of *riba* or usury. In interest-based forms of finance, there is a distinction between acceptable interest and usurious interest. On the contrary, under the Islamic law, any level of interest is usurious and prohibited. As a replacement is the approval for equity-based financing (investment) with the concepts of sharing of profit and risk and the trade-based (*al-bay*) financing instrument for financial transaction.

2. Prohibition on any transaction involves speculative activities, ambiguous and uncertain activities, and the trading of financial risk. Ambiguity in contractual terms, conditions, and transactions is not allowed unless all of the terms and conditions of the risk are clearly understood by all parties involved in a financial transaction.

3. Fulfilling the concept of fairness and justice – In Islam, parties that are involved in a financial transaction must share both the associated profits and risks in order to fulfil the concepts of fairness and justice.

4. Ethical investments and consumption spending – Project and consumption financing must be within the moral value structure, more efficient, more cautious and selective in project selection. Investment and consumption that are prohibited by the Qur'an, such as alcohol, pornography, gambling and pork-based products are disallowed.

5. Asset-backing financial transactions – Each financial transaction must be tied to a "tangible and identifiable underlying asset." Under *shariah*, money is not tangible and not considered or classified as an asset, thus, may not earn a return.

In the case of interest-based banks, their operations are primarily based on the interest instrument. The interest-based banks pay interest on the deposits and charge interest on the loans. When interest is imposed on the loan and deposits, money by itself is independent of any labour, effort, or bearing of any risk and it increases over time. Since Allah (swt) unambiguously declared nothing could be having without effort or labour (Quran, 4:32), thus, the increase realised through exploitation of labour, goods, or property is against the Islamic principles.

Unjust appropriation of others' wealth, by whatever means and methods, is forbidden from the Islamic view (Quran, 2:188 and 4:29). In view of the fact that injustice lies at the root of interest-based instruments of all undesirable business conduct, therefore, the payment and receipts of interest are strictly prohibited in Islam regardless of the purpose for such loans or deposits and regardless of the rates at which interest is charged or given.

Interest, definitely involves unlawful consumption of others' wealth. It is therefore, abhorrent and evil. The Holy Quran (Quran: 2:275-281; 3:130-132; 4:161; 30:39) and the hadith had explicitly prohibited usury. The need for transparency is above all and an important *shariah* consideration. Any form of concealment, fraud or attempt at misrepresentation violates the principles of justice and fairness in *shariah* as mentioned in the Quran, in among others, verse 135 in chapter *An-Nisa'* (4) and verses 1 to 3 in chapter *Al-Mutaffifin* (83).

Another major concept that governs the behaviour of Islamic bank is the concept of trustworthiness (*amanah*). Trustworthiness is a very significant concept in Islam. Trustworthiness, as prescribed in the Quran and sunnah denotes performing all obligations and responsibilities (Quran, 4: 58; and Hadith: *"And there is no faith in him (somebody) who is not trustworthy"*). Thus, banks of their role as financial institutions should always be transparent in their operation to fulfil the concepts of trustworthiness (*amanah*) to the depositors as the owner of funds and the fund provider. The Islamic banks not only safeguard and manage depositors' money but they also play the role as the trusty to the fund owners and accountable for any of their action.

Another important fact of the Islamic bank operation is adhering to the instruction in the chapter Yusuf (12): verses 46 to 49 that is the guideline in managing its assets and liability management:

> *" O truthful Yusuf, explain to us, seven fat cows which seven lean ones devoured, and seven green ears, and seven other dry, that I might return to the people that they may know (46). He said, "For seven years you shall sow continuously, then what you reap leave 5 it on the ear, except a little whereof you eat (47). Then thereafter there shall come upon you seven hard years, in which you shall devour all that you have reserved for them, except a little you keep in store (48). Then there shall come after that a year in which the people shall have rain and in which they shall press (fruit & oil) (49).* (Quran; Yusuf (12):46-49)

Those verses of the Quran instructed every individual and organisation to increase the size of contingency reserve, provision for loan losses, and capital provision in the event of growing economic trend. It is significant for the economic units to increase the contingency reserve, provision for loan losses and capital during prosperous economic condition for precautionary measures. In the event of slower economic growth every individual and organisation are instructed to spend the contingency reserve, provision for loan losses, and capital. Increasing the spending during economic slowdowns will help to boost up the economic activities back to its growing track.

The Islamic bank operation essentially performs the same functions as those of interest-based banking systems as financial intermediaries even though the principles of *shariah* govern its operation. The Islamic banking system aim is to meet the requirement of those who ask for capital for specific investments. It provides the financing of working capital, industry, agriculture or any other lawful investments and services, but without

charging interest in any form. In Islamic bank operations, the imposition of interests in loans is not permissible under the prohibition of *riba* (usury). In the case of loans, it is *riba al-Nasiah. Riba al-Nasiah* is the additional amount sought on loan, usually on time bases (also known as *riba al-Jahiliyyah*, which is the type of *riba* that is expressly prohibited by the Quran).

To confer deeper, in Islam, a financial institution is not just an institution acting as an intermediary in transferring funds of the ultimate lenders to the ultimate borrowers. Al-Najjar (1983) defined the Islamic financial institutions not mere 'houses of finance', but rather developmental institutions ideologically based on Islamic principles. They are institutions which believe that their funds are part of Allah (swt) property, to whom all properties belong and humans as the trustees. Accordingly, dealing with those funds should be bound by the *shariah* principles. They believe that all the services should be based on moral and money has a social function, therefore, it should be used for the welfare of society. They also believe that the Islamic financial institution functions do not confine merely to the financial and economic affairs of society but are also concerned with social and educational affairs.

From the above statements, the Islamic concept of financial institutions is not only concerned with financial or economic affairs alone but as a social and educational affair of the society as well. Thus, the Islamic injunctions on the economy and commerce are to secure the rights of the public and maintain the solidarity of society. It seeks to inculcate morality in business and specifically, the most important agenda is to make the law of Allah (swt) supreme in all types of business enterprise.

3.4.2 Islamic Bank Assets Management

There are various forms of Islamic financial institutions today carrying out a spectrum of banking operations on a competitive basis. There are four main categories of Islamic banks, development, investment, commercial, and saving banks. Today, Islamic banks embrace all categories of bank operations. These include home and vehicle financing, trade financing, and syndication financing. Thus, operations of Islamic banking include practically all aspects of business, commerce, and investment as applied to modern interest-based banks, but without the infringement of the *shariah* principle.

With the absence of interest-based instruments in the system, the Islamic bank operations must run on other alternatives. There are two alternatives brought forward by Ziauddin (1984) following the proposition of Qureshi (1946). The first option is that no return can be paid for any type of Islamic bank deposits and all financing and advances will be provided for on an interest-free basis. The second alternative is that the Islamic bank should be conducted for profit and loss sharing basis. Both of these alternatives are in tune with Islamic norms of justice and are capable of assisting the achievement of the socioeconomic objectives of an Islamic society.

Other scholars including Khan (1984), Khan (1986), Khan and Mirakhor (1986) also proposed the Islamic banking model to use the same tools as the centrality of interest-free system (Khan and Mirakhor, 1988). Gafoor (2001) adds that the element of risk should not be excluded from the financial transactions or it would no longer be one of business and trade, but of usury or *riba*. The depositors have to be mentally prepared to risk of money diminishing because of losses incurred by the bank of its efforts to generate income. He further argues that the profits would have accrued from one year to another according to the performance of the Islamic bank, not according to changes in interest rates.

The sources of funds of the Islamic bank are mainly from the transaction deposits and investment deposits. Transaction deposits can be regarded as equivalents of the demand deposits in an interest-based banking system. Investment deposits constitute the principle source of funds of the Islamic bank, they resemble very closely to shareholdings in a firm and there is no guarantee of their nominal value and would not pay a fixed return.

In the Islamic bank, depositors are the shareholders. They are entitled to a share of profit or losses made by the Islamic bank. The Islamic banks act as the intermediary meeting both parties the fund providers and investors with the fund users and entrepreneurs for a contractual agreement. Between depositors and the Islamic bank is the proportion of profits and losses to be distributed. The share or distribution parameter has to be agreed on in advance of the transaction between the Islamic bank and the depositor and cannot be altered during the life of the contract, except by mutual consent.

Islam permits the sharing of profit and risk financing in any investment project and trade-based financing for the fairness and justice of the parties involved by sharing the risk and return with certainty. On the contrary, for the interest-based lending operations, the loan is not dependent on the profit or risk outcome of a project, but usually a secured return to the bank. Debtors have to repay the borrowed capital plus the interest amount of the resulting yield of the capital.

Two forms of profit and risk instruments, which are predominantly in use of the pre-Islamic period; they are the *mudharabah* and *musharakah* that represent the equity-based financing instrument. As for the trade-based financing, the most extensive used instruments are the *murabahah* and *ijarah* that is by a mark-up price and the hire

purchase formula. The fund provider simply buys the product and sells it back to the customer at a profit rate and payments are made in instalments.

The early ideas and literature on the Islamic bank model mainly focused on the profit and loss sharing operations. The idea was initially brought up by Qureshi in 1946 (Ariff, 1988) and admired by Ziauddin (1984) and Chapra (1985) and other contemporary scholars. Originally, the profit and loss instrument in trade has been applied during the life of Prophet Muhammad (saw). Prophet Muhammad (saw) used this instrument with Khadijah (ra) about fifteen years prior to the appointment of Muhammad (saw) as the prophet and the spread of Islam (Ariff, 1988).

The concepts of contracts, partnership, capital (*al-mal*) and accumulation of capital, profit and other concepts related to trade were already discussed among the early Muslim scholars in the 8th to 9th centuries particularly the four Imams'. They are Imam A'zam Abu Hanifa (May Allah be pleased with him), Imam Maalik bin Anas (May Allah be pleased with him), Imam Mohammed bin Idris Al Shaafa'ee (May Allah be pleased with him) and Imam Ahmed bin Hambal (May Allah be pleased with him).

Qureshi suggested the partnerships between banks and businesspersons as a possible alternative and sharing losses if any (Ariff, 1988). Chapra (1985) furthers suggested the Islamic bank of being a commercial bank, might also take up the role of an investment intermediary. The nature of Islamic bank is that it is supposed to run more as universal banks with the role of depository institutions as a provision of liquidity and access to the payment system and as an investment intermediary. Aljarhi and Iqbal (2001) suggest that *mudharabah* deposits could be compounded in a public pool for investment, which is a permissible way for the bank to mix *mudharabah* deposits with its own funds.

Referring to the instruction in Quran verses (12:46-49), another important guideline on managing the banks' assets and liability is on the contingency reserve, provision for loan losses and capital provision. The instruction is to increase the size of contingency reserve, provision for loan losses and capital provision in the event of encouraging economic growth and spend the excess contingency reserve, provision for loan losses and capital in the event of slower economic growth.

Based on the discussion, relatively there are not many differences between the Islamic financial market framework and the interest-based financial market framework, except that for the concepts of divine relationships that exists on the Islamic bank operational beliefs. Although there is not much different to its framework of both financial systems but there is in fact a significant difference in emphasis arising from the divergence in the commitment to the spiritual values, socioeconomic justice and unity among human beings.

3.5 Islamic Bank Modes of Financing

To examine the cyclicality behaviour of the Islamic bank financing operations it is meaningful to understand entirely and in detail on how the Islamic bank modes of financing works. The Islamic financial institution function is not much different from its counterpart that is the interest-based bank except for that concept of divine relationships that exists on the Islamic beliefs. Although the function is not much different but there is in fact a significant difference in emphasis, arising from the divergence in the commitment of the two systems to the spiritual values, socioeconomic justice and unity of human beings.

In replacing the interest-based instruments, Islamic scholars have approved the application of the equity-based (investment) and trade-based (*al-bay*) financing. With

the application of the equity-based and trade-based financing instruments, the operations are free from all sorts of exploitation and excesses. The application of equity-based with profit and risk sharing investment and trade-based with fixed rate financing instruments will bring fairness and justice to the parties involved in any financial transaction.

Besides the interests instrument, s*hariah* also prohibits all transactions involving speculative financial transactions, ambiguous and uncertain financial transactions and the transactions on financial risk. This makes the Islamic bank more cautious, very selective and more efficient in investment selection and financing activities. Ethical investments and consumption spending financing make the operations of the Islamic bank within the moral value structure. The Islamic bank financing and financial transaction must also be tied to a 'tangible and identifiable underlying asset'. In other words, all Islamic financial transactions are asset-backing forms of transactions, which make them transparent.

3.5.1 Equity-Based Financing

In the application of the equity-based (investment) mode of financing, Iqbal et al. (1998) theoretically distinguishes two alternative modes of *mudharabah* financing which can be performed by the Islamic bank. *Mudharabah* is a form of capital trusts financing. It is a contract for parties of a partial equity partnership. The provision of capital is from either individual or institutions. The investors who are the individuals or the Islamic bank will provide the second party that is the entrepreneur or project owner with financial resources to fund an investment activity or a project. Sharing of profits is according to the pre-agreed ratio of the parties involved in the investment activity or project. If there are losses, the fund provider bears all the financial losses and for the

entrepreneur is the opportunity cost of their efforts that is more of the operating losses such as time, labour, and so forth.

The first model explained by Iqbal et al. (1998) is the two-tier *mudharabah* model that promotes the profit and risk sharing on both the liabilities and the assets side of the Islamic bank. The main business of the Islamic bank is to obtain funds from the public based on *mudharabah* and to supply funds to businesspersons on the same basis. In this model, the Islamic bank will take up the role as an investment intermediary. Diagrammatically the relationship between the investor (individual or Islamic bank) and the entrepreneur is depicted in Figure 3.1.

The flows of funds depicted in Figure 3.1 show *mudharabah* as a mode of financing through which the Islamic bank acting as the owner of the capital provides capital finance for a specific venture by the entrepreneur. Profit from the venture is distributed over an agreed formula for parties but in the incidence of losses, it remains to the liability of the capital providers. The share or distribution parameter has to be agreed on in advance of the transaction between the Islamic bank and the entrepreneur and cannot be altered during the life of the contract, except by mutual consent. According to Iqbal et al (1998), a number of positive effects on the efficiency, equity and stability of the Islamic banking system are expected from the application of this model.

Capital financing for an agreed time and ratio

| Islamic Bank | → | Entrepreneur |

Profit and risk shared according to the agreed ratio
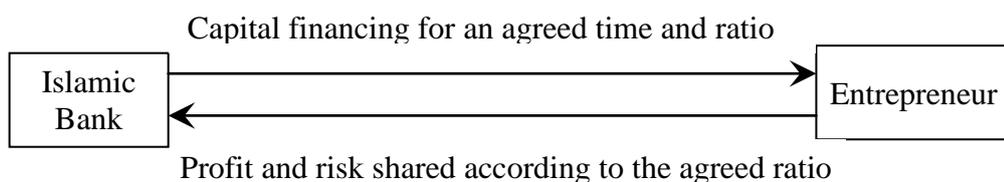
Figure 3.1: *Mudharabah* Financing Model 1

The second *mudharabah* financing models mentioned by Iqbal et al. (1998) is one tier *mudharabah* with multiple investment tools. The flows of funds depicted in Figure 3.2 show the Islamic bank plays the role of the Islamic financial intermediary (representative) meeting the owner of the capital (depositor) that provides capital finance for a particular project invested by the entrepreneur. The distribution of profit from the investment is according to the pre-agreed formula for the parties. In the incidence of losses, again it remains to the liability of the capital providers. As agreed in advance of the transaction between the Islamic bank and the depositor, it cannot be amended during the life of the contract, except by mutual consent.
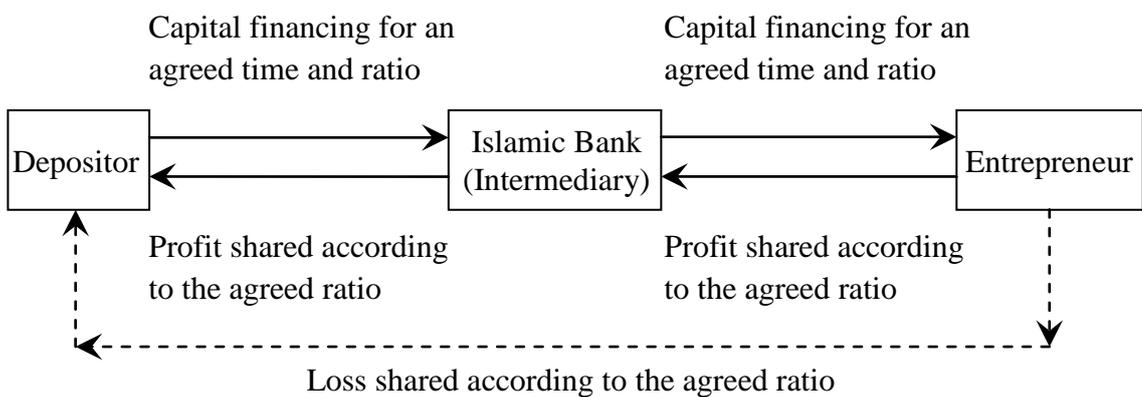
Figure 3.2: *Mudharabah* Financing Model 2

However, due to the practical and operational problems, this model has evolved and as an alternative, the modes of financing are based on either partnerships or the principle of deferred trading of goods and services.

The other form of equity-based financing instruments is the *musharakah* financing. It is a partnership agreement. In this agreement, generally two or more parties set up a joint enterprise and contribute to the capital, labour, and management. This instrument is a joint venture operation between the fund provider and a producer for a certain operation.

They shared the profits and risks from the operations together among the parties based on a pre-agreed ratio.

The Islamic bank can possibly perform as the fund provider to finance all *shariah* compliant projects and enterprises through either equity investment or direct participation. Lewis and Algaoud (2001) suggest that *musharakah* contracts can be established in one of two ways. The first way is a permanent contract, which ensures for its parties, that is the investor, Islamic bank, and the entrepreneur an equitable share in the annual profit and loss on pre-agreed terms. This kind of permanent contract holds constant for a limited or unlimited period according to the original agreement.

The second type of *musharakah* is a diminishing contract. There is consensus among the Islamic scholars of its validity of *shariah*. This *musharakah* contract is more preferable by the project participants, it allows the Islamic bank to reduce its share of equity each year and receive periodic profits based on the reducing equity balance. In this form, the equity share of the customer in the capital of the enterprise increases over time until the entrepreneur becomes the sole owner of the enterprise. *Musharakah* that provides equal benefits for all parties has many advantages. Figure 3.3 below shows the working of *musharakah* financing:
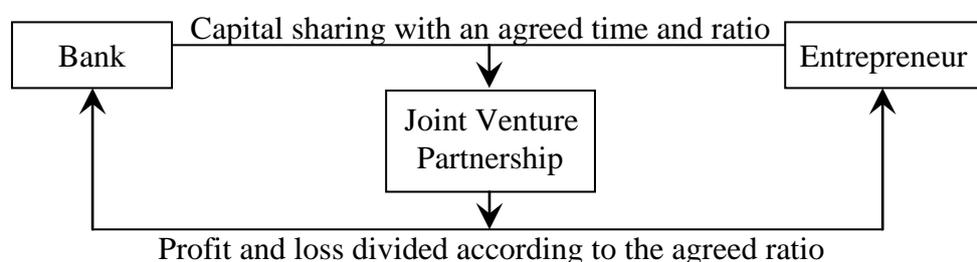
Figure 3.3: *Musharakah* Financing Model

The practice of the Islamic financial institutions has led to the evolution of different types of permanent, temporary, as well as declining partnerships based on the principles of *musharakah* and *mudharabah*, with easily adaptable arrangements with respect to managerial responsibilities.

According to Makiyan (2008) when the Islamic banks provide funds of the profit and loss sharing facilities particularly the *mudharabah* contract, there is no recognisable default on the part of the entrepreneur until profit and loss sharing contracts expire. A default of profit and loss sharing contracts means that failure to deliver the projected return from the investment. In this case, the sharing of low profit or loss between the parties is according to stipulated profit and loss sharing ratios.

With *mudharabah* financing contracts, the Islamic banks have no legal means to control the entrepreneur who manages the business. The entrepreneur has complete freedom to run and control the enterprise according to his judgment. Banks are entitled only to share the profit and risk according to the contract ratio. On the contrary, with *musharakah* and direct investment contracts, banks have better opportunities to monitor the business because in these contract partners may have an influence on the enterprise and may use their voting rights. In the Islamic finance, profit and risk sharing modes cannot logically be made with collateral or other guarantees to reduce the credit risk.

With the application of the profit and risk sharing as the financing instruments, it is believed that the instruments will deliver fairness and justice to the parties involved in any financial transaction. The Islamic bank selections of projects and investment are expected to be more cautious and very selective. Speculative trading, financial risk transaction, ambiguous and uncertain activities are prohibited and avoided. The Islamic financing operations are also free from all sorts of exploitation and excesses. The

Islamic financial transaction must also be tied to a 'tangible, identifiable underlying asset'. Islamic financing is also within the moral value structure of ethical investments and consumption spending. Thus, transparency is more advantageous for the Islamic banks making them more efficient compared to the interest-based bank.

3.5.2 Trade-Based Financing

However, the equity-based financing that is supposed to be the main operational instrument, in practice the operations of Islamic bank currently did not adopt this early idea brought by the scholars. In fact, the Islamic bank opted more excessively to the trade-based financing instrument with fixed rate financing returns to the bank. The reason for the small amount of equity-based financing used by the Islamic bank according to Ahmed (2002) is due to the practical and operational problems.

Khan (1996) points out that firms prefer fixed return modes as they can reinvest their surpluses to enhance growth. Aggarwal and Yousef (2000) argued that agency problems are the reasons behind the negligible amount of profit and risk sharing modes. Mirakhor (1987, in Ahmed 2002) mentions that it is related to the worries about bankruptcy and that it would keep the bank losses lower than total capital. To do so the Islamic banks invest in the short term mark-up instruments.

Based on a survey by Khan and Ahmed (2001), the Islamic bank faced unique risks arising from the profit and risk sharing investment deposits. The bankers considered these unique risks to be more serious than the conventional risk faced by the Islamic financial institutions. The study also shows that the Islamic bankers judged the profit and risk sharing mode of financing and the product-deferred sale is more risky than the *murabahah* and *ijarah* instrument.

The Islamic banking did not adopt a full equity-based financing because of the need to keep and reveal detailed records. It is also difficult to expand a business financed through *mudharabah*, because of limited opportunities to reinvest retained earnings and/or raising additional funds. The entrepreneur also cannot become the sole owner of the project except through diminishing *musharakah*, which may take a long time (Iqbal and Molyneux, 2005 and Farooq, 2007).

Similarly, there are some practical reasons for the Islamic bank to prefer the fixed rate financing modes to the profit and risk sharing. This is related to the moral hazard and adverse selection problems in all agent-principal contracts such as *mudharabah*, there is a need for closer monitoring of the project. This project requires monitoring staffs and mechanisms, which at the end will increase the costs of these contracts. Moreover, on the liabilities side, the structure of the deposits of the Islamic banks is not sufficiently long term and therefore, they do not want to get involved in the long term projects.

Another reason for the small amount of the profit and risk sharing in the market is that the profit and risk sharing contracts require a lot of information on the entrepreneurial abilities of the customer. This may not be easily available. Aggarwal's and Yousef's (2000) model shows the fixed rate financing instruments are a rational response from the Islamic banks to the contracting environments. Akacem and Gillian (2002) stated that the combination of both debt-alike financing with equity financing in banking operations was applied in the Japanese financial structure. Evidence has shown that the growth of Japan's economy in the post-war period was greatly enhanced by the willingness of its bank to both lend money and assume equity stakes in the country's manufacturing and industrial sector.

It is worthwhile to mention here that some of the proponents of Islamic bank scholars theoretically argued that this trade-based financing instrument resembles the characteristic of the debt-like instrument as practice by the interest-based bank. If the argument is more factual, than the Islamic bank financing activities may behave pro-cyclically, as the interest-based bank loan behaves to the business cycle occurrence.

The present study hypothetically disagrees with this baseless proposition for the reason of different characteristics underpinning the trade-based Islamic financing instrument compared to the conventional loan characteristic that based on the interest-based instrument. It is important to mention here that the argument with the impermissible of trade-based fixed rates financing instrument contracts for some of the scholars is unfounded to any verse in the Quran and the words of the prophet (saw). Even fixed financing rate financing through trade mark-up and leasing is not conflicting with the methodology of *shariah* for the reason that it is a trade-based in essence.

Even though the works of the Islamic bank trade-based instruments looks similar the conventional loan characteristic but in essence, they are different as clearly stated in the Quran (2:275-276).

> *"Those who devour interest will rise up on the Day of Judgment like the man whom Satan has driven to madness by his touch. This is because they claim that trading is like interest and how strange it is that Allah has permitted trading and forbidden interest. [No doubt, God has prohibited it]. Consequently, he who received this warning from the Almighty and desisted, then whatever he has taken in the past belongs to him. [No action shall be taken against him], and his fate is in the hands of Allah. And those who commit [the offence even after this warning] will be companions of the Fire and will abide therein forever (275). [On that Day] God will blot interest and*

increase charity, and [in reality], God does not like the ungrateful and the usurper of rights (276).

The Quran clearly stated that there is a difference between the trade-based with the interest-based instrument.

The Quran and hadith also did not specify exactly the instrument to be applied in the Islamic financial system. However, any financing instruments used and introduced in the Islamic transaction system need to be operated in accordance with the *shariah* principle. Therefore, the current practice in the Islamic bank operations with the combination of profit and risk sharing financing with the trade-based fixed rate financing is not in conflict with the methodology of *shariah*.

Fixed Rate Financing Instruments

The Islamic bank has developed various forms of fixed rate modes of financing such as *murabahah* (cost-plus-profit based financing), medium and long term *murabahah* (instalment sale), *ijara* (pre-paid or rent-deferred leasing), *bai-muajjal* (price deferred sale) and *istisna' or salam* (object deferred sale or pre-paid sale). The *Murabahah* (mark-up) and *ijara* (lease purchase) instruments is the trade-based financing instrument most widely applied by the Islamic bank presently.

The *Murabahah* and *ijara* instruments applied the mark-up principle in their operation and now they are the most popular fixed rate financing instruments used by Islamic banks. *Murabahah* financing is a contract where the Islamic bank purchases an asset on behalf of a client and sells the asset to the client at a cost plus and declared profit. Payment is made in the future of a lump sum amount or in an instalment amount according to the agreed terms. The ownership of the assets resides in the Islamic bank

until all payments are completed. Figure 3.4 illustrated the transaction cycle of the *Murabahah* financing transaction.

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┌──────────────┐        ┌──────────────┐  Sale with deferred payment ┌──────────────┐
│  Commodity   │───────▶│ Islamic Bank │────────────────────────────▶│  Commodity   │
│   Seller     │        │(Intermediary)│                             │    Buyer     │
└──────────────┘        └──────────────┘                             └──────────────┘
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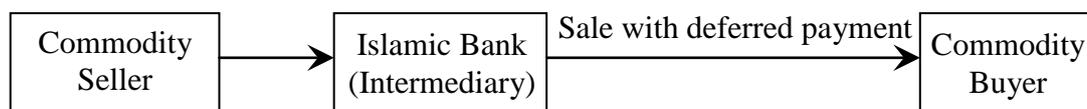
Figure 3.4: *Murabahah* Financing Model

Ijara financing instruments on the other hand are a leasing contract. The Islamic banks purchase the asset and allow the client to use the asset with an agreed fixed charge for a period. The ownership of the asset either remains with the Islamic bank or can be gradually transferred to the client. Figure 3.5 illustrates the *ijara* financing structure.

```
                                        Asset leased title may or
            Cash sale                   may not transfer
┌──────────┐         ┌──────────────┐ ─────────────────────────▶ ┌──────────────┐
│  Asset   │────────▶│ Islamic Bank │                            │  Commodity   │
│  Seller  │         │(Intermediary)│     Lease or rentals       │    Buyer     │
└──────────┘         └──────────────┘                            └──────────────┘
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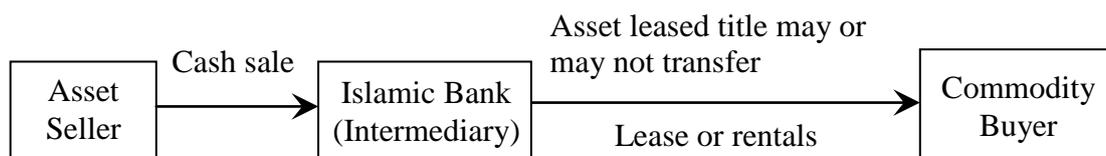
Figure 3.5: *Ijara* Financing Model

Bai muajjal, istisna' and *bai bithaman ajil* financing is a deferred payment contract. *Bai muajjal* is a trade deal in which the seller allows the buyer to pay the price of a commodity at a future date in lump sums or an instalment amount according to the agreed terms. The price fixed for the commodity in such a transaction can be the same as the spot price or higher or lower than the spot price.

Istisna is a contract for acquisition of goods by specifications or order, where the price is paid in advance, but the goods are manufactured and delivered later. This manufacturing contract allows one party to obtain industrial goods with either an upfront cash payment and deferred delivery or deferred payment and delivery.

Bai bithaman ajil financing contract also refers to the sale of goods on a deferred payment basis. Equipment or goods requested by the client are bought by the Islamic bank, which subsequently sells the goods to the client at an agreed price, which includes the Islamic bank's mark-up. The client may be allowed to settle payment of instalments within a pre-agreed period or in a lump sum. It is similar to a *murabahah* contract, but with payment on a deferred basis.

The financing model described above gives a combination of both depository and investment intermediary roles for the Islamic bank. Ahmed (2002) explained that the ownership pattern of the Islamic bank resembles that of a commercial Islamic bank as the depositors do not own the Islamic bank and do not have voting rights. In an Islamic finance manner of speaking, this means while *musharakah* contract characterises the equity owners, deposits take the form of *mudharabah* contracts. An Islamic bank, however, has similarities with an investment intermediary as it shares the profit generated from its operation with those who hold savings or investment accounts. After paying the depositors a share of the profit, the residual net income is given out to the shareholders as dividends.

From the above explanations of the Islamic financial instrument, it can be concluded that the Islamic financial services are not characterised by human made rules. Instead, the concept of the divine guidance of high ethical and moral (*akhlaq*) values underpin the financial system. A banking institutional development from the Islamic view is based on the principles of Islamic belief and its operations must be within the limits of *shariah* with the aims not just for profit motivations but includes the realisation of socioeconomic goals with fairness and justness.

The pillars of Islamic financial instruments are the prohibition against the payment and receipt of interest and its kind, which is fixed at a predetermined rate. Instead, profit and risk sharing arrangements, purchase and resale of goods and services, and the provision of services for fees forms the basis of contracts are said to comply with the Islamic laws. Other features of Islamic banks are that they are generally prohibited from financing production or trade that is against the *shariah* and from trading in financial risks.

CHAPTER 4

RESEARCH METHODOLOGY

4.0 Overview

With the current global economic atmosphere of financial uncertainties, the sudden shock of economic activity disorder related to the financial market instability, and the failure of interest-based financial systems to stabilise the continuing global economic disorder has attracted the attention to the Islamic system. The attention happens especially when Muslim scholars proposed that the Islamic financial system in particular would be able to stabilise the economic atmosphere. With the *shariah* based instrument, the profit and risk sharing in particular, the Muslim scholars alleged that the Islamic banking system, would be able to weather the economic and financial crises better.

Many of the views presented in the literature by the Islamic bank proponents are nevertheless still theoretical in nature and descriptive in concept with little empirical evidence. Among the prominent contemporary scholars that contribute their theoretical and conceptual views on the modern Islamic banking system are scholars such as Siddiqi (1981 and 1983), Ziauddin *et al.* (1983), Khan (1985), Khan and Mirakhor (1986 and 1988), and Chapra (1992).

A part of theoretical and conceptual idea explaining the nature of Islamic banks, in-depth empirical evidence is vital and not mere theoretical and conceptual description. Therefore, this study tries to provide some of the empirical evidence of the superiority in the Islamic banking system. Objectively, this particular study attempt to verify the cyclicality behaviour of the Islamic bank financing operations towards the business cycle phenomena, which is yet to be explored.

To verify the cyclicality behaviour of the Islamic bank financing to the business cycle event, it is essential to discuss on the theoretical and conceptual foundation underpinning the modern banking credit behaviour and the Islamic bank financing system. This chapter explores the theoretical and conceptual framework of Islamic bank financing, and the research design and analytical framework are then developed.

4.1 Theoretical Framework of Bank Lending Behaviour to Business Cycle

During the period of strong economic growth, it is beyond doubt the volume of banks' lending increases and slower in the periods of weak economic growth. Clearly, during strong economic growth of the high growth of household's consumption spending, the investment spending by the private sectors will increase too. Hypothetically, when the economy is growing within a stable general price level and low unemployment rate, the real income increases and the welfare of the country is better off.

During this expansion period, corporate profits are very pro-cyclical, profits tend to increase from the economic 'booms' period. Workers and capital become more productive when the economy is experiencing a boom. Consumption spending then will start to behave pro-cycle with the increase in households' income. Investments' spending then tends to follow the pro-cyclical behaviour with more investments of the producers due to increases in aggregate expenditure. Thus, the volumes of banks' lending as well begin to increase from this strong economic growth.

This economic growth would continuously increase until the swing reaches the limit or boundary that would stop it due to the over consumption by the households and over investment by the firms. At the level the economy has 'bubble-up' and when it becomes 'overheated', the economy will experience an economic downturn and enter a contraction. During a weak economic growth, the opposite reaction will take place. A

decrease in households consumption spending will be followed with a larger drop in private investment activities because of low demand. As a result, lending activities of banking institutions will be slower. Over pessimistic behaviour to the downturn of economic activities, worsen the business cycle scenario.

The investment expenditure behaviour normally is more positively correlated than the consumption expenditure of the business cycle event, as fraction of investment expenditure on durable goods are larger than of consumption expenditure. Hence, this makes the working capital expenses pro-cyclical, as is the volume of interest-based bank loans to the business sector.

4.1.1 Determinants of Bank's Pro-cyclicality Behaviour

The literature survey shows that the contributing factors of the pro-cyclicality behaviour of the interest-based banks' lending activities are the price and the non-priced factors. A number of empirical studies have examined the role of the price and non-priced factors in the business cycle event. The proponent of the bank lending channel theory relates the pro-cyclical behaviour of the interest-based banks of the passing through of lending into the economy.

The supply and demand of credit - The price factor

The supply and demand of credit play a significant role in influencing the bank lending operations. The supply and demand of credit theoretically explain the pro-cyclicality of the interest-based bank lending activities. Horváth (2000) however, stated that it is rather difficult to see whether the business cycle phenomenon is attributable to changes in the supply or either demand of credit or the expansion or contraction of credit.

De Lis et al. (2000) analysis of Spanish banks shows that the cyclical changes in demand also contributed to the pro-cyclical lending behaviour together with the supply side aspects. During an economic cycle expansion, the expansionary force on demand is that borrowers in general spend more on products that require high financing. Household consumption includes durable goods and investments in residential property. On the corporate side, it includes business related investments. At the same time, borrowing is also for financial investments as well, which are not included in the components of gross domestic product, which exhibits very strong cyclical movements.

Berger and Udell (1994) by using a data set of small firm examined the role of relationship lending that shows the aspects of supply and demand on lending cycles in the United States at the end of the 1980s. Using data from that National Survey of Small Business Finance, their finding shows that the supply side effect was insignificant in the United States. They find that borrowers with longer banking relationships pay a lower interest rate and are less likely to pledge collateral.

Economists such as Blinder (1985), King (1986), Bernanke and Blinder (1988), and Kashyap and Stein (1993) conducted a more comprehensive empirical analysis on the supply side. They bring forward a number of models explaining the credit channel that directly related to the loans activities by the interest-based banks. Bernanke and Blinder (1988) argue that the instability of the econometric money demand functions in the early 1980's and the importance of information asymmetry coupled with the crucial role of intermediaries in the financial market call for another look at the role of credit in the monetary transmission mechanism. In the empirical work, Bernanke and Blinder (1988) find evidence to the effect that money demand shocks assumed greater importance in the early 1980's.

The intuition behind the credit view is based on the following observation. In a world where the problem of information asymmetry is real, the size of a firm as well as the state of its net worth has a repercussion on its ability to obtain the bank loans. Under the circumstances, loans from the commercial banks will be special, especially for small and medium scale businesses that cannot issue securities in the open market. Because of this contraction in the bank reserve engineered by monetary policy, the amount of loan supply of the banks will decrease. Aggregate spending by banks dependent businesses will fall and so will output and employment. Blinder (1985) puts the idea of a simpler language

> *"...firms may have a desired or "notional" supply based on relative prices, expectations and other variables. But they may need credit to produce the goods. If the required credit is unavailable, they may be a "failure of effective supply" in which firms fail to produce as much as they can sell."*
> (Blinder, 1985: p. 2)

It is clear that the money or the liability side of a bank's balance sheet has fewer roles to play in this process. An important implication of this analysis is that any disruption in the operation of the interest-based banks will unleash damaging consequences on the real sector (Bernanke, 1983).

In the traditional money view, the impact of changes in policy is limited to the required rate of return on new investment projects. Hence, only the changes in total investment are important. So it is reasonable to assume in aggregate terms that only the least profitable projects will not be funded (Cecchetti, 1995). Since the more socially desirable projects will continually fund, there is not much to worry about in terms of welfare loss.

On the other hand, the credit view, by highlighting the problems of imperfection in the capital and the dependency of businesses on the interest-based bank loans, acknowledged the possibility of the incidence of monetary policy falling more on small and medium scale businesses than on large firms. The cost could be enormous in case of contraction if such businesses dominate the economy. There is the concern that the incidence of the policy may not reflect the inherent creditworthiness of the projects in question. For policy purposes, it is important to know whether monetary policy has the above implications.

Credit view framework

Discussion on the supply and demand of credit or the price factor will not complete without considering the basic model of the credit view. A number of theoretical modelling of the credit view suggested in the literature. The model discussed here suggests by Bernanke and Blinder (1998). The model suggested by them is the extension of the traditional IS-LM model that incorporates the effect of bank loans or credit in the monetary transmission mechanism. Their model contains three distinct assets namely: money, bonds, and bank loans. The authors formalised the idea of credit view in the extended model, which assumes both borrowers and lenders choose between bonds and loans based on the respective interest rates on the two assets. In particular, the loan demand and supply function are specified as follows:

$$L^D = f\ \{þ, i, y\} \qquad\qquad (1)$$
$$L^S = \lambda\ \{þ, i\}\ D\ \{1 - \lambda\} \qquad\qquad (2)$$

Where:

L^D and L^S represent demand and supply of loan

þ and i are the interest rate rates on loans and bonds and respectively,

y represents the gross national product and picks up the transaction demand for money.

D is deposits and

λ is reserved requirement ratio

L^D relates negatively to i_L but positively to i_B and Y. L^S on the other hand depends positively on i_L and negatively to i_B. Equilibrium condition in the credit market gives us:

$$L^D = L^S \qquad (3)$$

$$f\{þ, i, y\} = \lambda\{þ, i\} \, D\{1-\lambda\} \qquad (4)$$

With the assumption that excess reserve held by banks follow the following function

$$\mathbb{C}\{i\} \, D\{1-\lambda\} \qquad (5)$$

Bernanke and Blinder specified the supply of deposits as Reserved (R) multiply by the money multiplier,

$$m(i) = [\,\mathbb{C}\{i\}\{1-\lambda\} + \lambda\,]^{-1} \qquad (6)$$

Since the demand for deposit depends on the interest rate, income and stock of wealth, the demand for deposit can be suppressed as $D\{i, y\}$ and supply as $m\{i\}$ R. Equilibrium condition in the market for deposit give us,

$$D\{i, y\} = m\{i\} \, R \qquad (7)$$

With the money market been same as the IS-LM, the authors specified the good market as:

$$y = Y\{i, þ\} \qquad (8)$$

Combining the equations for goods market with the credits market, the authors arrived at the equation (9), which they term as the commodity and credit (CC) curve.

$$y = Y[\,i, \varphi\{i, y, R\}\,] \qquad (9)$$

It is important to note the CC curve like the conventional IS curve slope downward from left to right. The crucial point however is that, it moves by both shocks of the credit market and the monetary policy. The IS curve is moved by monetary policy only.

It is clear that Bernanke and Blinder's model allow for the analysis of the effect of credit shocks on the real economy.

In the empirical work, Bernanke and Blinder find evidence to the effect that money demand shocks assumed greater importance in the early 80's. On this basis, the authors concluded that the time has arrived to give credit its due.

Non-price factors

Besides the price mechanism factor, researchers also examined other possible determinants of pro-cyclicality behaviour of the interest-based bank lending. Many studies have examined the connection between lending criteria that banks need from their corporate clients (for instance study by Lown et al. 2000). Previous study even evaluates the possibility of the capital-based regulation like Basel I and II regulatory framework and accounting rules like IAS 39 to create the pro-cyclically effects on the interest-based banking operations (as example, study by Saurina and Trucharte, 2007; Brambilla and Piluso, 2007; VanHoose, 2007 and Rochet, 2008). Bernanke and Lown (1991) hypothesise that reducing of loan demands are due to the implementation of tougher capital standards.

A typical line of argument with researchers such as Saurina and Trucharte (2007), Brambilla and Piluso (2007), and VanHoose (2007) is that the default risk of firms in the real sector increases if the economic shock increases the risk of the real economy or decreases the productivity. Assuming that the regulatory constraint on the interest-based banking sector is binding, the credit volume will decrease. If firms have no additional financial resources, they have to reduce their invested funds and consequently their production volume reduces.

Lown et al. (2000) analyses of the characteristics of lending criteria of the interest-based banks shows when the lending criterion is tightening the lending volume drops and the economic performance weakens as well. Mostly this fact is observable in the inventory financing. The interest-based banks in general tighten the lending standards for short periods, while loosening takes a longer time. Hence, the decline in lending also started to pick up later, only after lending criteria have been relaxed. Therefore, the common view is that regulations of the interest-based banks amplify a downturn (upturn) in the real economy and causes pro-cyclical effects in comparison to a non-regulated interest-based banking industry.

De Lis et al (2000) study shows that the real interest rate is also a key determinant of Spain interest-based bank credit demand. Another factor affecting the Spain interest-based bank credit demand is the change in relative prices. Intensifying competition among market participants may also trigger the interest-based bank lending booms. This trend is dangerous for banking sector stability, as the bank is at an informational disadvantage vis-à-vis the new entrants. Horváth (2000) in his writing points out that with the shrinking margins and new products resulting from competition attract new customers to the market. Since losses only known later, this strong asymmetry may prove to be lasting, hence, current assessments of loans may not necessarily give an accurate picture of borrowers' actual creditworthiness.

Over optimism behaviour, which is relevant to the behavioural finance and bounded rationality also contributed as factors explaining to the pro-cyclical behaviour as hypothesised by Guttentag and Herring (1984) through the 'disaster myopia', Rajan (1994) with the 'herding behaviour' and Berger and Udell (2003) in the 'institutional memory hypothesis'.

As for the conclusion of the banks' pro-cyclical behaviour determinants, which the policymakers are concerned with is the possibility of an impairment that arises when the interest-based bank's income statement weakened. Furthermore, the interest-based banks are unwilling to provide loans to private sectors during economic downturns and the opposite during economic upturns. This loan supply pro-cyclicality behaviour after some time will affect the aggregated investment and consumption spending and amplify the macroeconomic fluctuations.

4.1.2 Islamic Bank Financing Supply and The Economic Stability

Present day's economic atmosphere instability is said to be related to the unsteadiness in the interest-based lending market. Until today, no prevailing conventional monetary or financial theory capable of explaining precisely the contributing factors and even far from solving the crisis. The current remedies suggested by the regulators and practitioners no more than ease the crisis temporarily and the effectiveness of the monetary stabilisation policy only hold for a short period. After a short while, the crisis reappears and evidence has shown that it may even become more severe. Empirical evidence has shown that the existing interest-based bank operation has pro-cyclicality behaviour to the business cycle event (Albertazzi and Gambacorta, 2009; Bouvatier and Lepetit, 2008; Adrian and Hyun, 2008; Quagliariello, 2008 and 2007; Nan and Hung, 2007; Bikker and Metzemakers, 2005; and Bikker and Hu, 2002). Rather than smoothing the economic fluctuations, the pro-cyclical behaviour even has the intrinsic tendency to worsen the scenario.

The latest empirical finding on the interest-based bank pro-cyclical behaviour distinguished the following two causal channels from the business cycle. The conventional view argued that the operational risk increases during the economic downturn and decreases during upwards economic growth. It is these manners, which

would cause the pro-cyclicality behaviour of the interest-based banks. As in a downswing of economic activities, the provisioning for loan losses swallows a larger part of profits just when more resources are needed as capital.

Quran's (12:46-49), hadith and Khaldun's observation on the other hand provide an alternative view that states that the economic operational risks built up during the prosperous economic, particularly when the economic growth is relatively high. Associates to this high economic growth, they argued the operational risks are higher and the build-up of economic imbalances will increase the likelihood of economic contraction.

Under this scenario, the Islamic financial system will provide long run stability to the economy according to Muslim scholars. The Islamic financial system, as pointed out by the Islamic scholars, is the best remedy in solving the economic crisis related to the financial market instability. Scholars, for instance, Siddiqi (1981 and 1983), Ziauddin *et al.* (1983), Khan (1985), Khan and Mirakhor (1986 and 1988), and Chapra, (1992) consider the virtue in the Islamic financial system should be able to weather the economic and financial crisis better and stabilise the macroeconomic environment.

Khan (1985) furthers suggest that long term financing through the Islamic bank is able to promote growth of the economy. They also propose that the Islamic finance ensures a more equitable distribution of wealth and stable monetary system. Muslim scholars claim that the Islamic bank is superior to the interest-based bank of the reasons for the morality of the *homoislamicus* surmounting moral hazards and adverse selection problems, the developmental character promoting growth and wealth redistribution and most importantly the inherent stability of Islamic banking in reducing economic fluctuations and reoccurring crisis (Karwowski 2009).

This is relevant to the current financial crisis that shows the Islamic banking industry able to grow steadily during the crisis period. According to Aziz (2010), the proponents of the Islamic finance system claimed that the economic fluctuations of the current financial crisis impacts on the Islamic bank are very limited. This steadiness and stability of the Islamic bank are believed to be contributed by the bank's ethical and moral standard (*akhlaq*) and *shariah* principles.

Following the Quran's (12:46-49) instruction, a counter-cyclical of banks' financing operational behaviour shows that the financing volume should increase with a diminishing rate of economic upturns. Alternatively, the financing activities should be growing at an increasing rate of economic downswing. At the same time the contingency reserve and provision for loan losses should have a positive relationship to the banks' financing supply which is proven not to be the case for the interest-based bank (Bouvatier and Lepetit 2008; Quagliariello, 2008; Bikker and Metzemakers, 2005 and others).

In the event of an economic upturn, banks experience higher earnings and this stimulates the interest-based bank to increase loan supply in order to attain higher return. This 'profit enthusiasm' behaviour increases the risk of bank failure when the economy reverses. During economic slowdowns, tight lending policy makes the interest-based banks again to behave pro-cyclically to the business cycle, worsens the economic condition, and slows down the process of economic recoveries.

Following the Borio et al. (2000) and Lowe's (2002) counter-cyclical view that the provisions for loan losses should be positively correlated with the lending cycle, for banks should recognise the underlying risk and build up the loan loss reserve in good times to be drawn on in bad times. This counter-cyclical view of Borio et al. (2000) and

Lowe (2002) is in fact directly relevant to what was mentioned in the Quran (12:46-49) more than 1400 years ago.

Islamic bank financing operations and the business cycle

Theoretically, the business cycle phenomenon is related to the changes in the spending behaviour of the economic agents particularly the households and firms that influence the economic aggregate expenditure as a whole. Changes in the behaviour of economic agents are noticeable in the banks' balance sheet movement. The private spending, which consists of consumption and investment expenditure, has a propensity to act pro-cyclically to the real gross domestic product movement. When the real gross domestic product rises during the economic booms, workers and capital become more productive and corporate profits will increase due to the increase in household spending.

This growth continues until it hits the limit and stops the economic growth, then starts experiencing the downturn when the economy 'busts'. At this period, the household consumption will start to drop and persistent consumer pessimism will then lower the private investment for the reason that businesses reduce investment when consumers' purchases of their products fall. When the economy weakens, it experiences an increase in unemployment rates due to the falling sales. The real gross domestic product will start to fall due to the decrease in production. Prolonged consumer pessimism will result in a lesser consumer spending and contribute to an even slower economic growth.

To understand the working of the Islamic banking system in response to the changes in the economic activities, it is necessary to understand the philosophy and fundamental code and beliefs of the Islamic system. The philosophy and fundamental tenets of Islamic banking system are different from the interest-based banking system. Banking institutional development from the Islamic view must be based on the principles of

Islamic beliefs. Its operations must be within the limits of *shariah* with the aims not just for profits motivated, but includes the realising of socioeconomic goals with fairness and justice. On this ground, the concept and operations of Islamic financial institutions should be consistent with the *shariah* principles, derived from the Quran and sunnah. As far as the interest-based banking system is concerned, there are no such restrictions.

Allah (swt) totally disapproved any financial transaction that comprises of unjustified appropriation of others' wealth and rights (Quran, 2:188; 4:29). Allah (swt) also has unambiguously declared nothing can be had without any effort or labour (Quran 53:39). For that reason, the payment and receivable of interest in whatsoever form is totally forbidden. The collection and payment of interest has a resemblance to the characteristic of usury, and for that reason, it is prohibited. It is an unproductive effort of no any labour activities and it brings unfairness and injustice to the parties involved in a financial transaction. Transactions that depend on chance and speculations are also totally forbidden (Quran, 2:219; 5:90).

The Islamic bank of the unique characteristics and *shariah* compliant instruments may work effectively better in moderating the business cycle occurrences compared to the interest-based banking system. Their argument is that besides the interest-free instruments, the Islamic bank operations are also not exploitative, and tied to the ethical and moral standard (*akhlaq*). With that unique trait of the Islamic financial and commercial transaction, it will allocate the resources more efficiently, effectively and transparently. As a result, it will not impede the real economy and hence, able to avoid from the 'boom and bust' in the economic environments or the business cycle episodes.

Muslim scholar's argument with the business cycle phenomenon and international monetary crises are largely attributable to the practices of non-permissible financial

transaction instruments and economic activities that are not according to the Islamic law or the *shariah*. They believed that the root of the pro-cyclical behaviour in the interest-based banking operations is much to do with the exercise in interest-based instruments. They also argued that the interest instrument is not very effective as a monetary policy instrument (Ariff, 1982). Khan (1968) and Ahmad (1952) even mention that interest-based instrument tends to prevent full employment.

Adding to that, the financial and commercial transactions that are not aligned to the *shariah* requirement also contributes to the current financial crisis felt globally. The currently practiced financial and commercial transactions that are contrary to the *shariah* requirement include practices such as the trading of debt instruments, for example the *Collateralised Debt Obligations* and *Mortgage Backed Securities*.

Another related reason is the interest-based bank lending activities on high-risk customers that are not permissible under the Islamic law or the *shariah,* as an example the subprime lending incidence. Under the Islamic law, all financial transactions must be backed onto real assets and debts are not considered as assets. Thus, the Islamic banks are a more transparent and efficient financial intermediary. In recent markets turbulent, related to the financial market instability, investors around the world begin to aware of the need for a transparent financial transaction and are critical for the smooth running of economic activities.

Theoretically, as a more transparent financial intermediary, right through the equity financing ventures, the Islamic bank should be able to evaluate and monitor more efficiently on the asymmetry information issue to reduce the risk. Asymmetry information on the financial market involves the adverse selection and moral hazard problems. Equity financing gives them access to information and enables them to guide

the course of their borrowers. Compatible interest in the performance of the financed projects will prevail over the bank that includes their stakeholders, particularly the depositors, their equity holders, and their investment partners. With the equity financing ventures, the reward is earned after undertaking through a commensurable risk that equally applies to the capital as well as labour effort. Hence, for this reason, Muslim scholars insist the Islamic financial system and in particular, the Islamic banking system has the solution to stabilise the economy.

Another unique characteristic of the Islamic bank operation that will help to smooth down the economic activities environment is the compliance with the Quran's instruction in verses 46 to 49, chapter Yusuf (12):

"O truthful Yusuf, explain to us, seven fat cows which seven lean ones devoured, and seven green ears, and seven other dry, that I might return to the people that they may know" (46). He said, "For seven years you shall sow continuously, then what you reap leave 5 it on the ear, except a little whereof you eat (47). Then thereafter there shall come upon you seven hard years, in which you shall devour all that you have reserved for them, except a little you keep in store (48). Then there shall come after that a year in which the people shall have rain and in which they shall press (fruit & oil)" (49).

The verses provide an important instruction on how the economic units suppose to manage their assets and liabilities during the upstream and downstream of economic activities in order to protect and stabilise the economic condition.

In those verses (46 to 49: 12) of the Quran, in some ways it instructs every individual and organisation the needs to increase the size of contingency reserve and provision for loan losses in the event of growing economic trend. It is significant for the economic

units to increase the contingency reserve and provision for loan losses during prosperous economic condition for precautionary and safety measures. In the event of slower economic growth, every individual and organisation is directly instructed to spend the contingency reserve and excess of provision for loan losses. Theoretically, by increasing the spending during economic slowdowns will help to boost up the economic activities back to its growing track.

Islamic bank equity-based financing and the economic stability

Hypothetically, the Islamic bank operations that based on the *shariah* principles make its financing practices relatively different from the interest-based lending activities in the event of the business cycle. Interest receivable is an unproductive effort of no labour activities. It brings unfairness and injustice to the parties involved in a financial transaction. Therefore, Islam prohibits the collection and payment of interest.

Islamic scholars approved the application of equity-based financial transactions as an alternative, with the lender, intermediaries, and borrower relationships is transformed into a partnership through the profit and risk sharing investment financing. For the matter of facts, the early ideas and literature on the Islamic bank model was mainly focused on the profit and risk sharing operations. The application of profit and risk sharing financing in replacement of risk-free interest-based operation is the major principle of Islamic bank financing.

Mudharabah and *musyarakah* are the two forms of profit and risk sharing investment and financing instruments practised by the Islamic bank currently. In olden time's tradesmen in Mecca before Islam used this *mudharabah* financing form of profit and risk sharing. According to Gafoor (2006), Prophet Muhammad (saw) used this instrument with Syaiditina Khadijah (ra) that is the wife of Prophet Muhammad (saw)

for about fifteen years prior to the appointment of Muhammad (saw) as the prophet and the spread of Islam. The present day version of *mudharabah* and *musyarakah* financing was initially brought up by Qureshi in 1946 (Ariff, 1988), and admired by Ziauddin (1984) and Chapra (1985) and other contemporary scholars. Qureshi suggested that there would be partnerships between banks and businesspersons as a possible alternative and sharing of losses if any (Ariff, 1988).

In the modern form of profit and risk sharing model, the relationship between borrower and lender is transformed into a partnership through the sharing of profit and risk. This is relevant to the *shariah* requirement where nothing can be had without effort or labour. Money is no more to act as capital per se. It is the effort of the owner to make it to become productive. With profit and risk sharing instrument, money is now being transformed to a productive use. Risk is undertaken to justify the return and the returns should not be fixed regardless of profits because of usury.

Theoretically, with profit and risk sharing instrument, the fund provider has more attention on the soundness of the investment. For a fact, the return of investment is directly related to the project success. At the same time, the Islamic bank is also bounded to the concept of trustworthiness (*amanah*) to the depositors. Thus, the Islamic bank will drive up the entrepreneur in ensuring efficient management and the highest possible productivity and return of the projects.

With the emphasis on productivity as compared to the creditworthiness, the Islamic bank will be more efficient in project selection and financing only projects that are more efficient. Furthermore, the selected project is within the ethical value system, more cautious and very selective. The Islamic bank will also avoid all trading that involves speculative activities, ambiguous and uncertain trade and all transactions of financial

risk. Each financial and commercial transaction is tied to a 'tangible, identifiable underlying asset'. The most distinctive characteristic of the Islamic financial transactions will be the replacement of all interest related instruments to the profit and risk sharing instruments. With the special nature underpinning the Islamic bank operation, it is expected that it will able to smooth the fluctuation of economic activities or the business cycle.

Transparency is more advantageous for the Islamic bank financing by applying profit and risk sharing instrument since that it is backed by the real assets and are in line with the *shariah* principles. The transparency of an Islamic bank will allow market forces to work in a better way to achieve economic efficiency and effectiveness. As opposed to this, the speculative pressure than the economic fundamentals affects the interest-based banks' lending activities, which extend an untied credit and the pricing system more. Thus, this pushes it to a lesser degree of transparency as compared to the *shariah* based financing instruments.

Mirakhor (2008) wrote that the Islamic finance (understood as achieving maximum risk sharing) diversifies risk and allow it to be shared widely. The implication that follows are the rate of return to real economic activities rather than the reverse determines a closer relationship between finance and real economic activities and the rate of return to finance. The full operation of the Islamic financial system will finally lead to financial stability, growth of income and employment, and as a result, the reduction in poverty. To obtain these results, preconditions must exist, including a developed financial system, rule of law, legal institutions that protect investors, creditors and property rights, good governance, policy discipline to ensure macroeconomic stability and trust in government and institutions. Implementing the network of rules and norms mandated by Islam will satisfy these preconditions.

Through the joint participation in the wealth creation activities and the sharing of risks and rewards by the borrower and lender by substituting equity for debt, hence, the Islamic economic principles have a potential solution that is able to promote entrepreneurship and creativity in the economic cycle. Moreover, the Islamic principles require equity participants actively to benchmark proposed projects against moral and ethical (*akhlaq)* standards in addition to financial parameters, leading to a wider community participation in the wealth creation process.

According to Khan (1992), a profit and loss based banking system eliminate the possible discrepancy between liabilities and assets because the return to liabilities is directly related to the return on assets that are in turn based on real investment activity. This implies that the rate of return to the financial sector will be determined by the real sector. Some scholars also suggested the banking and financial market stability might also be achieved by applying a 100 percent reserved system that yields similar results to 100 percent equity-based system. This means the more equity-based financing used in Islamic bank, the less the need in reserve. This explains the fact that investment deposits with Islamic banks attract a zero reserve requirement (Elhiraika, 2004).

Profit and risk sharing financing behaviour and the economic upswing

In the event of upswing economic activities with lower rates of non-performing loans, Islamic bank investment earnings are expected to show a positive trend. This motivates the Islamic bank to increase the volumes of its financing supply. At the same time, an important characteristic of the Islamic bank operations is to comply with Allah's (swt) command of the upswing of business cycle events through verse 46 to 49 in chapter Yusuf (12) in the Quran. Allah's (swt) instruction is to increase the contingency reserve and provision for loan losses during the upswing of economic conditions and decreased

the contingency reserve and provision for loan losses in the event of the economic condition downswing.

The Islamic bank is supposed to increase its contingency reserve and provision for loan losses as instructed by the Quran (12:46-49) during an upswing of economic activities, because of increasing in various forms of business risk. An increase in the contingency reserve and provision for loan losses will lower the excess fund for financing activities. With the increase in its contingency reserve and provision for loan losses, it will reduce the bank's financing growth due to the decrease in the amount of earning assets. The increase in contingency reserve and provision for loan losses will also lessen the speculative motivated financial and commercial financing operations. With the smaller amount of excess funds to be delivered into the fund market, as a result the growth of financing will be with a diminishing rate.

As opposed to this, the interest-based banks that extend untied credit and pricing are influenced more by speculative pressures and profit driven enthusiasm than economic fundamental benefit. Thus, the interest-based bank increases the financing volume of an increasing rate.

Empirical evidence shows the interest-based bank provision for the loan losses and reserve growth decreases when the economy expands. Decrease in the bank provision for the loan losses and reserve increases its earning assets and that makes the lending activities behaving pro-cyclically in the event of the upswing business cycle (Bouvatier and Lepetit 2008; Quagliariello, 2008; Bikker and Metzemakers, 2005 and others).

Islamic bank financing that is tied to the real asset and based on profit and risk sharing allows market forces to work in a better way and highly transparent to achieve the

financial market efficiency. Comparing this to the interest-based financial institutions, the Islamic bank of the profit and risk sharing instruments is more cautious and more selective in choosing a project. Speculation and financing on speculative financial transaction, ambiguous activities and financial risk are totally avoided as it is considered as *haram* (forbidden and a sin) activities. With that, the Islamic bank will allocate the resources more efficiently without any exploitation.

Referring to the argument, the Islamic bank's investment will not increase as large as the interest-based bank of an economic upswing. Even though with the earning and non-performing loans showing an encouraging sign during this economic upswing event the Islamic bank will not easily extend the financing or loosen the requirements.

Profit and risk sharing financing behaviour and the economic downswing

In the event of economic downturns with fewer profitable investment projects exist, normally the interest-based banks tighten their underwriting standards. The Islamic banks on the other hand, will not overreact to these swings. The provision of profit and risk sharing financing of the Islamic bank will not fall significantly although the investment risk is higher and with the increasing number of non-performing loans when the economy contracts.

The Islamic bank will reduce the contingency reserve and provision for loan losses to increase the excess funds for financing as instructed by the Quran (12:46-49) which is to spend when the economy contracts. The excess fund of the contingency reserve and provision for loan losses during high economic growth will be utilised during this period to finance any productive projects. With the decrease in the contingency reserve and bank provision for the loan losses during an economic downturn period, the Islamic

bank of more excess funds of financing will be able to push the financing volume upwards with an increasing rate.

During slower economic growth, the Islamic bank will not hold excessive cash reserve due to the *zakat* (obligatory charity and levy on certain categories of wealth in Islam) responsibility for cash reserve. Over here, *zakat* instrument plays the role as an automatic investment mechanical trigger for the economic agents during the economic downturn. *Zakat* also plays the role of redistribution mechanisms on income and wealth for fairness and justice to the society. Cash reserve holding therefore will be at a minimum safety level. The excess cash reserve needs to be invested with a return at least equal to the *zakat* rate. The cash reserve assets will deplete due to the *zakat* obligation if it is not invested.

Profit and risk sharing is the foundation for the equity-based financing. Thus profits are shared between the two parties according to some pre-agreed ratios, if there are losses, the investor bears all the financial losses (*mudharabah* agreement) or shared (*musyarakah* agreement) with the entrepreneur. Therefore, due to the sharing of risk, the entrepreneur will not be reluctant to invest with the fund providers during the downswing of economic activities.

The financing activities of Islamic bank also emphasise on productivity as compared to creditworthiness. The Islamic bank project financing is within the ethical value system, more cautious, selective and more efficient project selection. Islamic bank will also avoid all trading involving speculation activities, financial risk, and ambiguous and uncertain financial and commercial trade. With those special characteristics of the profit and risk sharing financing instrument underpinning the Islamic bank, as expected will be able to smooth the downswing in the economic activity.

Islamic bank trade-based financing and the business cycle

Another form of Islamic bank financing is the trade-based financing, which the Islamic bank institutions today extensively used. Currently the trade-based financing applied by the Islamic bank financing operation is in the form of fixed rate contract with interest-free financial transactions. It is widely used in the commercial type of financing transactions. The trade-based financing gives a fixed return to the Islamic bank.

Practically, the trade-based financing prevails of the financing operations of the Islamic bank dominantly. The trade-based financing instruments, which are at this time widely used by the Islamic bank, are the *murabahah* (mark-up) and *ijara* (lease purchase) instruments. *Murabahah* financing is a contract in which the Islamic bank purchases an asset on behalf of a client and sells the asset to the client at a cost-plus the declared profit. On the other hand, the *ijara* financing instrument is a leasing contract. In this *ijara* financing instrument, the Islamic bank purchases the asset and allows the client to use the asset with fixed charges. The ownership of the asset either remains with the Islamic bank or gradually transferred to the client. It is worthwhile to mention here that the use of these two most popular trade-based financing instruments by the Islamic bank is in line with the *shariah* criterion.

Fixed rate financing instruments behaviour and the business cycle

In essence the nature of the Islamic bank fixed rate financing instruments are also complying with the *shariah* directive that is to avoid all kinds of transactions involving prohibited operations in whatever forms, particularly the interest-based instruments. The financing operation must avoid all speculative transactions, ambiguous and uncertain activities, and transactions of financial risk. The financial transactions have to be backed on a real asset transaction. With ethical investments and consumption financing

operations and non-exploitative actions, will bring fairness and justice in the Islamic bank operations.

With the above characteristics underpinning the operation of the Islamic fixed rate of return instruments, also makes it different from the interest-based instrument. The general idea of the unique principles is to ensure certainty and stability to avoid exploitation and excessive speculation in all financial and commercial transactions.

During an economic upswing, the Islamic banks will not easily extend the trade-based financing or loosen the trade-based financing requirements. Increase in the contingency reserve and provision for bad and doubtful financing during this period as obeying to Allah's (swt) instruction in chapter Yusuf (Quran, 12:46-49) will reduce the Islamic bank earning assets that will directly reduce the bank capability in offering the fixed rate financing. With this argument, the Islamic bank trade-based financing supply will increase with a decreasing rate.

During the period of economic expansion, the chances of over extensions of trade-based financings are still balanced because the paying capacity of clients is stable. During this period, the value of the collateral assets is also at a rising note. The obligation to back all financial and commercial transactions with a tangible, identifiable, and underlying asset means that the financial and commercial transaction in theory is also backed by collateral.

In the event of an economic upswing, the Islamic bank of high moral and ethical (*akhlaq*) characteristics will at all time be cautious and selective in providing the trade-based financing. The Islamic bank will definitely avoid all types of trading involving speculative activities, financial risk transactions, ambiguous and uncertain activities as

following the *shariah* orders. With asset-backed financial transactions, ethical investments and ethical consumption financing operations, the Islamic bank will be able to allocate the resources efficiently and effectively without any exploitation.

On the other hand, when the economy is hit with a slow growth, as for the counter-cyclical behaviour the Islamic banks are still protected when they use the trade-based financing. Since the trade-based financing is agreed at the closing of the transaction between the bank and the client, therefore, it cannot be altered during the life of the contract. With the fixed due date or schedule of dates, banks can neither recall for early payments nor offer discounts to induce the clients. Therefore, the likelihood of a 'run on debtors' by the banks of expectation of a coming recession is low.

In the event of slower economic growth, again the *zakat* instrument will play its role as an automatic spending mechanical trigger to the economic agents. The Islamic bank will also not hold too much cash reserve due to the *zakat* obligation. Holding of cash reserve therefore will be at a minimum safety level. The excess cash reserve needs to be delivered to the fund market for financing purposes of a return at least equal to the *zakat* rate. If not, then the cash reserve assets will deplete due to the *zakat* obligation.

Theoretical framework of Islamic bank financing counter-cyclical behaviour

Summing up the theoretical argument of the Islamic bank financing counter-cyclical behaviour, changes in the economic environment conditions will positively affect the quality of the Islamic bank portfolios. With its unique characteristics guided by the religiosity behaviour, hypothetically it is believed that the Islamic bank will assure its financing activities will not overreact to the economic swings. At any time, Islamic bank is likely able to mellow down its financing cyclicality behaviour by adjusting the contingency reserve and provision for loan losses.

Scholars believe by eliminating the risk-free asset form of return with the *shariah* based instruments and the sharing of profit and risk in particular will have a significant positive impact on the investment financing, commercial financing, financial development, and the overall economic performances.

Figure 4.1 shows the theoretical framework of the counter-cyclical behaviour of the Islamic bank financing to the business cycle phenomena and how it will able to stabilise the economic environment.

Islamic Bank Features:
1. Interest-free financing

2. Obedient to Allah's instruction on contingency reserve and provision for loan losses management. (Quran, 12:46-49)

3. Non-speculative and unambiguous transaction; avoiding financial risk transaction, more cautious and selective in project selections.

4. Financing within ethical investments and consumption spending makes the operations within moral value structure.

5. Asset-backing financial transaction.

Economic Upswing → Increase in Contingency Reserve and Provision for Loan Losses → Diminishing Growth of Commercial and Industrial Financing

Economic Down-swing → Decrease in Contingency Reserve and Provision for Loan Losses → Increasing Growth of Commercial and Industrial Financing

Counter-cyclical financing behaviour on business cycle

Figure 4.1: Theoretical Framework of The Islamic Bank Financing Counter-cyclical Behaviour

Contingency reserve and the business cycle

Liquidity risk is a threat that banks encountered in their business operations. Thus, to avoid insolvency, banks often hold assets that can easily convert into cash. Hence, from a management policy standpoint, the bank portfolio management then considered and developed the bank contingency reserve. It is a liquidity plan or a strategy that balances the liquidity risks and return.

The bank contingency reserve is the minimum amount of funds or other liquid financial resources that each bank must hold for safety reason. It refers to the required amount of liquid resources allocated to and above the previously designated estimated amount for safety reason. For the Islamic bank, the contingency reserve includes the retained earnings, profit equalisation reserve, and investment risk reserve.

In bank's financial statements, record of the contingency reserve item is in the equity capital side of a bank's balance sheet or report of condition. It is a pool of funds that will cover the costs of any risk events that do happen. The contingency reserve is set aside to cover anticipated future liabilities or reductions in the bank asset values and held as protection against unforeseen losses. It reduces the risk of overruns to an acceptable level of an organisation. Contingency reserve is required when a bank believes the value of its assets has likely decreased or it has incurred liabilities due to risk taking operations.

Banks have to consider the risks associated with possible unforeseen events and the risk directly related to the investment or project financing when establishing a contingency reserve. The contingency reserve has to adequately cover the risk and implement any contingency plan meant to ensure the success of an investment or project financing. The higher the contingency reserve, the safer the depository institution is held to be but with

an opportunity cost of profit forgo. It represents the immediate liquidity needs, but does not provide bank liquidity for the long term.

The reason for the bank contingency reserve is to improve the safety and soundness of depository institutions. This argument is also relevant to Allah's instruction in the verse 47 to 48 in chapter Yusuf (12).

> *He said: "For seven years you shall sow continuously, then what you reap* **leave 5 it on the ear, except a little whereof you eat** *(47). Then thereafter there shall come upon you seven hard years, in which you shall* **devour all that you have reserved for them, except a little you keep in store** *(48).*
> (Yusuf: 47-48).

Provision for bad and doubtful financing and the business cycle

For banks to account for future losses on loan defaults, banks create the provision for bad and doubtful financing. It is a non-cash expense, which banks assume that a certain percentage of financing (loans in the case of interest-based bank) will default or become slow paying. Provision for bad and doubtful financings anticipated the amount of financings remaining at the year end after the bad financings have been written off, which are likely to finish up as bad financings.

Provision for bad and doubtful financing is the buffer to preserve the banks' continued solvency by shielding them against respectively expected financing losses. The management of bad and doubtful financings is very important for a business entity because it has an impact on the profit if it is not in good health. Theoretically, provisions for bad and doubtful financing allocations are supposed to increase with the level of riskiness of the financing or loan a given bank makes. This guarantees a bank's solvency and capitalisation when the defaults occur.

Hypothetically, a counter-cyclical view states that the credit risk is built up in a boom and materialises in a downturn (Borio et al., 2000; Lowe, 2002). The favourable conditions of an economic expansion could lead to an excessive increase in credit financing or lending and a less critical assessment of creditworthiness. The counter-cyclical view associates this with higher risks and the build-up of financial imbalances that increase the likelihood of economic contraction.

According to the counter-cyclical bank lending view, provision for bad and doubtful debts should be positively correlated with the lending cycle, for banks should distinguish the underlying risk and build up loan loss reserve in good times to be drawn on in bad times (Bikker and Metzemakers, 2005). This argument is relevant to Allah's (swt) instruction in the Quran (Chapter Yusuf; 12:46-49)

From the empirical evidence of the Islamic bank, during an economic upswing with rising incomes, the likelihood of financing or loan defaults of households and firms reduce (Ismail and Sulaiman, (2006). In the case of interest-based banks the loan default also shows the same behaviour (Albertazzi and Gambacorta, 2009; Bouvatier and Lepetit, 2008; Bikker and Metzemakers, 2005 and Laeven and Majoni, 2003). Whereas during an economic downswing the financing or loan defaults of households and firms behave the opposite way.

The interest-based banks reflected this loan default of households and firms feature by lowering the provision for bad and doubtful debts during an economic boom and increasing them during a downturn. Empirical evidence of banks' provision for bad and doubtful debts clearly shows a pattern of correlation with those variables related to the risk they are meant to cover. Albertazzi and Gambacorta (2009), Bouvatier and Lepetit (2008), and Laeven and Majoni (2003) empirical evidence shows that the interest-based

bank provision for bad and doubtful debts and gross domestic products are negatively correlated. Therefore, based on the evidence it shows that the interest-based banks provisioning on the expected loan losses largely contributes to the interest-based bank lending pro-cyclical behaviour to the business cycle. Other researchers such as Bikker and Hu (2002), and Bikker and Metzemakers (2005) also empirically prove this cyclical behaviour.

On the other hand, for the Islamic bank, theoretically if it adheres to Allah's (swt) instruction as provided in the Quran (Chapter Yusuf (12):46-49), it will behave the opposite way compared to the interest-based bank loan activities. By adhering to the *shariah* requirement, this makes the Islamic bank financing operations behave counter-cyclically to the economic cycle. However, the empirical evidence is yet to support this argument.

4.1.3 Islamic Bank Management on Contingency Reserve and Provision For Bad And Doubtful Financing

The relevant issue of the Islamic bank cyclicality behaviour is that whether the Islamic banks practically tend to use the contingency reserve and provision for bad and doubtful financing to smooth their operations. Does an Islamic bank allocate more contingency reserve and the provision for bad and doubtful financing when financing activities and earnings increase or will the bank reduce the contingency reserve and provision for bad and doubtful financing during the economic downturn in order to increase the financing activities?

This study hypothesises if the Islamic bank management on the contingency reserve and provision for bad and doubtful financing failed to follow Allah's (swt) direction as

stated in chapter Yusuf (12:46-49, Quran), then the possibility of Islamic bank financing operations to behave pro-cyclical to the business cycle is there.

A high growth rate of real gross domestic product and faster growing rate of the financing activities is the indicator of growing economy. The Islamic bank should make a sufficient amount of contingency reserve and provision for bad and doubtful financing when the economy is growing. Failing to do so, when the economic conditions reverse, the non-performing loan and loan losses will start to emerge, banks' profitability decreases and credit supply tends to decrease. Under this condition it will force the bank to increase its contingency reserve and provision for bad and doubtful financing, tighten the lending operations, consequently, amplifying the effects of the recession. On the other hand, neglecting to spend on economic downturns will worsen the economic environment and finally at the end will affect the bank's performance.

Following the Quran's instruction in chapter Yusuf (12:46-49), the contingency reserve and provision for bad and doubtful financing should increase during the event of economic upswing and the opposite when the economy is at downswing for banks to behave counter-cyclically. With the increase in the contingency reserve and provision for bad and doubtful financing during an economic upswing, this will directly decrease the excess funds that can be offered in the financial market. This is activated by the decrease in the banks' earning asset and will directly weaken the growth rate of financing operations and subsequently make it behave counter-cyclically.

In the event of economic downswing, the reversal behaviour will take place to mellow down the business cycle swing. The excess of contingency reserve and provision for bad and doubtful financing during an economic upswing will be utilised by providing it

more to financing activities. With the role of *zakat* as the automatic investment motivator, the holding of liquid assets will be at the minimum safety level.

The working of Islamic financial intermediaries in stabilising the economic environment is conceptualised in Figure 4.2 given below.

Ethical Households Consumption	***Shariah* Features**	**Islamic Financing Characteristics**	
Consumption priorities: 1. Basic necessities (dharuriyat) 2. Fulfillment necessities (tahsiniyyat) 3. Perfection of life (kamaliyat)	1. Interest free financing 2. Obedient to Allah's instruction on contingency reserve and provision for loan losses 3. Avoiding speculative trading, ambiguous transaction and financial risk transaction 4. Ethical financial transaction 5. Asset-backing financial	1. Emphasise on productivity 2. Diversifies risk and allows it to be shared widely 3. Return on liabilities is directly related to return on assets (based on real investment activity) and this eliminates the discrepancy between liabilities and assets 4. Promotes entrepreneurship and creativity 5. Highly transparent 6. Not a repriceable claim and fixed due date or schedule of dates	Economic Stability

Islamic Financing

Ethical Firm Investment:
1. Interest-free   2. Halal investment   3. Investment priorities: Basic necessities (dharuriyat)   Fulfillment of necessities (tahsiniyyat)   Perfection of life (kamaliyat)

Figure 4.2: Islamic Financing and Economic Stability

With ethical spending by the economic agents, *shariah* compliant financing instruments and with the unique Islamic *shariah* based financial instruments will create stability in

the economic environment. Above all the argument, by eliminating the interest-based asset form of return and replacing it with the equity-based that is through the profit and risk sharing instruments and the trade-based financing instruments it will bring significant consequences on the behaviour of investment, financing operations, financial development, and the overall economic condition. Then the Islamic bank investment and financing policy will be able to smooth the economic fluctuation, both in terms of the upswings and downswings cycle.

The potential for Islamic bank of minimising the business cycle swings actually depends on the bank management of the contingency reserve and provision for bad and doubtful financing and the ratio between equity-based financing to the trade-based financing. Obeying Allah's (swt) instruction mentioned in chapter Yusuf (Quran 12:46-49) plays an important role in shaping the activities of the Islamic bank of the business cycle events. The higher provision for equity-based financing will ensure a more effective counter-cyclical behaviour of the Islamic bank institution. Thus, avoiding the 'boom' and 'bust' in the economic environment or the business cycles episodes and at the same time does not impede the real economic growth.

Operational model of Islamic bank financing

Currently there are two modes of financing applied by the Islamic bank institution. They are the equity-based financing that based on profit and risk sharing and the trade-based financing with a fixed financing rate that gives a fixed return to the bank.

Two alternative instruments that currently represent the equity-based financing are the *mudharabah* and *musharakah*. These two forms of profit and risk sharing financial instruments were predominantly in use since the pre-Islamic period. *Mudharabah* is a

capital trusts financing forms. It is a partial equity partnership contract between parties. The provision of capital is from either individual or the institutions.

Musharakah financing on the other hand is a partnership agreement with two or more parties establishes a joint commercial enterprise. It is a joint venture operation between fund providers and producers for certain operations. For the trade-based financing instrument, which is at this time widely used by the Islamic banks, are the *murabahah* (mark-up) and *ijara* (lease purchase) instruments.

With the replacement of interest-based instruments with the equity-based financing (profit and risk sharing) and the trade-based financing (fixed financing rate) instruments, the Islamic bank assets management policy needs to determine the optimum combination of the excess reserve for financing provision and for liquidity and safety requirements. The portfolio assets held by the Islamic bank that is the equity-based financing, trade-based financing and securities have different levels of return, liquidity, and risk. To determine the combined ratio of the profit and risk sharing instruments with the fixed income instrument, it deals with the assets and liability management policy of the Islamic bank to suit with its goals to achieve.

The operational model of Islamic bank discussed in this study follows the model of Ahmed (2002). In theory, Ahmed (2002) discusses the combination of both of the financing methods that is the fixed income financing (FI) and the equity-based financing applied by the Islamic bank. In his model, he assumed that the Islamic bank has equity (E) and offers demand deposits (Dd) and saving deposits (Ds). Therefore, the total deposits are:

$$D = Dd + Ds$$

On the asset (A) side, considering that in theory it consists of the reserved requirement,

fixed income financing (FI) and the profit sharing financing (PS). Therefore,

$$A = R + FI + PS$$

Considering only two kinds of financing by the Islamic bank, the balance sheet of the

Islamic bank indicates that total assets (A) are equal to the deposits and equity (D + E):

$$A = D + E$$

$$D + E = R + FI + PS$$

On the liability side, depositors of the Islamic bank will get a share of profit. The

expected return (r^e) and risk (σ_r) of deposits are closely linked to the Islamic bank

assets, as given by the function below:

$$r^e = f(r) \qquad f' > 0;\ \text{and}$$

$$\sigma_r = f(\sigma) \qquad g' > 0;$$

With r and σ are the rates of return and standard deviation of assets of the Islamic bank.

Given that the minimum rate of return that is acceptable to the depositor is r^m, then a

tolerance level ($\mathcal{E}_m$) of this depositor is given by the difference between the expected

and minimum return on deposits that is $r^e - r^m = \mathcal{E}_m$.

Ceteris paribus, a fall in real value of deposits by more than the tolerance level will lead

to a withdrawal of depositor's funds to other alternative. The depositor will withdraw

his fund if the actual return (r^a) is low enough [$(r^e - r^a) > \mathcal{E}_m$]. Ahmed (2002) calls this

as asset-preservation withdrawals. This is the withdrawal risks faced by the Islamic

banks. The tolerance level is different from one depositor to another.

The interaction of assets and liability side is illustrated in Figure 4.3 below. The return

and risk feature of the portfolio of the Islamic bank will depend on the relative shares

ratio of the fixed income financing and the profit and risk sharing financing given by γ_f.

The shares of profit and risk sharing financing is therefore given as (1 - γ_f). Holding

more of the profit and risk sharing financing assets will increase the risk (σ) of Islamic bank's assets portfolios.

The relationship between the share of fixed income financing assets and the risk of the Islamic bank's portfolio is given by $\gamma_f(\sigma)$. An increase in the share of fixed income financing assets will decrease the share of profit and risk sharing financing assets (a larger γ_f), and lower the overall risk (σ) of the portfolio. Note that risk of the portfolio does not equal to zero when $\gamma_f = 1$, as there are other risks associated to the fixed income financing asset, ($\gamma_f = 1$; $\sigma > 0$). As the risk of bank's portfolio (σ) increases the withdrawal of the asset share (w) also increases. This is shown by the upward sloping w (σ) curve.

The regulatory authorities exogenously give cash ratio (γ_c) and the share of fixed income financing (γ_f) and profit sharing financing assets (γ_p) are determined endogenously in the model. The Islamic bank strategy at any time is to keep the withdrawal share (w) lower than the cash reserve (γ_c). As the figure shows, for a given cash ratio (γ_c), the maximum risk that the Islamic bank can undertake (and avoid a run) is σ_w. The γ_c curve determines the composition of fixed income and profit sharing financing assets that would yield a risk of σ_w. The Islamic bank has to choose a minimum share of the fixed income financing (γ_f) to be at the safe side. The larger the share of fixed income financing assets the smaller the share of profit sharing financing assets (γ_p) as: $\gamma_p = 1 - \gamma_c - \gamma_f$.

Acting as investment intermediaries, the role of the Islamic bank is reflected on their offering investment accounts that offer higher expected rates of return to higher risk. Relatively, less risk-averse behaviour implies that the tolerance factor ($\mathcal{E}_m$) for these

deposits would be higher. That will reduce the withdrawal risk or asset-preservation withdrawals from investment deposits. Furthermore, these deposits are less liquid as there is a cost of withdrawal of funds. This, along with the higher tolerance factor would mean that the w (σ) curve would be steeper for funds in investment account. This is shown in Figure 4.3 by the rotation of the w (σ) curve from w^0 (σ) to w^1 (σ), increasing the acceptable risk that the Islamic bank can undertake on the asset side of σ_w^0 to σ_w^1.

As the figure shows, we move from point b to d on the γ_f (σ) line. This movement indicates that the Islamic bank can lower its share of fixed income financing assets from γ_{f1} to γ_{f2} and increase the share of profit and risk sharing financing assets in their portfolio. The model shows the Islamic bank financing activities are a combination of profit and risk sharing financing and fixed income financing assets in the portfolio.
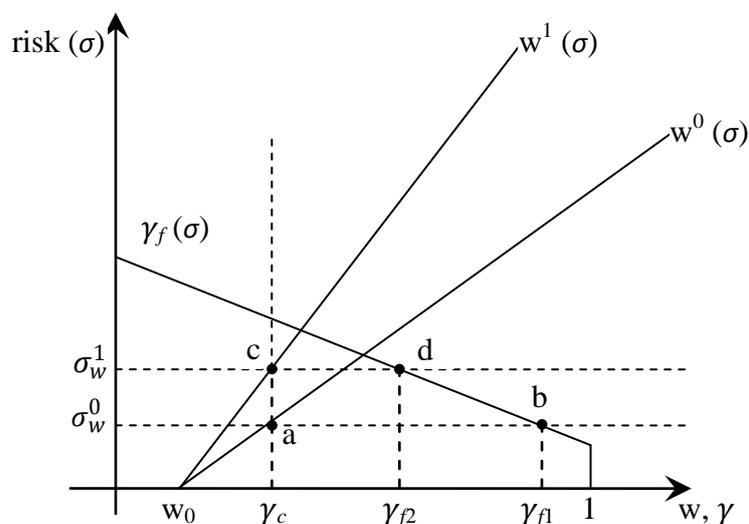
Figure 4.3: Ahmed Model's on Ratio of Fixed Rate Financing and Profit Sharing Financing (Adapted from Ahmed (2002))

The Ahmed (2002) model analysis shows when an Islamic bank act as an investment intermediary attracting depositors who are willing to take more risks, the Islamic bank is

in a position to increase the share of assets financed by profit and risk sharing financing modes.

The use of profit and risk sharing principle to reward depositors on the liability side has important implications regarding the stability and management of the Islamic banks. Ahmed (2002) discusses how the depositors will react to a lower rate of return relatively to other financial institutions in the economy. If the Islamic bank return is low in an overall downturn of the economy, then this will be reflected in lower returns for all the Islamic banks. Whereas lower returns to the asset side, will be transferred to the depositors. This will not be the case of the interest-based banks.

Linking the return on liabilities to return on assets brings stability and can avoid bank runs (Gangopadhyay and Singh 2002). Khan (1986) proves this in a study for the Islamic bank (Ahmed 2002). A downturn causing a decline in the value of assets is cushioned by the corresponding decrease in the liabilities, protecting the net-worth of the Islamic bank. When depositors see that the overall rate of return in the economy has gone down, the probability of withdrawals will be very small. However, if the lower rate of return is restricted to a particular Islamic bank then the reaction to the depositors will be different. An isolated lower rate of return to the Islamic bank will be taken as a signal of mismanagement and will cause asset-preservation withdrawals. Thus, the use of profit and risk sharing modes has disciplinary effects on the Islamic banks as depositors punish inefficiency and mismanagement.

Ahmed (2002) continues to suggest by combining the fixed rate income financing and profit and risk sharing financing modes to finance project brings the Islamic bank closer to a universal banking system. By holding the shares, the Islamic bank will have a say in

the management of the firm. Santos (1999) supports a mix of debt and equity holdings in a firm can reduce the moral hazard problem (Ahmed 2002).

From Ahmed's (2002) model, it is expected that the level of risk would be higher and the tolerance factor will increase from an economic downturn. With higher tolerance factors, the w (σ) curve will be steeper. The maximum risk (σ_w) that the Islamic bank can undertake will be higher. The portion of funds of an investment account given by γ_p will be larger ($\gamma_p = 1 - \gamma_c - \gamma_f$). With higher investment risk, the Islamic bank contingency reserve and provision for expected loan losses will follow suit and give a counter-cyclical behaviour.

The Japanese financial structure applied this combination of both the debt-like financing and equity-based financing in banking operations. Evidence shows that the growth of the Japanese economy in the post-war period was greatly enhanced by the willingness of banks to lend money and assume equity stakes in the country's manufacturing and industrial sector (Akacem and Gillian 2002).

However, the aim of this paper is not to establish the ideal level of Islamic bank financing asset holdings, but rather to help distinguish empirically the cyclicality behaviour of the Islamic banks' financing activities of the business cycle event.

4.2 Conceptual Framework of Islamic Bank Financing Behaviour

To get a better understanding of the relationship between the Islamic banks' financing activities and the business cycle event, some of the important concepts of the business cycle and Islamic bank asset management related to the cyclicality behaviour of the banking sector are described in this section.

4.2.1 Business Cycle Concepts and Indicators

Business cycle is the fluctuations of the economic production activities or the economic growth of a given period. The alternating period of the upswing and downswing of economic growth is also known as the 'expansion' and 'contraction' of the economic production activities. The real gross domestic product growth rate is often used to measure for the economic fluctuations. In the event of economic expansion, the economy reaches its prosperity with growing real gross domestic product rates and low rate of unemployment.

Following the standard aggregate expenditure function, gross domestic product is referred as the total spending by all the economic units, which can be expressed as:

Gross Domestic Product = private consumption + private investment + public spending

+ net export

If the economy has reached the full employment condition, an increase in aggregate expenditure will have no impact on the real gross domestic product but only pushing up the general price level. The increase in aggregate expenditure then inflates the nominal gross domestic product and the economy starts to 'bubble up'. With the increase in real income and households' consumption, the producers' investment will increase and lenders tend to relax their borrowing standards when the economy is strong and economic activity is high with low default rate.

This economic growth continuously increases until the swing hits a limit or boundary that would stop it because of the overinvestment of the firms. At a level the economy has 'bubbled-up' and when it becomes 'overheated', the economy will experience an economic downturn and enter a contraction. When the economy weakens, followed by a pessimistic behaviour among the economic agents economic conditions will worsen.

The economy experiences an increase in unemployment rates because of the falling in sales. Consequently the country economic growth is hampered with this occasional disturbance and deteriorating welfare of the country's people.

Besides the real gross domestic products of the most significant business cycle indicators, other available indicators also show and measure the macroeconomic conditions. These indicators are classified as leading indicators, lagging indicators and coincident indicators.

1. Leading Indicators – leading indicators are variables that change before the real gross domestic product changes.

   The forecasting gauge of the business cycle is usually in indices forms of leading indicators. Examples of leading indicators are money supply, interest rates, stock prices, consumer expectation, average working time per week, unemployment claims, new consumer goods order, delayed deliveries, and new orders for plants and equipment.

2. Lagging Indicators – lagging indicators are variables that change after the real gross domestic product changes.

   As the real gross domestic product increases, the average time workers remain unemployed does not fall until some months after the beginning of the recovery. Examples of lagging indicators are the commercial and industrial loans, consumer price index, unemployment rates, and duration of unemployment, labour cost per unit, prime rates, and consumer credit to personal income.

3. Coincident Indicators – coincident indicators are variables that change at the same time that the real gross domestic product changes.

   As the real gross domestic product rises, the economy expects employment, personal income, industrial production, and sales to rise. Examples of coincident indicators are the industrial production, manufacturing, and trade sales.

Figure 4.4 illustrate the business cycle indicators.
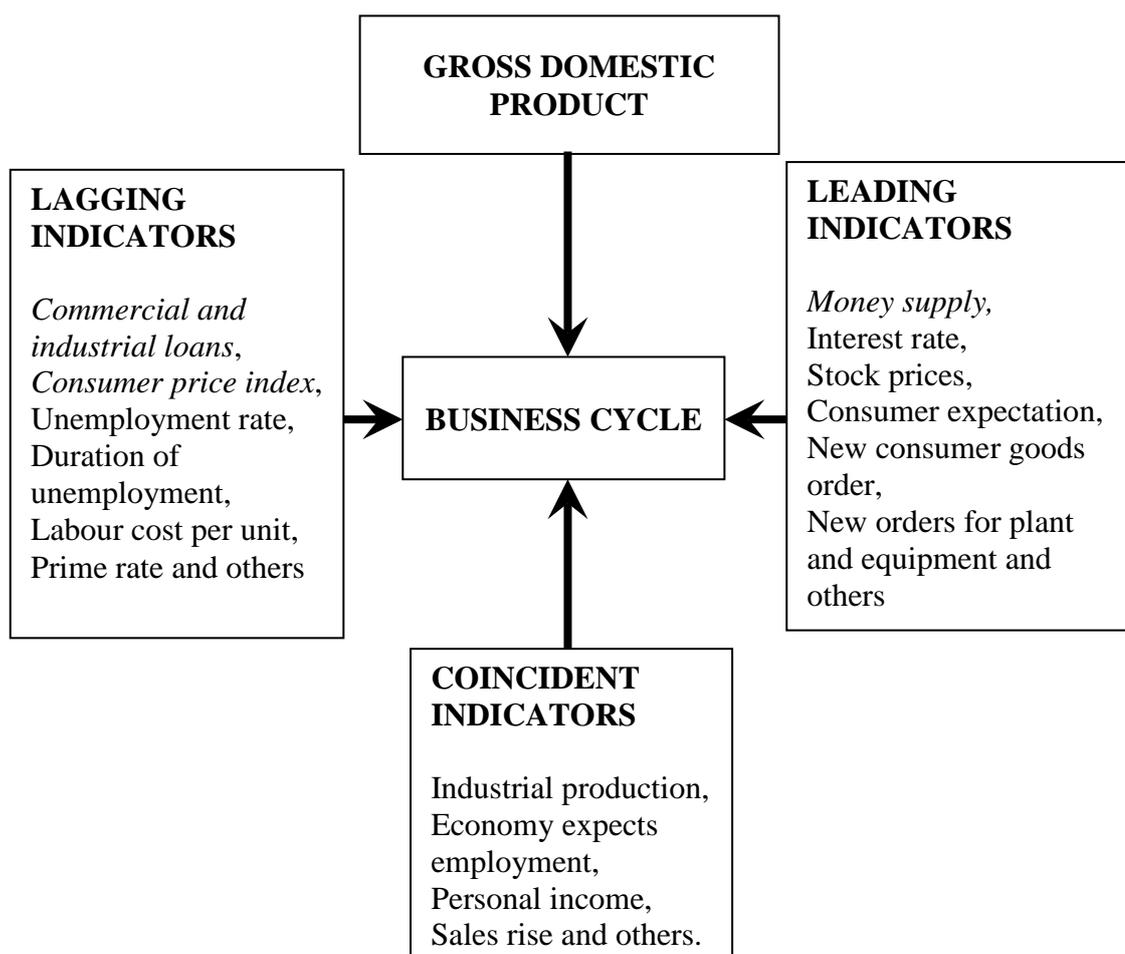
Figure 4.4: Business Cycle Indicators

4.2.2 Islamic Bank Assets Management and The Business Cycle

It is important to the Islamic bank to act in accordance with the Quran's instruction (Chapter Yusuf, 12:46-49). For banks to behave counter-cyclical, theoretically, the contingency reserve and provision for bad and doubtful financing should be at an increasing rate in the event of upswing economic activities and the opposite when the economic activities are at a downswing trend. Hence, an important aspect of the contingency reserve and provision for bad and doubtful financing is its timing with respect to the incident of the business cycle.

During an economic upswing and rising incomes, it indicates improving conditions for firms and reduces the likelihood of loan defaults. The interest-based banks are expected to reflect this feature of their decisions on lowering the contingency reserve and provision for bad and doubtful financing during an economic boom for the reasons of profit driven enthusiasm. Whilst during recession with a downturn of economic activities and decreasing incomes the opposite behaviour of loan defaults will begin to exist. The interest-based banks tend to increase them during a downturn for over pessimism.

For the Islamic bank, on the other hand, it is important to them to adhere to the Quran's instruction (12:46-49), that is, by increasing them during an economic boom for institutional safety. During economic downturns, the provision for contingency reserve and provision for bad and doubtful financing will be reduced for the reasons of societal benefits (*maslahah ummah*) by increasing the amount of financing to improve the economic condition.

The Islamic banks should provide sufficient contingency reserve and provision for bad and doubtful financing when the economy is growing as shown by a high growth rate of real gross domestic product and high financing growth rate. Failing to do so, when the economic conditions reverse, the loan losses will begin to emerge, profitability decreases and credit supply tend to decrease. This will force the Islamic banks to increase their contingency reserve and provision for bad and doubtful financing thus amplifying the effects of the recession.

Alternatively, the Islamic banks should spend the contingency reserve and provision for bad and doubtful financing during an economic downturn. During the economic

downturn, refuse to spend will worsen the economic environment and at the end will affect the Islamic banks' performance in the long term.

During an economic upswing, abiding by the Quran's instruction (Chapter Yusuf, 12:46-49), an increase in the provision for contingency reserve and provision for bad and doubtful financing will directly decrease banks' earning assets. Decreases in bank's earning assets will directly reduce the banks' excess funds that can be offered to the financial market. This will directly weaken the growth rate of bank financing operations and subsequently making it to behave counter-cyclically.

In the event of economic downswing, the reversal behaviour will take place to mellow down the business cycle swing. The excess of contingency reserve and provision for bad and doubtful financing during prosperous economic condition will be utilised in this period by delivering more credit opportunity into the financing market. By reducing the volume of contingency reserve and provision for bad and doubtful financing during an economic downswing, the banks' earning assets will directly increase. Increases in bank's earning assets will directly increase the banks' excess funds that can be offered to the financial market. This will directly strengthen the growth rate of bank investment and financing operations and subsequently making it to behave counter-cyclically.

Another unique characteristic in the Islamic bank financing operation is the existence of the *zakat* instruments. With the role of *zakat* as the automatic investment motivator mechanism, the holding of liquid assets will be at a minimum safety level. In order to avoid the depletion of the liquid assets value of the economic downswing because of the *zakat* obligation this will force the Islamic bank to look for new investment opportunities for returns at the least equals to the *zakat* rate.

The Islamic bank financing quality effect on its operations mentioned above could be observed and examine through the movement in the Islamic bank balance sheet. The bank's balance sheet records the flows of funds of people who have an excess of funds to the borrowers that are short of funds. The Islamic bank management on its contingency reserve and provision for loan losses is visualised and can be analysed from the movement in the banks' balance sheet as shown in Figure 4.5 below.
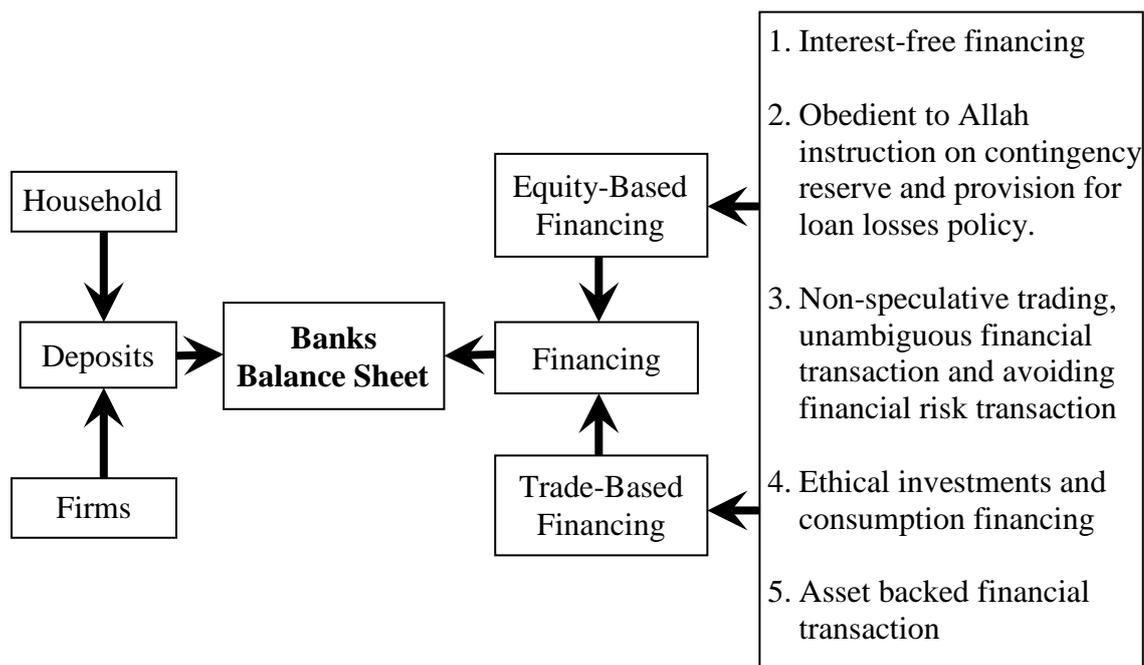
Figure 4.5: Islamic Bank Financing Framework

4.2.3 Islamic Bank Assets Management and Bank's Counter-cyclical Behaviour

Regardless of types of banking systems practiced by the economy, it is irrefutable the bank's financing or lending volume is increasing during the period of strong economic growth and decreasing during the periods of weak economic growth. Clearly, the investment spending by the private sectors will increase from high growing of household consumption spending during strong economic growth.

During weak economic growth the opposite reaction will occur, a drop in private investment activities will follow a decrease in households consumption spending. If the Islamic bank adheres to Allah's (swt) instruction related to the buffer management during the upswing and downswing of economic activities as stated in the Quran (Chapter Yusuf (12):46-49) it will be able to behave counter-cyclically to the economic cycle.

Diagrammatically Figure 4.6 below shows the process of counter-cyclical behaviour of the Islamic bank operation.
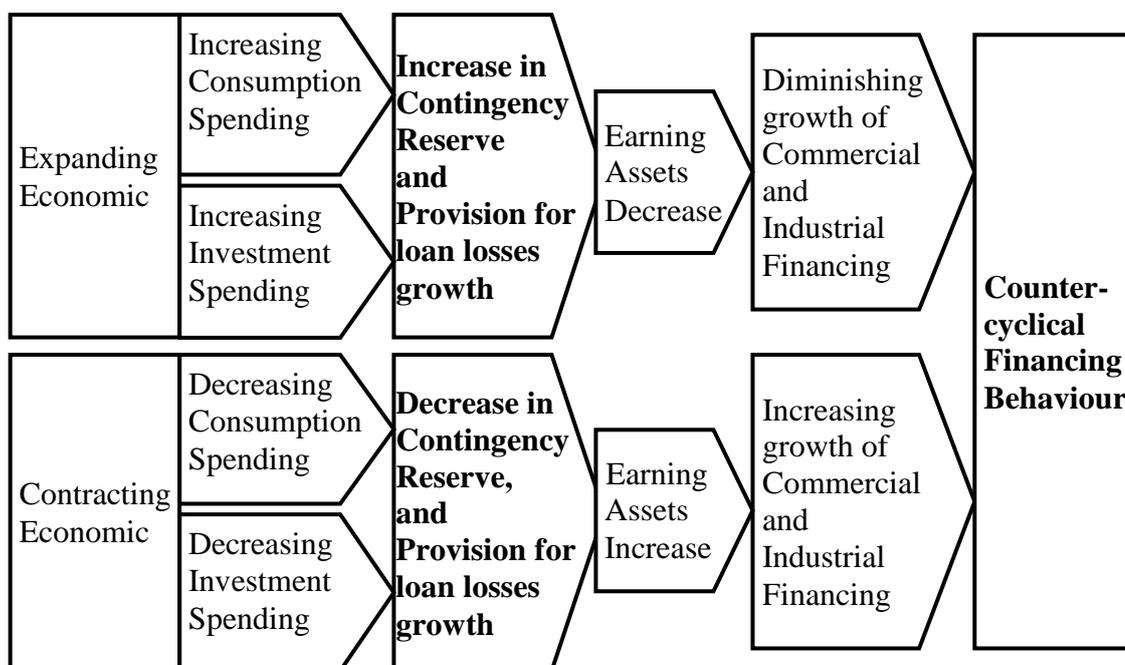
Figure 4.6: Conceptual Framework of The Islamic Bank Financing Counter-cyclical Behaviour

4.2.4 Conceptual Framework of Bank Cyclical Behaviour

Conceptually, the business cycle phenomena will affect the behaviour of economic agents from both sides namely the depositors and borrowers. The changes in the behaviour are detectable by the changes in the banks' balance sheet. Figure 4.7 below

shows how the changing behaviour of the main economic agents is caused by the fluctuations in the macroeconomic activities. Changes in the banks' balance sheet reflect the changes of all the economic agents' behaviour. Those changes of behaviour will be visualised through the changes of both the banks' assets and liabilities statement.
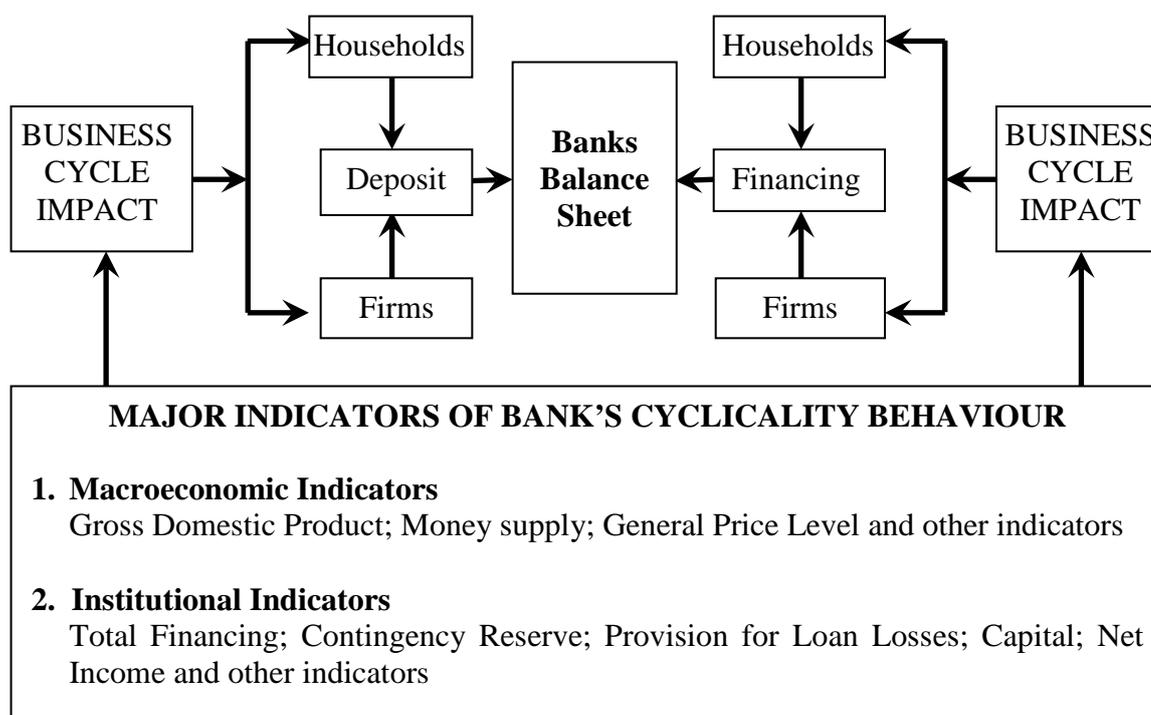
Figure 4.7: Business Cycle Influence on The Economic Units

4.3 Research Design

The following section of the chapter explained the research framework and analytical model. The model developed here will examine the cyclicality behaviour of the Islamic bank financing and factors that contribute to that cyclicality behaviour. To determine the cyclicality behaviour of the Islamic bank financing at the bank level the study begins with defining the variables at the basis supply function of financing. Then the study resolves the problem of endogenous variables and lastly the study identifies the Islamic bank financing cyclicality behaviour at the bank level.

4.3.1 Research Framework on Islamic Bank Financing Cyclical Behaviour

In measuring the cyclicality behaviour of the Islamic bank financing operation, the research framework, and econometric model apply to the financing supply is derived based on the bank credit channel view, which is the work by Bernanke & Blinder (1988). The analytical model applied for the study is a combination of models developed by Bikker and Hu (2002), Bliss and Kaufman (2002), Laeven and Majnoni (2003), and Bikker and Metzemakers (2005). They observed the behaviour of the interest-based bank lending operations to the growth in business cycle indicators. This particular study on the other hand, measure the Islamic bank financing growth cyclicality behaviour of the business cycle indicators namely the real gross domestic product, general price level, money supply, contingency reserve, loan loss provision, capital based, and banks' profit growth.

Determinants of Islamic bank financing supply

To understand the behaviour of Islamic bank financing it is necessary to explore the determinants of bank credit supply of the fund market. The supply function of Islamic bank financing is the basis of model development in the statistical analysis for this study. Factors influencing the supply of financing by an individual Islamic bank are not much different to the interest-based bank.

Bernanke and Blinder (1988) provide a simple ISLM based theoretical model of the bank credit channel, where banks rely on deposits as the source of funds. For this study, the approach is a little difference in several points. In this study, we investigate Islamic bank financing growth fluctuations and not the amount of credit as brought forwards by Bernanke & Blinder (1988). The model also considers the Islamic bank financing growth fluctuations of the bank level and not the credit market equilibrium. Lastly, the study introduces two institutional buffer items, to be precise the Islamic bank

provisioning for contingency reserve and the provisioning for financing losses influence on banks financing operation.

Based on banking theory and literature, there are various factors that statistically prove to be significant in influencing the capability of banks of delivering the credit facilities to the public. The determinants of bank credit supply can be categorised into two groups, the internal, and the external factor. The internal factors are the bank's institutional related variables including the sources of funds and the regulatory and prudential measures items. The external factor is the macroeconomic variables. Thus, Islamic bank's financing supply function is as follows:

Bank Financing $= f$ {banks specific variables and macroeconomic variables}

Conceptually, three sets of factors that determine the supply of Islamic bank financing. The first set is the sources of funds. The other sets of factors that influence bank's financing flows are the regulatory and prudential measures and the third set of factors is the macroeconomic variables.

The sources of funds are the most important determinant. Based on the credit view channel, three main sources of the bank's funds are the deposits, market funding, and equity. Consolidated balance sheets of the Islamic banks reveal that deposits constitute approximately 80 percent of total liabilities, while, capital contributes to around one percent of total liabilities.

The second set of institutional variables is the prudential and regulatory measures to promote for banking sector safety and competition. Banks provision of contingency reserve and provision for loan losses are the prudential measures items. Banks regulatory items are the reserve requirement and capital requirements. The prudential

and regulatory measures are the constraint factors that trim down the capability of bank in delivering the financing opportunities.

The monetary policy objectives largely determined the size of the Islamic bank regulatory reserve and capital requirements. The safety and prudential requirements on the other hand determined the Islamic bank decision on the volume of provision for contingency reserve and provision for loan losses. Chapter Yusuf (12): verse 46 to 49 (Quran), clearly stated the importance of bank's contingency reserve and provision for loan losses.

Contingency reserve is a liquidity plan or strategy that balances the risks and return. Contingency reserve is the amount of funds or liquid financial resources that each bank must hold for safety and soundness of the depository institutions. In bank's financial statements, records of contingency reserve items are in the equity capital side of a bank's balance sheet or report of condition. For the Islamic bank, the contingency reserve includes the retained earnings, profit equalisation reserve, and investment risk reserve. The higher the contingency reserve, the safer the depository institutions, however, the opportunity cost will be the profits forgo.

The contingency reserve directly affects the potential for banks of supplying funds of the credit market. Increasing the contingency reserve will reduce the bank's capability in expanding the banks financing and reductions in contingency reserve would allow the expansion of credit creation. To decelerate the economic expansion the bank should increase the contingency reserve rate to control the nation's money supply of reducing bank's capability in credit creations. To accelerate the economic contraction bank will decrease the contingency reserve to increase the amount of money circulating in the market. This argument is relevant to Allah's instruction in the Quran (12:46-49).

From the Islamic view, Chapter Yusuf (12): verse 46 to 49 (Quran) clearly stated the importance of bank's provision for a contingency reserve. The bank contingency reserve is supposed to have a contraction impact on the bank financing flow by impounding the bank excess fund of financing activities.

Provision for loan losses is another institutional prudential measure that will also have a contraction effect on the financing volume. Banks have to do some specific provisions of their amount of nonperforming financing. The loan loss provision is a way by which various types of financial institutions like banks keep a certain sum regarded as the outstanding bad financing. The profit and loss statement recorded the loan loss provision.

Loan loss provision occurs when all the measures to collect the financing have been resorted to but to remain outstanding. The provisioning is done in various ways of the bad financing. The financing becomes bad financing when there is no possibility of collecting the financing at all. Bad financing believed to be irrecoverable is then written-off, thus, become the loss assets of the business entity.

Another important item that will promote banking sector safety and competition is the regulatory requirement. The regulatory requirement restricts the institution's capability in delivering financing funds of the credit market. If monetary regulators reduce the regulatory requirement imposed on banks, they may take on more risk. Various different regulation instruments have been adopted for the banking sector safety and competition. The bank's main regulatory items are the regulatory capital requirement and regulatory reserve requirements. Both of the items are included in the study as the control variables.

To enhance banks safety capital requirements is intended. Banks are prescribed to maintain a certain minimum amount of capital to risk-weighted assets ratios or minimum capital adequacy ratio according to their total risk exposure. Capital regulation is one of the key regulatory instruments, aimed at providing a buffer during adverse economic conditions, as well as a mechanism aimed at preventing excessive risk taking.

The capital adequacy ratio will affect negatively on the ability of banks to supply new credits. During economic growth are at the downtrend, with increasing risk perception, capital requirements increase and consequently constrain the financing flow to respect the minimum capital ratio. A higher level of current capital adequacy ratios, above the minimum prescribed level, gives greater comfort for the banks of future contingency and thus is conducive to current credit expansion.

Bank's provision for bad and doubtful financing and capital requirements perform different tasks and functions. The regulatory requirements are also different. Traditionally, the provision for bad and doubtful financing serves to cover the expected losses. Provision for bad and doubtful financing has to meet a minimum requirement on average over a predefined period, which allows them to fluctuate over the cycle.

To cover the unexpected losses, capital requirements are used. Capital requirements are regulated by a fixed minimum requirement. For capital requirements, it is expedients to consider a different time horizon than in the case of provision for bad and doubtful financing. Banks are encouraged to hold optimal capital requirements to asset ratios for safety and soundness of banks especially during economic distress.

The expected costs of financial distress increases as the capital ratio declines and the probability of insolvency rises. Such a buffer of capital protects against costly unexpected shocks to capital if the financial distress costs of low capital are substantial and the transaction costs of raising new capital quickly are very high. Banks may also hold a substantial buffer of additional capital as financial slack so that they can borrow additional funds quickly and cheaply in the event of unexpected profitable investment opportunities.

Efficient capital management has important implication for bank's effectiveness in protecting itself against the business cycle. Bank's capital is supposed to be negatively related to the lending cycle. To cover the unexpected losses, banks should identify the underlying risk of good times that portrayed during economic bad times. Economists and policymakers view that during recession's capital requirements need to be loosened and deliberately tighten them during expansions as a way to dampen credit and output swings (Kashyap and Stein, 2004 and Borio, 2003). This argument is also without a shred of doubt relevant to verse 46-49 (12) in the Quran.

Current capital regulation, as put into practiced by the Basel I (1988) and II (2006), applies to all internationally active banks. The capital adequacy ratio is set to the banks' risk weighted assets, and acts as an indicator of the bank's ability to absorb losses. The capital regulation rules, as outlined by Basel I (1988) and II (2006) are a minimum capital amount to be implemented by the individual supervisory authorities with the aim of creating a level playing field for market operatives, as well as for ensuring a sound and stable financial environment (Jokipii and Milne, 2006).

Capital may become the binding constraint on banks of periods of economic recessions and monetary expansion, as noted by Bliss and Kaufman (2002). Increasing the

contingency reserve in good time and therefore positively affects bank's financing supply ability, whereas the capital management and signalling behaviours may have no clear impact on the cyclicality of bank financing. Thus, as monetary policy relies on banks deposits or bank credit to achieve its objectives, it may be easier for the central bank to restrain expansions than to stimulate recoveries.

During economic distress, it is evidence that the interest-based banks keen to increase its capital ratio for safety reasons that will exacerbate the economic slump. During growing economy, interest-based banks reduce the capital ratio to increase the loan supply. Consequently, the ability of monetary policy to stabilise the economy is asymmetrical.

Reserve requirement is another form of regulatory items in banking operation that will restrict the bank's capability in delivering the financing funds of the credit market. The reserve requirement is a central bank regulation that sets the minimum reserve a bank must hold of customers' deposits. Banks hold deposits to help deposit inflows and outflows caused by the bank's clearing requirement such as check clearings, maturing time deposit and securities and other financial transaction.

Traditionally, monetary authority used the reserve requirement to stabilise the economy. The reserve requirement affects the potential of the banking system to credit creation processes. Reductions in reserve requirement would allow the expansion of money supply and lower interest rates, vice versa. To decelerate economic expansion, the central bank will increase the reserve ratio to control the nation's money supply by reducing bank capability in credit creation.

At present, the reserve requirement is no longer binding for most of the banks of many countries. Many central banks all over the world has removed or alleviated their policy

on reserve requirement. Many economists advocate the elimination of reserve requirements especially in the United States and had already been implemented in Canada, Australia, and New Zealand (Mishkin 2007).

The economists' argument is that the reserve requirement acts as a tax on banks because central banks usually do not pay interest on reserve. The bank earns nothing on the reserve holding and the opportunity costs of that is forgone interest if the bank held loans instead. The cost imposed on banks by the reserve requirement means that banks, in effect, have a higher cost of funds than intermediaries that are not subject to the reserve requirements, making them less competitive.

According to Mishkin (2010), another disadvantage of the reserve requirement is that raises the reserve requirements can cause immediate liquidity problems where reserve requirement are binding. Continually fluctuating to reserve requirements would also create more uncertainty for banks, thus making their liquidity management more difficult.

Central banks have thus been reducing the reserve requirements to make the banks more competitive and stronger (Mishkin, 2007). As a result, the removal of reserve requirements policy might have contributed to the relentless turbulence, complexity, and instability in the financial market for the past twenty years. Consequently, the removal of reserve requirements policy might also be one of the significant contributing factors of the pro-cyclicality behaviour of the interest-based bank.

The arguments brought forward by the conventional economists are in fact the main reason for introducing the reserve requirement that is to manage the credit creation operation of a bank. Through the reserve requirement directive that will make the

banking institutions to be less profit enthusiastic and able to trim down the speculative activities during an economic upswing. It is also the essence of the verses of 46 to 49 in chapter Yusuf (12) in order to smooth the economic environment fluctuation and correcting the undesirable behaviour of the economic agents that contribute to the business cycle phenomenon.

The next set of determinant on bank's financing is the economic activities conditions given by the macroeconomic indicators. The main macroeconomic variables to measure the fluctuations in macroeconomic activities are the real gross domestic product, general price level, and money circulating in the market that reflects the macroeconomic condition of a country. The real gross domestic product growth, general price level growth and growth in money supply represent the uncertainties in the economy and the variables are analysed to capture for the cyclical movements as well as uncertainty in the economy. The financing supply growth rate acted counter-cyclically should it negatively related to the growth rate of macroeconomic indicators.

Based on the literature and the conceptual framework of the business cycle, the relevant macroeconomic variables indicating the events of bank cyclicality behaviour to business cycles are illustrated in Figure 4.8 below:

Bank Cyclicality Indicators

Influence on the business cycle happening
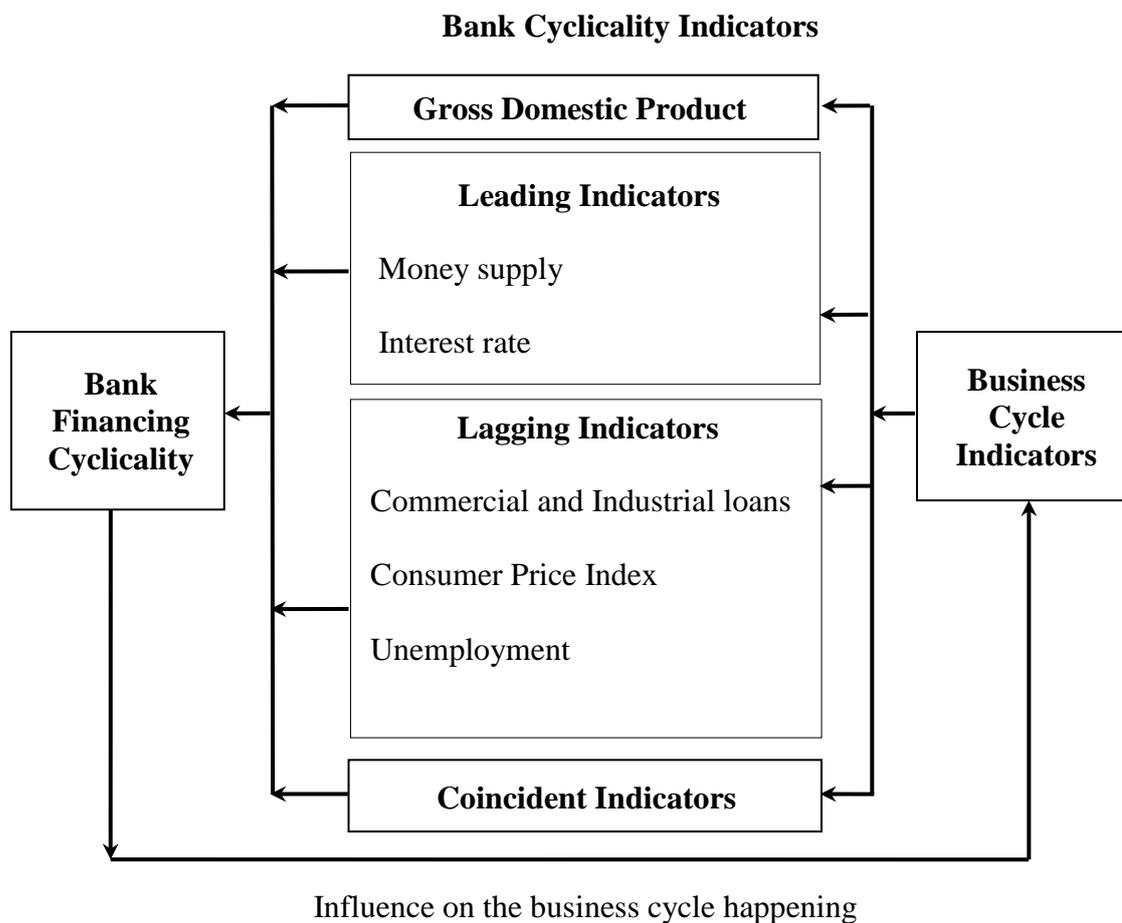
Figure 4.8: Bank Financing and Business Cycle Indicators Framework

Model development

From literature surveys, studies on bank cyclicality behaviour mostly evaluate the bank

provision for loan losses behaviour as its indicator (among them are Laeven and

Majnoni, 2003; Bikker and Metzemakers 2005; Bouvatier and Lepetit, 2008 and

Quagliariello, 2007). Alternatively, Jokipii and Milne (2006), Goodhart (2005),

Gambacorta and Mistrulli (2004) evaluate capital requirement relationship to the

incident of business cycle. There are also researchers such as Albertazzi and

Gambacorta (2009) who include other income statement items such as banks' earnings

as an additional indicator in measuring the cyclicality behaviour of banking sector.

Thus, in order to investigate the Islamic bank financing cyclicality behaviour, it is

necessary to gauge the capability features of banks' contingency reserve, provision for

loan losses and capital requirement policy in controlling the Islamic banks' financing activities. This aspect is very interesting in light of encouraging banks to build buffers when financing and earnings are high and draw them when the economy is in down trend to counter-cycle the business cycle. This scheme should have a smoothing effect to curb excessive bank financing during the upswing of the business cycle and to reduce credit crunches in the downswings. The buffers will include provision for contingency reserve and provisions for financing losses.

4.4 Statistical Analysis

This study employs the panel data analysis in measuring the Islamic bank financing cyclicality behaviour in the business cycle event. The main advantage of using panel data analysis is the ability of it to control for individual heterogeneity such as firms, states, or countries dissimilarity. Thus, panel data analysis allows us to control for any unobservable or immeasurable variables. This method of analysis also helps to control for the unobservable variables that do not change over time but change across entities, such as the national policies and international agreements (Hsiao, 2003; Baltagi, 2008; and Torres-Reyna lecture note).

An important fact on bank's operation is that the level of its operation in the preceding period influences the expected current year operation. It is common to bank's operation within a causal period t to be dependent on their value of the causal period t-1. Therefore, the data analysis uses the growth values of variables to avoid the potential endogeneity problems that might arise from the time series data.

The growth values able to capture the average speed of adjustments between current year volume and the previous year volume. For example, the current year financing policy is reflected on a year growth response to a year growth of the independent

variable performance based on the bank financial operation reported at the end of the year. Thus, the growth rate measures the annual percentage change of the variable between current years and the previous year volume, hence trim down the endogeneity problems (Bikker and Hu, 2002; Laeven and Majnoni, 2003; Bikker and Metzemakers, 2005). For the sake of merging the data across banks and through time, the growth value of variable able to avoid scaling difficulties. The growth value will also avoid for any potential misspecification due to the differences in the Islamic bank characteristics.

The study also used the ratio of variable growth to earning assets growth to allow for the difference between individuals' Islamic bank internal characteristics. The ratio method is a method that is commonly used in analysing financial performance including comparing between institutions and market performances. Previous studies that used the growth ratio approach with data from various countries are by Bikker and Hu (2002), Bliss and Kaufman (2002), Laeven and Majnoni (2003), Bikker and Metzemakers (2005); Bouvatier and Lepetit (2008) and many more.

However, previous researchers used total assets growth rate as the denominator to control the banks' characteristic differences. In this particular study, the rationale for using the earning assets as the denominator because it is this item that actually generates the bank's income. The earning assets (EA) included all assets that generate explicit financing income or lease receipts. It is typically measured by subtracting all non-earning assets such as cash and short-term funds, statutory deposits with the central bank, fixed assets, and other assets from the total assets (TA).

EA = TA – (cash and short-term funds + statutory deposits + fixed assets + other assets)

This study analyses the Islamic bank financing cyclical behaviour through its relationship to the growth of real gross domestic product, general price level (CPI) and

money supply M2 and as the main business cycle indicators. Selection of Money supply M2 as one of the business cycle indicator is due to the closed relationship to the credit creation activities by the commercial banks. On the other hand, the coefficient of predictors for the contingency reserve and provisions for bad and doubtful financing will quantify the capability of Islamic bank to smooth the cyclicality behaviour during the uptrend and downtrend of the macroeconomic activities.

With the special characteristics underpinning the Islamic bank operation and with the absence of empirical evidence on the Islamic bank cyclicality behaviour, this study will be very essential. It is open to argument with the expected behaviour of Islamic bank to business cycle events and the likelihood of Islamic bank of smoothing the business cycle phenomenon.

4.4.1 Analytical Framework on Islamic Bank Financing Counter-cyclical Behaviour

The counter-cyclical behaviour of the Islamic bank financing in the event of economic fluctuations is revealed from the total financing growth rate relationship to the business cycle indicators. The Islamic bank cyclicality behaviour is indicated by the growth rate of financing related to the growth rate of real gross domestic product, bank contingency reserve, and provision for loan losses. When the growth rate of the total financing is negatively associated with the growth rate of real gross domestic product, it gives a counter-cyclical behaviour. Whereby when the real gross domestic product is growing the Islamic bank total financing is increasing but with a decreasing rate or it should increase at a diminishing rate with the increase in the economic growth.

The negative relationship between the Islamic bank financing growth and the real gross domestic product growth is supposed to be caused by the increasing growth of the

provision for contingency reserve and provision for bad and doubtful financing during an economic upturn. With the increase in the contingency reserve and provision for bad and doubtful financing, it will reduce bank's financing growth because of the decrease in the amount of earning assets. Thus, trim down the excess fund for financing activities.

In a way, the increase in contingency reserve and provision for bad and doubtful financing will also lessen the speculative motivated financial and commercial financing operations. With the lesser amount of excess funds to be delivered into the fund market, as a result, the growth of financing will be with a diminishing rate. On the other hand, in the event of slow economic growth, the opposite behaviour of Islamic bank financing growth will happen with a decrease in the provision for bad and doubtful financing growth rate.

Thus, the internal instrument used by the Islamic banking institutions to manage the financing volume so that it behaves counter-cyclical to the business cycle is the bank contingency reserve and provisions for loan losses. The contingency reserve and bank provisions for loan losses growth must positively relate to the financing growth. In the event of economic upswings, the contingency reserve and provisions for loan losses must increase to safeguard the increase in financing volume.

The Islamic bank financing and the fixed rate financing growth rates should also diminish when the general price level growth is at an increasing rate. Alternatively, financing activities will increase when the general price level started to decrease. In the event of an upswing economic activity, the financing risk level also starts to increase with the increase in the general price level. Therefore, the financing growth should

increase with a decreasing rate for a counter-cyclical behaviour during economic upturns.

With reference to the general price level and money supply growth, in the event of economic expansion, both of the macroeconomic indicators tend to increase because of the increase in the transaction activities in the economy. Therefore, Islamic bank financing growth should have a negative relationship to the growth in the general price level and money supply to make it able to smooth the business cycle.

A counter-cyclical behaviour of bank financing shows the general price level and money supply must increase at a decreasing rate or slower growth. On the other hand, during the downturns of economic condition with sluggish aggregate market activities, the Islamic bank will increase the financing volume of an increasing rate or with a faster growth to enhance the economy. Thus, that makes the association will be negatively related.

With the counter-cyclical determinants mentioned above, therefore, the study hypothesises that the Islamic bank operation will behave counter-cyclical to the business cycle if the following conditions met:

1. Islamic bank total financing and fixed rate financing growth are negatively related to the real gross domestic product growth.

2. Islamic bank total financing and fixed rate financing growth are positively related to the bank contingency reserve growth.

3. Islamic bank total financing and fixed rate financing growth are positively related to the bank loan loss provision growth.

Hence, the conditions above look up at the misalignment of Islamic bank specific indicators to the financing growth of a business cycle.

Modelling Specification and Estimation Model on Islamic Bank Financing Cyclical Behaviour

The first and second objective of the thesis is to examine the relationship between Islamic bank total financing and fixed rate financing growth and the growth of business cycle indicators. To accomplish the objective, the following econometric model is estimated:

$$
\left[\frac{F}{EA}\right]_{ijt} = \alpha_0 + \beta_1\,GDP_{jt} + \beta_2\,CPI_{jt} + \beta_3\,M2_{jt} + \beta_4\left[\frac{CR}{EA}\right]_{jt} + \beta_5\left[\frac{LLP}{EA}\right]_{ijt} + \beta_6\left[\frac{D}{EA}\right]_{ijt} + \beta_7\left[\frac{CB}{EA}\right]_{ijt} +
$$

$$
+ \beta_8\left[\frac{RR}{EA}\right]_{ijt} + \beta_9\left[\frac{NPF}{EA}\right]_{ijt} + \beta_{10}\left[\frac{P}{EA}\right]_{ijt} + \beta_{11}\left[\frac{P}{EA}\right]_{ijt-1} + \varepsilon_{ijt} \qquad (1)
$$

$i = 1, \ldots, n$ (sample bank); $j = 1, \ldots, n$ (sample country); $t = 1, \ldots, T$ (time period)

Where:

$(F/EA)_{ijt}$ is total financing or fixed rate financing growth to earning asset growth ratio for bank i in country j at time t

GDP_{jt} is real gross domestic product growth in country j at time t

CPI_{jt} is consumer price index growth in country j at time t

$M2_{jt}$ is money supply M2 growth in country j at time t

$(CR/EA)_{ijt}$ is contingency reserve growth to earning asset growth ratio for bank i in country j at time t

$(LLP/EA)_{ijt}$ is loan loss provision growth to earning asset growth ratio for bank i in country j at time t

$(D/EA)_{ijt}$ is deposit growth to earning asset growth ratio for bank i in country j at time t

(CB/EA)$_{ijt}$ is capital based growth to earning asset growth ratio for bank *i* in country *j* at time *t*

(RR/EA)$_{ijt}$ is regulatory reserve growth to earning asset growth ratio for bank *i* in country *j* at time *t*

(NPF/EA)$_{ijt}$ is nonperforming financing growth to earning asset growth ratio for bank *i* in country *j* at time *t*

(P/EA)$_{ijt}$ is net profit growth to earning asset growth ratio for bank *i* in country *j* at time *t*

(P/EA)$_{ijt-1}$ is net profit growth to earning asset growth ratio for bank *i* in country *j* at time *t-1*

The model estimates the Islamic bank financing behaviour to the fluctuation in the macroeconomic level includes the real gross domestic product, general price level growth (CPI) and money supply M2 as the main business cycle indicators. The contingency reserve and loan loss provision are the institutional characteristics that indicate the banks' buffers policy. To control for the effects of individual bank characteristics, the study includes the capital based and regulatory reserved as the regulatory instruments. The analysis also controls for the non-performing financing growth, banks profit growth and deposits growth to isolate the effects of banks special characteristics.

The above variables are the main variables used by previous researchers in investigating the bank cyclicality behaviour. Among them are Albertazzi and Gambacorta (2009), Bouvatier and Lepetit (2008), Adrian and Hyun (2008), Quagliariello (2008 and 2007), Nan and Hung (2007), Bikker and Metzemakers (2005) and Bikker and Hu (2002). The difference between this study compares to previous studies are the use of earning assets growth instead of total assets as the denominator.

The financing figure used in the analysis is the net total financing and net fixed rate financing after deducting the gross financing with provision for bad and doubtful financings. The fixed rate financing instruments are the sum of financing from *murabahah, ijarah, bay muajjal, istisna'* and *bai bithaman ajil* financing instruments. A counter-cyclical behaviour of Islamic bank financing during economic fluctuations is revealed by a negative relationship of financing volume to the real gross domestic product growth and a positive relationship to bank contingency reserve growth and provision for the loan losses growth.

The cyclicality behaviour of Islamic bank financing is given by the relationship of the real gross domestic product growth, general price level growth and money supply M2 growth to the ratio of total financing growth to earning assets growth (TF/EA) and fixed rate financing growth to earning assets growth (FR/EA).

The bank's ratio of contingency reserve growth to earning assets growth (R/EA) and loan loss provision growth to earning assets growth (LLP/EA) play the role as an internal control device on the financing cyclicality behaviour. By imposing controls on the indicator variables, at least a short run cyclical behaviour (Juglar fixed investment cycle and Kitchin inventory cycle) of Islamic bank operations to the business cycle event can be visualised.

Summary of counter-cyclical behaviour relationships of the Islamic bank financing operations are given in Table 4.1 below.

Table 4.1: Islamic Bank Financing and Fixed Rate Financing Counter-cyclical Behaviour Analysis

Dependent Variable	Independent Variable	Expected Relationship
Total Financing and Fixed Rate Financing Growth ------------------------- = Earning Assets Growth	Gross Domestic Product growth	negative
	Consumer Price Index growth	negative
	Money Supply M2 growth	negative
	Contingency Reserve growth ----------------------------------- Earning Asset growth	positive
	Loan Loss Provision growth ----------------------------------- Earning Asset growth	positive
	Deposits growth -------------------------- Earning Asset growth	positive
	Capital Based growth -------------------------- Earning Asset growth	negative
	Regulatory Reserve growth ---------------------------------- Earning Asset growth	negative
	Nonperforming Financing growth -- Earning Asset growth	negative
	Net Profit growth -------------------------- Earning Asset growth	positive
	Previous year Net Profit growth -- Previous year Earning Asset growth	positive

4.4.2 Analytical Framework on Islamic Bank Provisions for Bad And Doubtful Financing Behaviour

To confirm the financing cyclicality behaviour of Islamic bank the analysis proceeds by examining the provision for bad and doubtful financings growth of the Islamic bank as this shows their expectation on future bad financings growth. Provision for bad and doubtful financing is an expense set aside as an allowance for bad financing or loans.

An important aspect of provision for bad and doubtful financing is its timing with respect to the business cycle and the related issue of pro-cyclicality. Provision for bad and doubtful financing has to meet a minimum requirement on average over a predefined period, which allows them to fluctuate over the cycle. Provision for bad and doubtful financing is more important during an economic expansion, with problem financing decrease, optimism is widespread and undervalue of financing risks by banks that ease the credit supply.

The provisioning is done in various ways with respect to the bad and doubtful financings. The estimation is purely made with respect to the bad and doubtful financings based upon the past trends in the industry. Therefore, the provisioning for bad and doubtful financings is done with respect to estimation of future losses before they are confirmed. The ex-post provisioning system that based on backward-looking rules is an unsatisfactory institutional arrangement because it inadequately takes into account credit risks. The opposite effect could happen during the downswing of the business cycle and could reduce the bank's ability to supply credits. Hence, the ex-post provisioning systems will amplify the credit cycle.

Specific provisions are complemented by general provisions, which have to cope with expected losses, but banks do not implement rigorous and statistical methods to compute them, they depend on expansion of total financing and discretionary

behaviours of bank managers. Thus, this market requirement may differ for each bank. A bank making a small number of risky financing or loan will have a low provision for bad and doubtful financing compared to a bank with the intention of taking higher risks.

The analysis will examine the Islamic bank provision for bad and doubtful financings growth to the changes in the economic environment shown by the main macroeconomic indicators growth and specific institutional variables. Hence, the function of the Islamic bank provision for bad and doubtful financing policy is given as:

Provision for Bad and Doubtful Financing $= f$ {macroeconomic variables and

bank's specific variables}

The determinants of provision for bad and doubtful financing can be categorised into two groups the macroeconomic variables and bank's specific variables. The macroeconomic indicators are the real gross domestic product growth, consumer price index growth and money supply M2 growth. The amount of financing, nonperforming financing and current year profit are the bank's specific variables that determine the amount put aside as provision for bad and doubtful financing. The capital based and regulatory reserve is to control for the bank's regulatory variables.

Modelling Specification and Estimation Model on Islamic Bank Provision For Bad And Doubtful Financings Behaviour

The proposed specification and analytical model used in analysing the Islamic bank provision for bad and doubtful financings behaviour is as equation 2. The model is given as:

$$\left(\dfrac{PBD}{EA}\right)_{ijt} = \alpha_0 + \beta_1\,GDP_{jt} + \beta_2\,CPI_{jt} + \beta_3\,M2_{jt} + \beta_4\left(\dfrac{F}{EA}\right)_{ijt} + \beta_5\left(\dfrac{NPF}{EA}\right)_{ijt} + \beta_6\left(\dfrac{P}{EA}\right)_{ijt} +$$

$$+\ \beta_7\left(\dfrac{CB}{EA}\right)_{ijt} + \beta_8\left(\dfrac{RR}{EA}\right)_{ijt} + \mathcal{E}_{ijt} \qquad (2)$$

$i = 1, \ldots\,, n$ (sample bank); $\ j = 1, \ldots\,, n$ (sample country); $\ t = 1, \ldots\,, T$ (time period)

Where:

$(PBD/EA)_{ijt}$ is provision for bad and doubtful financing growth to earning asset growth ratio for bank i in country j at time t

GDP_{jt} is real gross domestic product growth in country j at time t

CPI_{jt} is consumer price index growth in country j at time t

$M2_{jt}$ is money supply M2 growth in country j at time t

$(F/EA)_{ijt}$ is total financing growth to earning asset growth ratio for bank i in country j at time t

$(NPF/EA)_{ijt}$ is nonperforming financing growth to earning asset growth ratio for bank i in country j at time t

$(P/EA)_{ijt}$ is net profit growth to earning asset growth ratio for bank i in country j at time t

$(CB/EA)_{ijt}$ is capital based growth to earning asset growth ratio for bank i in country j at time t

$(RR/EA)_{ijt}$ is regulatory reserved growth to earning asset growth ratio for bank i in country j at time t

The study hypothesises that the Islamic bank operation will behave counter-cyclically to the business cycle if the following conditions are met:

1. Bank's provisions for bad and doubtful financing growth are positively related to the bank's total financing growth.

2. Bank's provisions for bad and doubtful financing growth are positively related to the bank's profit growth.

3. Bank's provisions for bad and doubtful financing growth are positively related to the real gross domestic product growth.

Condition 1 captures the misalignment of the Islamic bank's credit risk management, while condition 2 refers to the income smoothing hypothesis and profit enthusiasm hypothesis by the Islamic banks. Condition 3 captures the misalignment of the Islamic banks management to the business cycle indicator.

Table 4.2 below gives the summary of Islamic bank provision for bad and doubtful financings management related to the bank's counter-cyclical behaviour.

Table 4.2: Islamic Bank Provision for Bad And Doubtful Financing Counter-cyclical Behaviour Analysis

Dependent Variable	Independent Variable	Expected Relationship
Provision for bad and doubtful financing growth ------------------------------- Earning Assets Growth =	Gross Domestic Product growth	positive
	Money Supply M2 growth	positive
	Consumer Price Index growth	positive
	Total Financing Growth ------------------------------- Earning Asset growth	positive
	Non-Performing Financing growth --- Earning Asset growth	positive
	Net Profit growth ---------------------------- Earning Asset growth	positive
	Capital Based growth ---------------------------- Earning Asset growth	positive
	Regulatory Reserve growth ------------------------------------- Earning Asset growth	negative

The counter-cyclical behaviour of Islamic bank provision for bad and doubtful financing growth to the business cycle event is given by a positive relationship of the provision for bad and doubtful financing growth to all the independent variables namely the macroeconomic indicators and bank's specific items.

4.4.3 Analytical Framework on Islamic Bank Contingency Reserve Behaviour

Another major determinant of the Islamic bank financing cyclicality behaviour is their policy on the contingency reserve. The essential of contingency reserve are clearly mentioned in the holy Quran (Chapter Yusuf; 12: 46-49). Hence, the following analysis looks at the Islamic bank contingency reserve management. The analysis is to determine whether the Islamic bank is following the instruction in verse 47-48, chapter Yusuf (12: Quran) on the contingency reserve management.

Bank's contingency reserve is the fraction of bank's liquidity that the institution must hold. It refers to the required amount of liquid resources allocated to and above the previously designated estimated amount for safety and soundness of the depository institutions. The instruction in verse 47-48, chapter Yusuf (Quran) is to increase the contingency reserve during an upward trend of economic growth and to spend the contingency reserve when the economic condition reverses. For a banking institution, increase in the contingency reserve in the event of economic upswing will decrease the excess fund for the bank to deliver as financing. In the event of economic downturns, decreases in bank contingency reserve will increase the earning assets and this will increase the excess fund of the bank for financing activities.

To examine whether the Islamic bank management of the contingency reserve is acting in accordance with the verse 47-48, chapter Yusuf (Quran), the estimation model is based on the following function:

Contingency Reserve $= f$ {macroeconomic variables and banks specific variables}

The macroeconomic indicators are the real gross domestic product growth, consumer price index growth and money supply M2 growth. The current year profit growth and non-performing financing growth are the institutional specific characteristics that determine the bank contingency reserve policy. The capital based and regulatory reserve is the bank's regulatory variables.

Modelling Specification and Estimation Model on Islamic Bank Contingency Reserve Management

To determine whether Islamic bank contingency reserve management is following the Quran's (12: 46-49) instruction the proposed specification and analytical model is as equation 3.

$$\left(\frac{RES}{EA}\right)_{ijt} = \alpha_0 + \beta_1\, GDP_{jt} + \beta_2\, CPI_{jt} + \beta_3\, M2_{jt} + \beta_4\left(\frac{P}{EA}\right)_{ijt} + \beta_5\left(\frac{D}{EA}\right)_{ijt} + \beta_6\left(\frac{NPF}{EA}\right)_{ijt}$$

$$+ \ \beta_7\left(\frac{F}{EA}\right)_{ijt} + \beta_8\left(\frac{CB}{EA}\right)_{ijt} + \beta_9\left(\frac{RR}{EA}\right)_{ijt} + \varepsilon_{ijt} \tag{3}$$

$i = 1, \ldots , n$ (sample bank); $\ j = 1, \ldots , n$ (sample country); $\ t = 1, \ldots , T$ (time period)

Where:

$(RES/EA)_{ijt}$ is banks' contingency reserve growth to earning asset growth ratio for bank i in country j at time t

GDP_{jt} is real gross domestic product growth in country j at time t

$M2_{jt}$ is money supply M2 growth in country j at time t

CPI_{jt} is consumer price index growth in country j at time t

$(P/EA)_{ijt}$ is net profit growth to earning asset growth ratio for bank i in country j at time t

$(D/EA)_{ijt}$ is deposit growth to earning asset growth ratio for bank i in country j at time t

$(NPF/EA)_{ijt}$ is non-performing financing growth to earning asset growth ratio for bank i in country j at time t

$(F/EA)_{ijt}$ is total financing or fixed rate financing growth to earning asset growth ratio for bank i in country j at time t

$(CB/EA)_{ijt}$ is capital based growth to earning asset growth ratio for bank i in country j at time t

$(RR/EA)_{ijt}$ is capital based growth to earning asset growth ratio for bank i in country j at time t

The study hypothesises that the Islamic bank operation will behave as instructed in the Quran (12:46-49) if the following conditions are met:

1. Banks' contingency reserve growth is positively related to banks' profit growth.

2. Banks' contingency reserve growth is positively related to real gross domestic product growth.

Both of the conditions provide evidence on the Islamic bank contingency reserve management in complying with the Quran's instruction (12:46-49). By complying with it, the Islamic bank earning assets will be managed and the fund for financing activities will be regulated so that it will behave counter-cyclical.

The expected behaviour of contingency reserve growth related to the Islamic bank counter-cyclical behaviour is given in Table 4.3 below.

Table 4.3: Islamic Bank Contingency Reserve Management Analysis

Dependent Variable	Independent Variable	Expected Relationship
$$\text{Contingency Reserve Growth} \over \text{Earning Assets Growth}$$ =	Gross Domestic Product growth	positive
	Money Supply M2 growth	positive
	Consumer Price Index growth	positive
	$$\text{Net Profit growth} \over \text{Earning Asset growth}$$	positive
	$$\text{Deposits growth} \over \text{Earning Asset growth}$$	positive
	$$\text{Non-Performing Financing growth} \over \text{Previous year Earning Asset growth}$$	positive
	$$\text{Total Financing growth} \over \text{Earning Asset growth}$$	positive
	$$\text{Capital Based growth} \over \text{Earning Asset growth}$$	positive
	$$\text{Regulatory Reserve growth} \over \text{Earning Asset growth}$$	negative

4.5 Data Sources

For this particular study, the data comes from 67 Islamic banks collected from 16 countries (Appendix 1). They are from Malaysia (15 banks), UAE (3 banks), Saudi Arabia (8 banks), Bahrain (7 banks), Egypt (2 banks), Qatar (2 banks), Jordan (2 banks), Yemen (3 banks), Sudan (4 banks), Kuwait (1 bank), Turk (2 banks), South Africa (1 bank), Pakistan (3 banks), Bangladesh (5 banks), Indonesia (2 banks), and Iran (7 banks). The data time framed for the study is from the range of 1998 to 2009. The reason for short time span in the panel data analysis is due to the unavailability of data and not many Islamic banks initiate their operation before the year 2000.

In exploring the behaviour of Islamic bank financing to the business cycle happening, this study utilised the panel data set over a period of eleven years from 1998 to 2009. The individual bank financial data is obtained from the bank's annual reports gathered from the bank's website and Bankscope database. The macroeconomic data is gathered from various countries' economic reports, central bank annual and monthly reports, and from the Datastream database. The data sample size collected for this study for each variable used in the analysis was initially 635 data in ratio form but was reduced within the range of 468 to 557 data after adjusting for the statistical validity requirement and needs.

4.6 Statistical Analysis Procedures

The estimation of the Islamic bank financing cyclicality behaviour is by applying a panel data analysis. The reason for employing data from various Islamic banks across countries with time series data is to obtain a clear and comprehensive understanding of the Islamic bank cyclicality behaviour of the business cycle happening.

Following the standard panel data estimation, there are three alternative models of panel data analysis can be employed to estimate the Islamic bank financing behaviour that is the pooled least squares model, fixed effects model and random effects model. It is undeniable that each entity has its own individual characteristics that may or may not influence the predictor variables (for this study it is related to the different banks and countries).

The simple pooled least squares model assumes no firm or time-specific effects and if they are, then least squares estimators will be a compromise, not likely to be a good predictor of the cross-section units over a period. The redundant fixed effects tests are employed to test the null hypothesis of no fixed effects of the cross-sectional and time

series data. The results of redundant fixed effects tests will indicate whether the cross-section fixed effects and period fixed effects are significant or otherwise. If the redundant fixed effects test gives a significant result of 5 per cent levels, thus, the fixed model is the appropriate for this panel data set instead of the simple pooled least squares regression model.

The fixed effects model is able to explore the relationship between predictor and the outcome variables within the entity. Therefore, fixed effects models remove the effect of those time-invariant characteristics from the predictor variables so that we can assess the predictors' net effect.

The rationale for random effects models on the other hand, is that the variation across entities is assumed random and uncorrelated with the independent variables included in the model. Green (2008) stated that the crucial distinction between fixed and random effects is whether the unobserved individual effect embodies elements that are correlated with the regresses in the model. If it is believed that differences across entities have some influence on the dependent variable then the random effects should be used. An advantage of random effects is that it includes time invariant variables. In the fixed effects model these variables are absorbed by the intercept.

In order to avoid spurious finding, the analysis will go through a series of statistical testing procedure. The statistical analysis procedures undertaken in the analysis initially examined some important properties of the data. The testing includes data normality test and the stationary test. Firstly, the study tests of the skewness, kurtosis, mean, median and Jarque-Bera testing to verify whether the sample data are normally distributed. The results determined the degree of deviation of the variables value considered in the study from the standard deviation. If it exists, therefore, it is volatile. For a normal distributed

data, the skewness must equal to zero, the kurtosis value should be three and the mean should be the same as its median.

A traditional approach for testing data normality is to look at the skewness and kurtosis of the variable of interest (Mardia, 1970; Bowman and Shenton, 1975; Bera and Anil, 1980 and 1981). More precisely, when a random variable X is distributed as N (0, σ^2), we have:

$$E[X^3] = 0 \text{ and } E[X^4 - 3\sigma^4] = 0,$$

with the first condition deals with skewness, while the second condition deals with kurtosis.

The value of Jarque-Bera testing should not be significant or must have high probability value. In other word, a small probability value leads to the rejection of the null hypothesis of a normal distribution. Sample data, which are normally distributed, should be an efficient estimator, unbiased and consistent.

In view of the fact that the variables integrated into the analysis are a pool of time series and cross sectional data, certain relevant testing procedures on the data constructed are required to respect the grouping of the data properties. A time series data under classical linear regression models requires the data series under investigation to be stationary. The use of ordinary least squares (OLS) relies on the stochastic process being stationary. Often, use of ordinary least squares is to estimate the slope coefficients of the autoregressive model. If the mention assumption meets, then the ordinary least squares estimation is the appropriate estimator to be used.

Violation of the assumption of data is normally distributed and when the stochastic process is non-stationary, then the use of OLS produces an invalid estimation. If the

stationary assumption is violated it leads to the problem of spurious regression (Granger and Newbold, 1974). The finding produce a high R^2 value and high t-ratios yielding results with no economic meaning.

To ensure the data are stationary in the study, the unit root test is conducted on the sample data. To make sure the appropriateness of the study, unit-root properties of the variables considered in the study should be met and to see whether adding lagged values of X can improve the explanation on Y. A spurious regression occurred if the variables in the analysis are non-stationary or the stationary level is different. Hence, testing for unit roots is the first step in the data analysis. This ensures that the t-statistic is applicable. Non-stationary data will give an invalid t-statistic result and spurious regression on the model among the variables. Granger and Newbold (1974) stated that trended and non-stationary data usually produce spurious or misleading results.

Data are stationary if the mean and variance of the time series data are constant against time. If the mean and variance are increasing or dependence on time, it is non-stationary. Assuming Y_t is stochastic time series data, the mean, variance and covariant are as follows:

Mean	:	$E(Y_t) = \mu$
Variance	:	$Var(Y_t) = E(Y_t - \mu)^2 = \sigma^2$
Covariant	:	$\gamma^k = E[(Y_t - \mu)(Y_{t+k} - \mu)]$

Where γ^k is the covariant between Y_t and Y_{t+k} at lag k. If Y_t is stationary, the mean, variance and covariance are equal at all level of lag k. Non-stationary Y_t if the value of mean, variance and covariance change if time changes. If non-stationary data used in an analysis, the analysis will produce spurious correlations between variables, hence producing a spurious regression result. If the first difference produce a stationary data then the variable is integrated of order one and it is labelled as I(1). Differentiation

process continues until the data become stationary. Stationary data after a few times differentiation are symbolised as I(*d*), that is differentiated at *d* times. The hypothesised analysis is:

H_0:	$\rho = 1$	(stationary)
H_1:	$\rho \neq 1$	(non-stationary)

The null hypothesis (H_0) statistical test is the calculated t-statistic value. The critical value is the Schwarz critical value. If the Schwarz critical value is greater than the calculated t-statistic, then the H_1 hypothesis of the time series data is non-stationary. If the Schwarz critical value is smaller than the calculated t-statistic, the null hypothesis of the time series data is stationary.

Various methods are applicable to test for data stationary. Levin, Lin and Chu (1993 and 2002) testing are used in the test. Levin, Lin and Chu (LLC) test has large potential power gains and the test is widely used in empirical researches. Levin, Lin and Chu test the null hypothesis that each individual time series contains a unit root, against the alternatives, all-individual series are stationary. It is often argued that the commonly used unit root tests the augmented Dickey-Fuller test and Phillips-Perron test is not very powerful and therefore is not used in the analysis. Im, Pesaran and Shin unit root test on the other hand is best applicable for small sample size.

If the model displays autocorrelation problem, the estimation will proceed with panel generalizes least square model (panel GLS). According to Yaffee (2003), a model has to be estimated by methods that handle the problem afflicting them. If a model exhibits autocorrelation and/or moving average errors, panel generalizes least square corrected for errors may be used (Sayrs, 1989).

Summing up the statistical analysis procedure the stages of statistical inference procedure is summarised through the flow chart diagram given in Figure 5.5 below. The statistical analysis estimations for this study are conducted by using the Eviews statistical software version six.

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┌─────────────────────────────────────────────────┐
│      Data Stationarity – Panel Unit Root Test    │
│              Levin, Lin & Chu t-test             │
└─────────────────────────────────────────────────┘
                         │
                         ▼
┌─────────────────────────────────────────────────┐
│   Pooled Least Square Model vs Fixed Effects Model│
│            Redundant Fixed Effects Test          │
└─────────────────────────────────────────────────┘
        │                                   │
        ▼                                   ▼
┌──────────────────┐              ┌──────────────────┐
│   Significant    │              │   Insignificant  │
└──────────────────┘              └──────────────────┘
        │                                   │
        ▼                                   ▼
┌────────────────────────────────┐  ┌──────────────────────────┐
│ Fixed Effects Model vs Random  │  │ Pooled Least Square Model│
│ Effects Model                  │  │                          │
│ Hausman Test Statistic         │  └──────────────────────────┘
└────────────────────────────────┘
        │                    │
        ▼                    ▼
┌──────────────┐      ┌──────────────┐
│ Significant  │      │ Insignificant│
└──────────────┘      └──────────────┘
        │                    │
        ▼                    ▼
┌──────────────────┐  ┌──────────────────────┐
│ Fixed Effects    │  │ Random Effects Model │
│ Model            │  │                      │
└──────────────────┘  └──────────────────────┘
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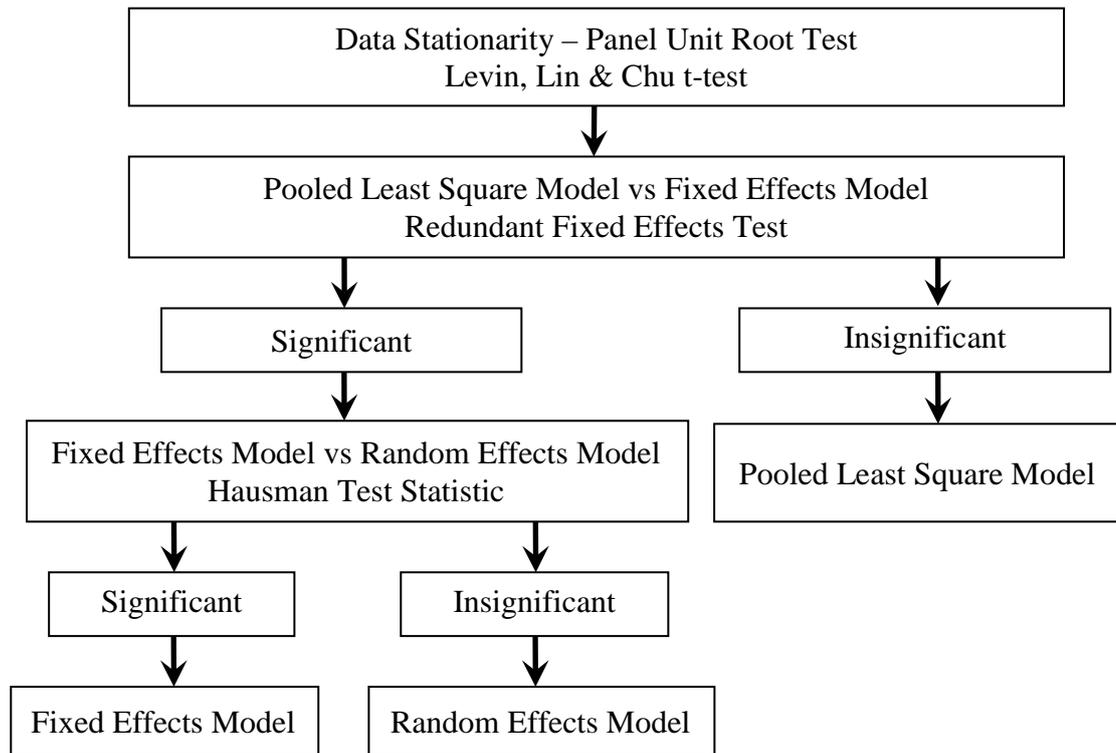
Figure 4.9: Statistical Inference Procedure

CHAPTER 5

RESEARCH FINDINGS AND ANALYSIS

5.0 Overview

This chapter provides the empirical evidence of Islamic bank financing cyclicality behaviour of the business cycle incident. The analyses are largely based on the theoretical framework, conceptual framework, research design considerations presented in chapter 4 and 5, and some of the practical Islamic bank financing experiences described in chapter 3. The empirical results obtained from the study should enable practitioners and policy maker to assess the Islamic bank financing behaviour more accurately and represent an additional source of information in the Islamic monetary policy making process.

In estimating the Islamic bank financing cyclicality behaviour, the study uses an unbalanced panel data analysis set for 67 Islamic banks from 16 countries namely Malaysia, United Arab Emirates, Saudi Arabia, Bahrain, Qatar, Egypt, Jordan, Yemen, Sudan, Kuwait, Turk, South Africa, Pakistan, Bangladesh, Indonesia, and Iran. The sample size collected for this study for each variable used in the analysis was initially 635 data but was reduced after adjusting to the statistical conditions and the validity requirement.

5.1 Descriptive Statistics

Table 5.1 to 5.3 presents the descriptive statistics, data stationary test or the unit root test and the correlation matrix procedure to test for multicollinearity for all the variables used in the estimation for Islamic bank cyclicality behaviour to the business cycle occurrence.

Table 5.1 reports the respective mean, median, standard deviation, skewness, kurtosis, and the Jarque-Bera value. For all variables, the values of the mean and median are not the same; skewness are not equal to zero and the data distributions are not symmetrical around the mean whilst the kurtosis values are not equal to three. The value of Jarque-Bera is significant and this leads to the rejection of the null hypothesis of a normal distribution.

Table 5.1: Descriptive Statistic

	Total Financing Growth	Fixed Rate Financing Growth	Contingency Reserve Growth	Loan Loss Provisions Growth	Deposits Growth	Capital Based Growth	Regulatory Reserve Growth
Mean	2.458	1.866	3.434	0.988	1.031	0.984	0.339
Median	0.993	0.930	0.956	0.653	0.978	0.696	0.077
Maximum	493.842	375.355	607.129	425.036	128.051	161.583	97.057
Minimum	-49.509	-75.644	-437.023	-802.957	-100.481	-536.56	-69.820
Std. Dev.	24.699	18.295	46.473	57.508	8.731	24.494	5.742
Skewness	16.610	15.823	3.124	-6.098	1.687	-15.91	4.778
Kurtosis	304.274	322.362	88.854	92.649	124.203	371.706	172.027
Jarque-Bera	2430720	2343096	196058	210783	390205	3623656	765504
Probability	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sum	1560.799	1018.994	2180.902	611.200	657.323	625.262	217.874
Sum Sq. Dev.	386755.1	182406.4	1369311	2040588	48492.8	380400.0	21104.4
Observations	635	546	635	618	635	635	641

Table 5.1: Descriptive Statistic (continued)

	Net Profit Growth	Non-Performing Financing Growth	Provision for Bad and Doubtful Financings Growth	Gross Domestic Product Growth	Money Supply M2 Growth	Consumer Price Index Growth
Mean	2.825	1.777	2.746	6.603	17.328	6.103
Median	0.9542	0.667	0.699	5.361	15.058	3.609
Maximum	508.319	99.168	534.054	90.089	109.198	69.634
Minimum	-615.040	-71.408	-650.337	-7.255	-2.721	-11.170
Std. Dev.	43.407	11.402	40.290	10.5145	12.325	8.321
Skewness	-0.841	2.434	-1.647	6.116	2.727	4.410
Kurtosis	110.678	30.326	174.028	46.630	17.103	32.307
Jarque-Bera	305398	19003.87	749832.1	54412.31	6059.378	24822.80
Probability	0.000	0.000	0.000	0.000	0.000	0.000
Sum	1785.523	1052.158	1688.957	4199.705	11020.68	3882.076
Sum Sq. Dev.	1188918.	76840.53	996733.3	70203.22	96461.32	43968.39
Observations	632	592	615	636	636	636

Data Stationary Test: Unit Root Test

The next level of tests of the sample data is the unit root test, which is to ensure the stationary of the sample data used in the analysis. The panel unit root testing is conducted by applying the Levin, Lin, and Chu (1993) method. Levin, Lin and Chu unit root test is preferable because of its large potential power gains (Cosar, 2002). Besides that, Levin, Lin, and Chu test is also widely used in empirical researches. Levin, Lin and Chu test assume the common unit root process and use the t-test. As additional and comparison purposes, the study provide the Im, Pesaran and Shin panel data unit root test.

Table 5.2 summarises the unit root test of each variable employed in the regression (complete unit root test results are provided in appendix 2). The hypothesis testing for the non-stationary of the sample data shows that the null hypothesis of non-stationary can be rejected at 1 percent level of significant. The test shows that all of the variables are stationary at level. Hence, our series are well characterized as an I(0) process and the analysis will be regressed at level.

Table 5.2: Unit Root Test

| Variables | Levin, Lin & Chu | | Im, Pesaran & Shin | |
| | Level | | Level | |
	statistic	p-value	statistic	p-value
Total Financing growth	-1259.97	0.000	-82.037	0.000
Fixed Rate Financing growth	-782.569	0.000	-64.637	0.000
Contingency Reserve growth	-351.894	0.000	-35.888	0.000
Loan Loss Provisions growth	-41.961	0.000	-9.834	0.000
Deposit growth	-26.023	0.000	-6.973	0.000
Capital Based growth	-111.229	0.000	-17.4589	0.000
Provision for Bad and Doubtful Financings growth	-245.537	0.000	-30.325	0.000
Regulatory Reserve growth	-25.153	0.000	-10.186	0.000
Non-performing financing	-71.571	0.000	-6.459	0.000
Net Profit growth	-22.046	0.000	-6.333	0.000
GDP growth	-19.107	0.000	-5.438	0.000
M2 growth	-7.335	0.000	-8.764	0.000
CPI growth	-15.814	0.000	-8.680	0.000

Correlation Matrix

Table 5.3 exhibits the correlation matrix for the variables used in the model. The correlation coefficients between all the independent variables used in the estimation processes, which are low and hence suggesting the absence of multicollinearity problems.

Table 5.3(a): Correlation Matrix Of Total Financing and The Business Cycle Indicators

	TF	GDP	CPI	M2	RES	LLP	DP	CB	RR	NPL	PR
GDP	0.04										
CPI	-0.03	-0.11									
M2	-0.03	0.04	0.60								
RES	0.52	0.03	-0.01	-0.01							
LLP	0.13	0.05	0.06	0.06	-0.13						
DP	0.05	-0.07	-0.01	0.00	-0.09	-0.22					
CB	0.33	0.04	0.01	0.02	0.54	-0.12	0.11				
RR	0.26	-0.03	-0.01	-0.01	-0.14	0.04	0.68	0.40			
NPL	0.14	0.03	0.02	0.01	0.21	0.15	0.11	0.21	0.09		
PR	0.48	0.07	0.00	0.00	0.65	-0.24	-0.21	0.63	-0.04	0.09	
PR(-1)	-0.01	-0.02	-0.01	0.02	-0.04	-0.06	0.04	0.00	0.05	-0.01	-0.03

Table 5.3(b): Correlation Matrix Of Fixed Rate Financing and The Business Cycle Indicators

	FR	GDP	CPI	M2	RES	LLP	DP	CB	RR	NPL	PR
GDP	0.01										
CPI	-0.04	-0.12									
M2	-0.03	0.02	0.61								
RES	0.51	0.03	-0.02	-0.02							
LLP	0.13	0.03	0.07	0.06	-0.14						
DP	-0.01	-0.07	-0.02	0.00	-0.09	-0.22					
CB	0.31	0.04	0.00	0.01	0.56	-0.13	0.11				
RR	0.25	-0.03	-0.01	-0.01	-0.14	0.04	0.68	0.41			
NPL	0.15	-0.01	0.01	-0.03	0.23	0.11	0.13	0.24	0.10		
PR	0.51	0.07	-0.02	-0.01	0.68	-0.26	-0.22	0.69	-0.04	0.11	
PR(-1)	-0.01	-0.02	-0.03	0.01	-0.04	-0.07	0.05	0.00	0.05	-0.02	-0.03

Table 5.3(c): Correlation Matrix Of Provision For Bad and Doubtful Financing and The Business Cycle Indicators

	PBD	GDP	CPI	M2	TF	NPL	PR	CB
GDP	0.00							
CPI	0.05	-0.09						
M2	0.04	0.01	0.66					
TF	0.55	0.02	-0.01	-0.02				
NPL	0.30	0.00	0.03	0.01	0.08			
PR	0.31	0.08	-0.01	-0.01	0.28	0.09		
CB	0.39	0.00	0.01	0.01	0.34	0.21	0.61	
RR	0.12	-0.03	-0.01	-0.01	0.16	0.09	-0.04	0.40

Table 5.3(d): Correlation Matrix Of Contingency Reserve and The Business Cycle Indicators

	RES	GDP	CPI	M2	PR	NPL	CB
GDP	0.00						
CPI	-0.01	-0.09					
M2	-0.01	0.01	0.66				
PR	0.64	0.08	-0.01	-0.01			
NPL	0.20	0.01	0.02	0.01	0.09		
CB	0.56	0.00	0.01	0.01	0.61	0.20	
RR	-0.13	-0.03	-0.01	-0.01	-0.04	0.09	0.40

5.2 Islamic Bank Financing Cyclical Behaviour Estimation

This section provides the empirical results and analyses from the estimated econometric models discussed in the research methodology part. The estimation model follows the standard panel data method. For interpretation purposes, the study performs several diagnostic tests to identify the preferred specification model. The study assigned the Redundant Fixed Effects test to determine the model that fits better in explaining the Islamic bank financing cyclicality behaviour. A high value of F-statistic and χ^2 test statistic with significant ρ value at 5 per cent level ($\rho < .05$) would suggests the fixed effects model as the preferred specification model, or otherwise, the pooled least squares model would be the better model. Interpretations of the results are with the

emphasis on the preferred specification model and then compared with the results from the other specifications model.

5.2.1 Islamic Bank Total Financing Cyclicality Analysis

Table 5.4 and 5.5 provides the econometric test results on the cyclicality behaviour of Islamic bank total financing. Table 5.4 provides results on the cyclicality behaviour of overall Islamic bank total financing across regions. To verify that the result is reliable and not driven by a part of the sample, the study proceeds with a subsample data analysis based on Islamic banks operating in two main regions namely the Middle East countries and Southeast Asia countries. Table 5.5 provides results on the cyclicality behaviour of Islamic bank total financing based on the two main regions that provides the Islamic banking services.

From Table 5.4, the pooled least square model column reports that do not control for bank-specific effects and thus assume all parameters are constant across cross-sectional units. The column presents the Fixed Effects model accounts for bank-specific effects, which allows the constant term to differ across banks systematically and include fixed time effects.

As seen from Table 5.4, the regression results from the pooled least square and fixed effects model appeared to be considerably consistent. In order to test the null hypothesis that the fixed effects and the time effects are absent, we use a restricted F-test and Chi-square test. The Redundant Fixed Effects Tests on the cross-section and period fixed effects given in Table 5.4, part 2, shows the three sets of tests. The first set consists of two tests that evaluate the joint significance of the cross-section effects using the F-test (sums-of-squares) and Chi-square test (likelihood function). The corresponding restricted specification is one in which there is cross-section and period effects.

The hypothesis testing pooled model against cross-sectional heterogeneity have F-statistic F(66, 430) = 1.01 (ρ-value = 0.46), so the null hypothesis of no cross-sectional heterogeneity cannot be rejected. The hypothesis testing pooled against temporal heterogeneity has F-statistics F(10,430) = 0.43 (ρ-value: 0.93), so the null hypothesis of no time-dimension heterogeneity is also not rejected at the 5 per cent significance level (Table 5.4, Redundant Fixed Effects Test – Test cross-section and period fixed effects section). The statistic values and the associated ρ-values cannot reject the null hypothesis that the cross section effects are redundant. The remaining results evaluate the joint significance of all the effects, respectively. The Redundant Fixed Effects Tests results suggest that the corresponding effects are statistically not significant. Accordingly, the pooled least square is a better estimator. These test results conclude that the simple pooled model is preferred to the fixed effect model.

A residual test of AR(1) serial autocorrelation on the pooled model is then followed. A formal Wald hypothesis test is used to test for AR(1) serial autocorrelation on the model. The estimated coefficient for the AR(1) residual is -0.05 (ρ-value = 0.14 > .05), and failed to reject the null hypothesis (Table 5.4, part 3). Under the null hypothesis, the original idiosyncratic errors are uncorrelated, the residuals from this equation should have an autocorrelation coefficient of -0.5 (EViews 6 User's Guide, 2007). The hypothesis test accepts the null hypothesis that the original idiosyncratic errors are serially uncorrelated.

Looking at the relationship between business cycle occurrences and the Islamic bank financing operations, the conditions that need to be met in order for the Islamic bank financing operation to behave counter-cyclical to the business cycle are as follows:

1. Islamic bank financing growth is negatively related to the real gross domestic product growth.

2. Islamic bank financing growth is positively related to the bank contingency reserve growth.

3. Islamic bank financing growth is positively related to the bank loan loss provision growth.

Based on the results, the association for contingency reserve and loan loss provision to the Islamic bank financing activities is consistent with the hypothesis of counter-cyclical financing behaviour. The result demonstrates that the contingency reserve and loan loss provision are positively related to the Islamic bank financing activities. The results for both variables are significant at 1 per cent level. This suggests that Islamic bank contingency reserve and loan loss provision do manage their financing well and according to the counter-cyclical predictions.

The finding shows that the growth in contingency reserve and loan loss provision is faster than the growth in the financing activities. Based on the β coefficient, one per cent growth of contingency reserve is related to 0.12 per cent growth of financing activities and one per cent growth in loan loss provision is related to 0.09 per cent growth in financing activities. This shows that the Islamic bank is more cautious as the economy grows. Contrary, as the economy contracts the growth of contingency reserve and loan loss provision will fall faster as compared to the financing growth. Thus, a larger decrease in the growth of contingency reserve and loan loss provision compared to the financing growth will increase the amount of excess fund for financing activities.

With the faster growth in contingency reserve and loan loss provision during economic expansion, the bank's earning assets will reduce and this will result in the reduction of the excess fund for financing supply. On the contrary, during an economic slowdown, a decrease of contingency reserve and loan loss provision growth will increase the growth

of earning assets of Islamic bank and this will lead to the increase in the excess fund for financing by the Islamic bank. The excess funds need to be delivered into financings to avoid the depletion of their amount due to *zakat*. The institutional internal variable result provides an indication that the Islamic bank total financing has the tendency to behave counter-cyclically to the business cycle. The contingency reserve and loan loss provision are able to play their role as the financing buffers to the bank financing activities.

The insignificance of macroeconomic indicators growth namely the real gross domestic product (GDP), money supply M2 and consumer price index (CPI) in influencing the Islamic bank financing growth indicates that the Islamic bank financing decision is not tied to the expansion and contraction in the macroeconomic condition. This finding shows that the Islamic financing behaviour is free from any speculative financing activities when there is fluctuation in the economic environment. The Islamic bank financing activities are not directly influenced by changes in the macroeconomic condition. The financing operations are more determined by other factors, particularly, the institutional factors such as the sources of funds, regulatory and prudential measures that has a significant relationship.

Looking at the relationship between profit variables and financing operations, the finding shows that the Islamic bank financing operations are influenced only by current year's profit and not by the previous year's profit. An increase in the growth of current year's net profit by 1 per cent is followed by the growth of financing by approximately by 0.16 per cent and the finding is significant at 1 per cent level. Given the previous year profit growth that are not significantly related to the current year financing growth, hence, the finding provides evidence that the pro-cyclicality behaviour related to profit enthusiasm does not exists on the Islamic bank operations.

Looking at the deposits as the main sources of funds for the Islamic bank financing operations, as expected, the estimated coefficient is in line with the theory. The statistical result shows a positive relationship and it is significant at 1 per cent level.

The insignificance relationship between the Islamic bank financing growth and the nonperforming financing growth indicates that the loan default condition is not a significant factor in determining the Islamic bank financing decision. The finding shows that the Islamic financing behaviour is not easy to overreact and over pessimistic to any changes in the credit market condition and macroeconomic environment.

Related to the regulatory variables as expected both the capital requirement and regulatory reserve have a negative relationship with the Islamic banks financing volume and it is significant at 1 per cent significant level. The negative association for capital and regulatory reserve to the Islamic bank financing activities is consistent with the monetary theory idea of imposing both instruments to enhance banks' safety and manage the bank's credit creation operation.

The capital requirement and regulatory reserve are the key regulatory instruments aimed at providing buffers during adverse economic conditions and as a mechanism aimed at preventing excessive risk taking. The negative sign implies that both of the items are constrained on financing operations. The negative association between the capital requirements and the Islamic bank financing activities is consistent with the BASEL II idea of imposing the instruments to enhance banks' safety and manage the bank's credit creation operation.

Table 5.4: Islamic Bank Total Financing Cyclicality Behaviour

Part	Model / Variable	Pooled Model Coefficient	Pooled Model t-statistic	Fixed Effect Model Coefficient	Fixed Effect Model t-statistic
1.	Constant	1.028	0.890	0.974	0.760
	Gross Domestic Product growth	-0.012	-0.119	-0.022	-0.189
	Consumer Price Index growth	-0.051	-0.847	-0.048	-0.732
	Money supply M2 growth	-0.032	-0.365	-0.039	-0.425
	Contingency Reserve growth	0.116*	7.797	0.116*	7.685
	Loan Loss Provision growth	0.09*	9.097	0.09*	8.791
	Deposit growth	0.573*	7.057	0.571*	6.951
	Capital Requirement growth	-0.091*	-3.136	-0.091*	-3.064
	Regulatory Reserve growth	-1.652*	-11.585	-1.650*	-11.386
	Nonperforming Financing growth	-0.042	-0.839	-0.040	-0.793
	Net profit growth	0.161*	8.672	0.161*	8.514
	Previous Year Net profit growth	0.010	0.878	0.011	0.920
	R^2		0.541		0.546
	Adjusted R^2		0.532		0.527
	S.E. of regression		11.034		11.086
	F-statistic		54.327*		28.437*
	Durbin-Watson statistic		1.680		1.693
	*Significant at 1%; **Significant at 5% Panel (unbalanced) observations: 518				
	Periods included: 11 Cross-sections included: 67				
2.	Redundant Fixed Effects Tests (H_0: There is no fixed effects)				
	Test cross-section and period fixed effects		Statistic	df	p-value
	Cross-section F		1.012	(66,430)	0.457
	Cross-section Chi-square		74.770	66	0.215
	Period F		0.432	(10,430)	0.931
	Period Chi-square		5.183	10	0.879
	Cross-Section/Period F		0.947	(76,430)	0.604
	Cross-Section/Period Chi-square		80.197	76	0.349
3.	Residual Test Statistic (H_0: Original idiosyncratic errors are serially uncorrelated)				
	Total Financing Residual (-1)	Coefficient	Std. Error	t-stat	p-value
		-0.049	0.034	-1.463	0.144
	Wald Test: Residual Test Statistic		Value	df	p-value
	F-statistic		178.007	(1, 430)	0.000
	Chi-square		178.007	1	0.000

The above finding shows the Islamic bank financing behaviour only fulfils two out of three conditions that are needed to make the financing operations behave counter-cyclical. Although the real gross domestic product growth is negatively related to the financing growth, however, statistically it is not significant. This insignificant relationship of the real gross domestic product growths to the financing growth needs some considerations of the Islamic bank practitioners. This result shows that although

the growth of contingency reserve and loan loss provision is significant in influencing the financing growth but it is still not effective enough to make the whole operations behave counter-cyclically. Therefore, in order for Islamic banks to behave with better counter-cyclical behaviour, this study suggests the provision for bad and doubtful financing and contingency reserve need to be increased more during economic upswings and vice versa.

For robustness of the analysis, the study proceeds with a subsample data analysis based on Islamic banks operating in the Middle East region and Southeast Asia region. Table 5.5 presents the empirical result. The findings for both panels of Islamic banks operating in the Middle East countries and Southeast Asia countries are consistent with the overall finding except for the current year profit in Middle East countries, which is not significant. The result gives evidence on the Islamic bank financing pro-cyclicality behaviour related to profit enthusiasm does not exist in the Middle East countries.

As given in Table 5.5, the regression results from the pooled least square and fixed effects model appeared to be considerably consistent for both regions. The Redundant Fixed Effects Tests results suggest that the corresponding effects are statistically not significant. Accordingly, the pooled least square is a better estimator for both regions. Following the residual test of AR(1) serial autocorrelation on the pooled model the hypothesis test accepts the null hypothesis that the original idiosyncratic errors are serially uncorrelated.

The Redundant Fixed Effects Tests on the cross-section and period fixed effects given in Table 5.5, part 2, shows the three sets of tests. For banks of Middle East region, the hypothesis testing pooled model against cross-sectional heterogeneity have F-statistic $F(38, 227) = 1.05$ (ρ-value = 0.4). For Southeast Asia region, the hypothesis testing

pooled model against cross-sectional heterogeneity have F-statistic F(16, 108) = 0.95 (ρ-value = 0.52), hence, the null hypothesis of no cross-sectional heterogeneity cannot be rejected for both regions.

The hypothesis testing pooled against temporal heterogeneity has F-statistics F(10,227) = 1.71 (ρ-value = 0.1) for the Middle East region and F(10,108) = 0.95 (ρ-value = 0.49) for the Southeast Asia region. Therefore, the null hypothesis of no time-dimension heterogeneity is also not rejected at the 5 per cent significance level (Table 5.5, Redundant Fixed Effects Test – Test cross-section and period fixed effects section). The statistic values and the associated ρ-values accepted the null hypothesis that the cross section effects are redundant. The remaining results evaluate the joint significance of all the effects, respectively. The Redundant Fixed Effects Tests results suggest that the corresponding effects are statistically not significant. These test results conclude that the simple pooled model is preferred to the fixed effect model.

A residual test of AR(1) serial autocorrelation on the pooled model is then followed. The Wald hypothesis test is used to test for AR(1) serial autocorrelation of the model. The estimated coefficient for the AR(1) residual is -0.03 (ρ = 0.35 > .05) for the Islamic banks of the Middle East and for Southeast Asia Islamic banks the AR(1) residual is -0.06 (ρ-value = 0.42 > .05), thus, the null hypothesis cannot be rejected (Table 5.5, part 3). The hypothesis test accepts the null hypothesis that the original idiosyncratic errors are serially uncorrelated.

Looking at the cyclicality behaviour of Islamic bank operating in the Middle East region and Southeast Asia region, the Islamic bank financing operation in both regions failed to meet one of the needed conditions for a counter-cyclical behaviour. The relationship

between the total financing growth and macroeconomic indicators growth is not significant in both regions.

The association for contingency reserve and loan loss provision to the Islamic bank financing activities for both regions are positively correlated to the Islamic bank financing activities and consistent with the counter-cyclical financing behaviour hypothesis. The results of both variables are significant at 1 per cent level. This suggests Islamic bank of both regions do manage their financing, contingency reserve and loan loss provision well and according to the theoretical predictions.

The size of the coefficient for contingency reserve and loan loss provision of the Islamic banks operating in the Middle East are 0.84 and 0.2 respectively, while 0.18 and 0.08 for the Southeast Asia Islamic banks. It shows one per cent growth in contingency reserve and loan loss provision is related to the growth in financing activities by 0.84 per cent and 0.2 per cent in the Middle East region. In the Southeast Asia, it is 0.18 per cent and 0.08 per cent. Hence, the relationship between Islamic banks contingency reserve growth and loan loss provision growth to total financing growth in Middle East countries is better compared to Southeast Asia Islamic banks when there is a change in the economic condition. This shows that the Islamic bank of Middle Eastern countries is more cautious to the business cycle happening compared to the Southeast Asia Islamic banks. The institutional internal variable result provides an indication that Islamic bank total financing in both regions has the tendency to behave counter-cyclically to the business cycle.

Regarding with the relationship between the total financing growth and macroeconomic indicators growth, the result shows that there is a negative relationship between the dependent and independent variables of the Islamic bank in both regions. The

insignificant relationship shows that the financing decision is not tied to the expansion and contraction in the macroeconomic condition. The finding shows that the Islamic financing behaviour is not easily overreacting and over pessimistic to the business cycle occurrences. Thus, the Islamic financing behaviour in both regions is free from any speculative financing activities when there is fluctuation in the economic environment.

Looking at the deposits as the main sources of funds, as expected, the estimated coefficient has a positive sign. The statistical result is significant at 1 per cent level for Islamic banks operating in both regions. The estimated coefficient is in line with the theory.

Regarding to the regulatory variables, consistent with the overall result, the items have a negative relationship with the Islamic banks financing volume in both of the regions. However, only the capital requirement is significant at 1 per cent level in both regions. The financing activities in Southeast Asia Islamic banks are significantly influenced by the regulatory reserve, whereas in the Middle East it is found to be not significant.

Next, the insignificant relationship between the Islamic bank financing growth and the nonperforming financing growth of both regions indicates that the loan default condition is not a significant factor in determining the Islamic bank financing decision. In the event of economic swings, the Islamic banks will not overreact to the swings. The Islamic bank contingency reserve and provision for bad and doubtful financing will react as instructed by the Quran (12:46-49). The Islamic bank financing activities will emphasise on productivity as compared to creditworthiness. With that special characteristic underpinning the Islamic bank operations, hence, the nonperforming financing growth will not become a significant factor in influencing the financing behaviour.

Table 5.5: Islamic Bank Total Financing Cyclicality Behaviour Based on Region

Part	Model / Variable	Middle East Region		Southeast Asia Region	
		Pooled Model	Fixed Effect Model	Pooled Model	Fixed Effect Model
		Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
1.	Constant	-1.485 (-2.498)	-1.240 (-1.763)	5.375 (1.619)	7.452 (1.484)
	Gross Domestic Product growth	-0.016 (-1.77)	-0.190 (-2.039)	-0.084 (-0.508)	-0.013 (-0.047)
	Consumer Price Index growth	-0.018 (-0.374)	-0.010 (-0.199)	-0.092 (-0.171)	-0.431 (-0.672)
	Money supply M2 growth	-0.003 (-0.120)	-0.010 (-0.352)	-0.293 (-1.380)	-0.385 (-1.036)
	Contingency Reserve growth	0.841* (13.1)	0.419* (13.427)	0.185* (6.126)	0.188* (5.950)
	Loan Loss Provision growth	0.203* (6.659)	0.074* (3.872)	0.076** (2.406)	0.078** (2.347)
	Deposit growth	0.852* (12.691)	0.844* (12.408)	0.855* (6.258)	0.864* (6.106)
	Capital Requirement growth	-0.199* (-6.594)	-0.203* (-6.594)	-0.406* (-6.761)	-0.408* (-6.512)
	Regulatory Reserve growth	-0.131 (-0.687)	-0.242 (-1.255)	-2.705* (-12.640)	-2.753* (-12.467)
	Nonperforming Financing growth	-0.001 (-0.041)	-0.001 (-0.076)	-0.024 (-0.108)	-0.011 (-0.049)
	Net profit growth	0.004 (0.432)	0.004 (0.482)	0.344* (7.856)	0.342* (7.504)
	Previous Year Net profit growth	0.005 (0.614)	0.007 (0.843)	0.014 (0.723)	0.01 (0.508)
	R^2	0.592	0.615	0.700	0.717
	Adjusted R^2	0.577	0.586	0.678	0.671
	SEE	4.116	4.072	16.348	16.524
	F-statistic	39.971*	21.229*	31.566*	15.807*
	Durbin-Watson statistic	1.733	1.787	1.916	1.874
	*Significant at 1%; **Significant at 5%	Panel (unbalanced) observations: 287		Panel (unbalanced) observations: 146	
	Periods included: 11	Cross-sections included: 39		Cross-sections included: 17	
	Figures in parentheses are the t statistics for the coefficient				

Table 5.5: Islamic Bank Total Financing Cyclicality Behaviour Based on Region (Continued)

Part	Region / Variable		Middle East Region			Southeast Asia Region		
2.	Redundant Fixed Effects Tests (H_0: There is no fixed effects)							
	Test cross-section and period fixed effects		Statistic	df	p-value	Statistic	df	p-value
	Cross-section F		1.053	(38,227)	0.395	0.945	(16,108)	0.521
	Cross-section Chi-square		46.576	38	0.160	19.131	16	0.262
	Period F		1.712	(10,227)	0.099	0.953	(10,108)	0.489
	Period Chi-square		20.205	10	0.669	12.347	10	0.263
	Cross-Section/Period F		1.194	(48,227)	0.197	0.992	(26,108)	0.486
	Cross-Section/Period Chi-square		64.429	48	0.780	31.256	26	0.219
	Residual Test Statistic (H_0: Original idiosyncratic errors are serially uncorrelated)							
3.	Total Financing	Coefficient	Std. Error	t-statistic	p-value	Coefficient	Std. Error	t-statistic	p-value
	Residual (-1)	-0.027	0.029	-0.929	0.353	-0.061	0.075	-0.811	0.419
	Wald Test: Residual Test Statistic		Value	df	p-value		Value	df	p-value
	F-statistic		39.487	(1, 227)	0.000		34.565	(1, 108)	0.000
	Chi-square		39.487	1	0.000		34.565	1	0.000

5.2.2 Fixed Rate Financing Cyclicality Behaviour Analysis

The following analysis evaluates the fixed rate financing growth behaviour to the business cycle occurrence. The evaluation is important because of the extensive use of this instrument by the Islamic banks of their financing operations and critiques brought up by the scholars on the instrument.

From Table 5.6, given in part 2, the Redundant Fixed Effects Tests on the cross-section and period fixed effects show the three sets of tests. The calculated F-statistic with 57 and 392 degrees of freedom is 0.95 with ρ-value = 0.58, thus, give us the no cross-sectional heterogeneity. The hypothesis testing pooled against temporal heterogeneity have F-statistics $F(10,392) = 0.8$, and ρ-value = 0.63, so the null hypothesis of no time-dimension heterogeneity is not rejected at the 5 per cent significance level. The statistic values and the associated ρ-values accepted the null hypothesis that the cross section effects are redundant. The remaining results evaluate the joint significance of all the effects, respectively. The Redundant Fixed Effects Tests results suggest that the corresponding effects are statistically not significant. The F-statistics test shows that the panel is sufficiently homogeneous across banks to use the pooled least square estimator. Accordingly, the pooled model is preferred as a better estimator.

The estimated coefficient for the AR(1) residual is -0.02 with ρ-value is $0.59 > .05$ (Table 5.6, part 3). Thus, the hypothesis test accepts the null hypothesis that the original idiosyncratic errors are serially uncorrelated.

The fixed rate financing operations are behaving counter-cyclically to the business cycle if the following conditions are met:

1. Islamic bank fixed rate financing growth is negatively related to the real gross domestic product growth.

2. Islamic bank fixed rate financing growth is positively related to the bank contingency reserve growth.

3. Islamic bank fixed rate financing growth is positively related to the bank loan loss provision growth.

The contingency reserve growth and loan loss provision growth are positively related to the fixed rate financing growth with the β the coefficient size of 0.1 and 0.11 respectively and significant at 1 per cent level. Therefore, the growth of contingency reserve and loan loss provision are faster compared to the fixed rate financing growth. The result shows that a 1 per cent growth in contingency reserve is used to manage the fixed rate financing growth of 0.1 per cent. On the other hand, 0.11 per cent growth of the fixed rate financing is protected with a 1 per cent growth in loan loss provision. This indicates during the business cycle expansion, growth of contingency reserve and loan loss provision is faster than the growth in fixed rate financing.

Contrary to that, during contraction of business cycle, both of the buffer instruments growth rates decrease faster than the decrease in fixed rate financing growth in order to increase the excess fund for fixed rate financing. The finding shows the contingency reserve and loan loss provision have managed to play that role to pressure down Islamic bank fixed rate financing cyclicality behaviour and perform as the financing buffers. Thus, the fixed rate financing will behave counter-cyclically to the business cycle with the positive relationship to the growth of contingency reserve and loan loss provision.

The result also shows that the growth of fixed rate financing is negatively related to the real gross domestic product growth, which is supposed to happen for a counter-cyclical financing behaviour. However, the movement of real gross domestic product growth to the Islamic bank fixed rate financing is not significantly related. The finding also shows

the money supply M2 growth and consumer price index (CPI) growth are not significant factors that influence Islamic bank financing.

The insignificance of real gross domestic product growth, money supply M2 growth, and consumer price index growth in determining the Islamic bank fixed rate financing behaviour indicate that the Islamic bank fixed rate financing decision is not influenced by the expansion and contraction of the business cycle variables. This result shows the Islamic bank fixed rate financing activities are not affected by changes in the real gross domestic product growth, money supply M2 growth, and consumer price index growth. Somehow, this behaviour needs immediate attention from the authority and Islamic bank practitioners for the working and the effectiveness of the monetary policy transmission mechanism. The large amount of fixed rate financing by the institutions also shows how the fixed rate financing instruments have much to do in influencing the behaviour of the Islamic bank total financing operations.

The finding also shows the Islamic bank fixed rate financing operations are influenced only by the current year's profit and not the previous year's profit. This finding is significant at 1 per cent level. The previous year's profit did not significantly influence the decision on current year's fixed rate financing. Therefore, the pro-cyclicality behaviour of fixed rate financing based on profit enthusiasm hypothesis does not exist in Islamic bank operations as proven by this empirical evidence. The finding shows that an increase in the growth of current year net profit by 1 per cent is related to the growth of fixed rate financing by approximately 0.28 per cent.

Next, as expected, there is a negative relationship between the regulatory variables growth and the Islamic banks fixed rate financing growth. Increases in the regulatory items will decrease the fixed rate financing growth. The relationship is significant at 1

per cent level. The negative association between capital requirement and regulatory reserve to the Islamic bank fixed rate financing activities is consistent with the monetary theory idea of imposing both instruments to enhance banks' safety and manage the bank's credit creation operation. The capital requirement and regulatory reserve provide a buffer during adverse economic conditions and prevent excessive risk taking.

Looking at the deposits as the main sources of funds, the statistical result shows a positive relationship and it is significant at 1 per cent significant level. The estimated coefficient is in line with the theory. The increase in the deposits provides the banks with more funds for financing activities. An increase in the deposits by 1 per cent increases the banks fixed rate financing activities by 0.65 per cent.

The insignificance relationship between the Islamic bank fixed rate financing growth and the nonperforming financing growth indicates that the loan default condition is not a significant factor in determining the Islamic bank fixed rate financing decision. The finding shows that the Islamic financing behaviour is not easily overreacting and over pessimistic to any changes in the credit market condition and macroeconomic environment.

Finally, from the empirical evidence of the finding on fixed rate financing behaviour shows that it also fails to uphold one of the conditions for the operation to behave counter-cyclical. The insignificant relationship of fixed rate financing instruments to the macroeconomic variables needs immediate consideration by the authority and Islamic bank practitioners. This study suggests in order for the Islamic banks to behave with better counter-cyclical behaviour they need to increase the provision for bad and doubtful financing and contingency reserve during economic upswings and vice versa.

At the same time, they should practice more on the profit and risk sharing instruments as this shows a more true spirit of Islamic values and norms.

Table 5.6: Islamic Bank Fixed Rate Financing Cyclicality Behaviour

Part	Model	Pooled Model		Fixed Effect Model	
	Variable	Coefficient	t-statistic	Coefficient	t-statistic
1.	Constant	1.414	0.981	1.217	0.765
	Gross Domestic Product growth	-0.083	-0.649	-0.033	-0.233
	Consumer Price Index growth	-0.081	-0.746	-0.086	-0.746
	Money supply M2 growth	-0.018	-0.244	-0.022	-0.270
	Contingency Reserve growth	0.104*	5.812	0.103*	5.706
	Loan Loss Provision growth	0.114*	9.444	0.115*	9.255
	Deposit growth	0.650*	6.610	0.644*	6.479
	Capital Requirement growth	-0.212*	-5.617	-0.211*	-5.510
	Regulatory Reserve growth	-2.452*	-15.922	-2.462*	-15.720
	Non-Performing Financing growth	0.007	0.104	0.020	0.287
	Net profit growth	0.276*	10.648	0.276*	10.496
	Previous Year Net profit growth	0.016	1.064	0.016	1.061
	R^2	0.654		0.660	
	Adjusted R^2	0.645		0.643	
	SEE	11.493		11.522	
	F-statistic	74.398*		39.145*	
	Durbin-Watson statistic	1.919		1.945	
	*Significant at 1%; **Significant at 5% Panel (unbalanced) observations: 445					
	Periods included: 11 Cross-sections included: 58					
2.	Redundant Fixed Effects Tests (H_0: There is no fixed effects)					
	Test cross-section and period fixed effects	Statistic		df	p-value	
	Cross-section F	0.870		(57,366)	0.736	
	Cross-section Chi-square	56.540		57	0.492	
	Period F	0.622		(10,366)	0.795	
	Period Chi-square	7.500		10	0.678	
	Cross-Section/Period F	0.855		(67,366)	0.781	
	Cross-Section/Period Chi-square	64.677		67	0.558	
3.	Residual Test Statistic (H_0: Original idiosyncratic errors are serially uncorrelated)					
	Total Financing Residual (-1)	Coefficient	Std. Error	t-stat	p-value	
		-0.063	0.039	-1.639	0.102	
	Wald Test: Residual Test Statistic		Value	df	p-value	
	F-statistic		127.523	(1, 366)	0.000	
	Chi-square		127.523	1	0.000	

This next test verifies for the sturdiness of the key result based on subsample analysis of the Middle East region and Southeast Asia region. Table 5.7 presents the empirical

result. The findings for both Middle East countries and Southeast Asia countries are consistent with the overall finding.

From Table 5.7, the regression results from the pooled least square and fixed effects model appeared to be considerably consistent for both regions. The Redundant Fixed Effects Tests results suggest that the corresponding effects are statistically not significant. Accordingly, the pooled least square is a better estimator for both regions. Following the residual test of AR(1) serial autocorrelation on the pooled model the hypothesis test accepts the null hypothesis that the original idiosyncratic errors are serially uncorrelated.

The Redundant Fixed Effects Tests on the cross-section and period fixed effects given in Table 5.7, part 2, shows the three sets of tests. The Wald hypothesis test is used to test for the pooled model and fixed effect models. For banks of Middle East region, the hypothesis testing pooled model against cross-sectional heterogeneity have F-statistic $F(29, 163) = 0.97$ (ρ-value = 0.51). For Southeast Asia region, the hypothesis testing pooled model against cross-sectional heterogeneity have F-statistic $F(16, 108) = 0.55$ (ρ-value = 0.92), hence, the null hypothesis of no cross-sectional heterogeneity is accepted for both regions.

The hypothesis testing pooled against temporal heterogeneity have F-statistics $F(10,163) = 0.46$ (ρ-value = 0.91) for the Middle East region and $F(10,108) = 1.27$ (ρ-value = 0.26) for the Southeast Asia region. Therefore, the null hypothesis of no time-dimension heterogeneity is also not rejected at the 5 per cent significance level (Table 5.7, Redundant Fixed Effects Test – Test cross-section and period fixed effects section). The statistic values and the associated ρ-values cannot reject the null hypothesis that the cross section effects are redundant.

The remaining results evaluate the joint significance of all the effects, respectively. The Redundant Fixed Effects Tests results suggest that the corresponding effects are statistically not significant. Accordingly, the pooled least square is a better estimator. These test results conclude that the simple pooled model is preferred to the fixed effect model.

A residual test of AR(1) serial autocorrelation on the pooled model is then followed. The estimated coefficient for the AR(1) residual is -0.16 (ρ-value = 0.09 > .05) for the Islamic banks of the Middle East and for Southeast Asia Islamic banks the AR(1) residual is -0.04 (ρ-value = 0.59 > .05), thus, the null hypothesis cannot be rejected (Table 5.7, part 3). The hypothesis test accepts the null hypothesis that the original idiosyncratic errors are serially uncorrelated.

The relationship between contingency reserve and loan loss provision with the Islamic bank fixed rate financing activities for both regions are positively related. This is consistent with the counter-cyclical financing behaviour hypothesis. The results of both variables are significant at 1 per cent level in Southeast Asia Islamic banks, while in the Middle East it is significant at 1 per cent level for contingency reserve and 5 per cent level for loan loss provision. This suggests that the Islamic bank in both regions did manage their financing, contingency reserve and loan loss provision well and according to the theoretical predictions.

The growth ratio of the Islamic bank contingency reserve and loan loss provision to the fixed rate financing growth in Southeast Asia countries is found to be greater compared to Middle East Islamic banks. The β coefficient size of contingency reserve and loan loss provision in Middle East Islamic banks are 0.08 and 0.02 respectively, while for Southeast Asia Islamic banks are 0.21 and 0.42 respectively. This shows the Islamic

bank of Southeast Asia countries is more cautious compared to the Middle East Islamic banks as the economy fluctuates. The institutional internal variable result provides an indication the Islamic bank fixed rate financing of both regions have the tendency to behave counter-cyclically to the business cycle.

Next, the insignificance of macroeconomic indicators growth in influencing the Islamic bank fixed rate financing growth of both regions is consistent with the overall finding. The finding shows the Islamic bank financing decision is not tied to the expansion and contraction in the macroeconomic condition. This signifies that the Islamic financing behaviour in both regions is free from any speculative financing activities when there is fluctuation in the economic environment.

Consistent with the overall result, the regulatory variables have a negative relationship with the Islamic banks fixed rate financing growth in both of the regions. Both of the regulatory requirements are significant at 1 per cent level in Southeast Asia, while in the Middle East it is significant at 1 per cent level of regulatory reserve and 5 per cent level of significance for capital based.

As a conclusion, looking at the relationship between business cycle occurrences and the Islamic bank fixed rate financing operations, the insignificant relationship between fixed rate financing growth and real gross domestic product growth in both regions makes the operations failed to meet the needed conditions to behave counter-cyclical. Thus, this study again suggests that the Islamic banks need to increase the provision for bad and doubtful financing and contingency reserve during economic upswing to make it more forceful in managing the fixed rate financing operations.

Table 5.7: Islamic Bank Fixed Rate Financing Cyclicality Behaviour Based on Region

Part	Model Variable	Middle East Region		Southeast Asia Region	
		Pooled Model	Fixed Effect Model	Pooled Model	Fixed Effect Model
		Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
1.	Constant	-0.986 (-1.071)	-0.250 (-0.224)	8.136 (2.116)	11.931 (2.062)
	Gross Domestic Product growth	0.155 (1.359)	0.096 (0.705)	-0.206 (-1.076)	-0.011 (-0.035)
	Consumer Price Index growth	-0.048 (-0.640)	-0.067 (-0.820)	-0.162 (-0.260)	-0.681 (-0.919)
	Money supply M2 growth	0.007 (0.185)	-0.009 (-0.228)	-0.332 (-1.350)	-0.613 (-1.432)
	Contingency Reserve growth	0.077* (4.358)	0.1** (1.955)	0.208* (5.950)	0.213* (5.848)
	Loan Loss Provision growth	0.016** (1.902)	0.016** (1.770)	0.415* (12.436)	0.361** (2.083)
	Deposit growth	0.870* (8.541)	0.865* (7.995)	0.697* (4.404)	0.704* (4.317)
	Capital Requirement growth	-0.198** (-2.830)	-0.191** (-2.604)	-0.485* (-6.980)	-0.481* (-6.656)
	Regulatory Reserve growth	-1.121* (-4.181)	-1.088* (-3.894)	-3.323* (-14.547)	-3.371* (-14.475)
	Non-Performing Financing growth	-0.035 (-1.111)	-0.039 (-1.197)	-0.075 (-0.297)	-0.044 (-0.171)
	Net profit growth	0.037** (2.023)	0.042** (2.163)	0.383* (7.572)	0.379* (7.207)
	Previous Year Net profit growth	0.006 (0.340)	0.006 (0.364)	0.014 (0.666)	0.006 (0.288)
	R^2	0.575	0.587	0.675	0.696
	Adjusted R^2	0.551	0.542	0.651	0.647
	SEE	5.119	5.175	18.932	19.039
	F-statistic	24.811*	12.985*	28.021*	14.279*
	Durbin-Watson statistic	2.145	2.125	1.843	1.816
	*Significant at 1%; **Significant at 5%	Panel (unbalanced) observations: 214		Panel (unbalanced) observations: 146	
	Periods included: 11	Cross-sections included: 30		Cross-sections included: 17	
	Figures in parentheses are the t statistics for the coefficient				

Table 5.7: Islamic Bank Fixed Rate Financing Cyclicality Behaviour Based on Region (continued)

Part	Region / Variable	Middle East Region			Southeast Asia Region		
2.	Redundant Fixed Effects Tests (H_0: There is no fixed effects)						
	Test cross-section and period fixed effects	Statistic	df	p-value	Statistic	df	p-value
	Cross-section F	0.972	(29,163)	0.513	0.547	(16,108)	0.916
	Cross-section Chi-square	34.142	29	0.234	11.368	16	0.786
	Period F	0.461	(10,163)	0.913	1.270	(10,108)	0.257
	Period Chi-square	5.967	10	0.818	16.228	10	0.093
	Cross-Section/Period F	0.867	(39,163)	0.693	0.847	(26,108)	0.678
	Cross-Section/Period Chi-square	40.343	39	0.411	27.102	26	0.404
3.	Residual Test Statistic (H_0: Original idiosyncratic errors are serially uncorrelated)						
	Total Financing	Coefficient	Std. Error	t-statistic	p-value	Coefficient	Std. Error	t-statistic	p-value
	Residual (-1)	-0.159	0.078	-2.029	0.094	-0.041	0.076	-0.542	0.589
	Wald Test: Residual Test Statistic	Value	df	p-value		Value	df	p-value
	F-statistic	19.046	(1, 163)	0.000		36.605	(1, 108)	0.000
	Chi-square	19.046	1	0.000		36.605	1	0.000

5.2.3 Provision For Bad And Doubtful Financings and Contingency Reserve Analysis

To confirm the cyclicality behaviour of the Islamic bank financing operations, the study continues to analyse the Islamic bank provision for bad and doubtful financings growth and the contingency reserve growth behaviour. Table 5.8 provides the explicit evidence of Islamic bank cyclical behaviour through its actions in anticipating for future losses by looking at its provision for bad and doubtful financings. Table 5.10 provide the Islamic bank contingency reserve growth behaviour.

Provision for bad and doubtful financings behaviour to the business cycle

Referring to the F-statistic test results given in part 2, Table 5.8, the hypothesis of "there is no fixed effect" in both cross sections and time section cannot be rejected, thus, it is determined that in both cross section and time section, there are no fixed effects. Accordingly, the pooled model is preferred to the fixed effects model when comparing only these two estimators.

From Table 5.8, the Redundant Fixed Effects Tests on the cross-section and period fixed effects given in part 2 shows the three sets of tests. The calculated F-statistic with 66 and 488 degrees of freedom is 0.81 with ρ-value = 0.85, thus give us the no cross-sectional heterogeneity. The hypothesis testing pooled against temporal heterogeneity have F-statistics $F(11,488) = 0.81$ and ρ-value = 0.63, so the null hypothesis of no time-dimension heterogeneity is not rejected at the 5 per cent significance level. The statistic values and the associated ρ-values accepted the null hypothesis that the cross section effects are redundant. The remaining results evaluate the joint significance of all the effects, respectively. The Redundant Fixed Effects Tests results suggest that the corresponding effects are statistically not significant. The F-statistics test shows that the

panel is sufficiently homogeneous across banks to use the pooled least square estimator. Accordingly, the pooled model is preferred as a better estimator.

The estimated coefficient for the AR(1) residual is -0.02 (ρ-value = 0.6 > .05). Thus, the hypothesis test failed to reject the null hypothesis that the original idiosyncratic errors are serially uncorrelated (Table 5.8, part 3).

The condition of the Islamic bank provisions for bad and doubtful financing needs to be fulfilled so that it will behave counter-cyclically to the business cycle is as follows:

1. Banks' provisions for bad and doubtful financing growth are positively related to the banks' total financing growth.

2. Banks' provisions for bad and doubtful financing growth are positively related to the banks' profit growth.

3. Banks' provisions for bad and doubtful financing growth are positively related to the real gross domestic product growth.

From the regression result, all the internal determinant variables of the institutions are significant at 1 per cent level and the 5 per cent level. With a 1 per cent increase in the growth of financing and nonperforming financing, the provision for bad and doubtful financing growth will follow suit by growing at 0.4 per cent and 0.47 per cent at 1 per cent level of significance. While, a 1 per cent increase in net profit growth will increase the provision for bad and doubtful financing growth by 0.45 per cent growth at 5 per cent level of significant respectively.

Therefore, the pro-cyclicality behaviour based on profit enthusiasm hypothesis does not appear in the Islamic bank operations as proven by this empirical evidence. In other words, the positive correlation between provision for bad and doubtful financing growth and bank earnings, financing and nonperforming financing growth shows the existence

of income smoothening actions from the Islamic bank financing operations. This evidence clearly provides some indication of counter-cyclical behaviour of the Islamic bank financing.

However, the finding also shows the macroeconomic variables namely the real gross domestic product growth, money supply M2 growth, and consumer price index growth are not significant in influencing the provision for bad and doubtful financing growth. Thus, make the operations failed to meet the needed conditions in order to make the Islamic bank operations behave counter-cyclical to the business cycle.

An important aspect of provision for bad and doubtful financing is its timing with respect to the business cycle and the related issue of pro-cyclicality. The favourable conditions of an economic expansion could lead to an excessive increase in financing and a less critical assessment of creditworthiness. The counter-cyclical view associates this with higher risks and the build-up of financial imbalances. Therefore, provisions for bad and doubtful financing allocations are supposed to increase with the level of riskiness of the financing a given bank makes. This guarantees a bank's solvency and capitalisation when the defaults occur. Thus, provision for bad and doubtful debts should be positively related with the financing cycle, for banks should identify the underlying risk and build up loan loss reserve in good times to be drawn on in bad times.

Hence, the insignificant relationship between the provision for bad and doubtful financing growth and the macroeconomic variables growth need some consideration from the Islamic banking services providers and policy makers. This is so because it provides some evidence on the capability of Islamic bank to play the role as the monetary transmission mechanism.

Table 5.8: Islamic Bank Provision for Bad and Doubtful Financing

Part	Model Variable	Pooled Model		Fixed Effect Model	
		Coefficient	t-statistic	Coefficient	t-statistic
1.	Constant	0.075	0.054	-0.008	-0.005
	Gross Domestic Product growth	0.046	0.454	0.034	0.316
	Consumer Price Index growth	0.082	0.724	0.117	0.992
	Money supply M2 growth	0.040	0.527	0.028	0.340
	Total Financing growth	0.400*	13.263	0.400*	13.110
	Non-Performing Financing growth	0.473*	6.800	0.472*	6.697
	Net profit growth	0.453**	2.014	0.039**	1.875
	Capital Requirement growth	0.116*	3.126	0.119*	3.156
	Regulatory Reserve growth	-0.117	-0.825	-0.095	-0.664
	R^2		0.398		0.408
	Adjusted R^2		0.391		0.389
	SEE		17.332		17.363
	F-statistic		53.556*		21.254*
	Durbin-Watson statistic		2.297		2.294
	*Significant at 1%; **Significant at 5% Panel (unbalanced) observations: 574				
	Periods included: 12 Cross-sections included: 67				
2.	Redundant Fixed Effects Tests (H_0: There is no fixed effects)				
	Test cross-section and period fixed effects		Statistic	df	p-value
	Cross-section F		0.813	(66,488)	0.851
	Cross-section Chi-square		59.856	66	0.689
	Period F		0.812	(11,488)	0.628
	Period Chi-square		10.407	11	0.494
	Cross-Section/Period F		0.808	(77,488)	0.876
	Cross-Section/Period Chi-square		68.863	77	0.734
3.	Residual Test Statistic (H_0: Original idiosyncratic errors are serially uncorrelated)				
	Provision for Bad and Doubtful Financing Residual (-1)	Coefficient -0.015	Std. Error 0.028	t-stat -0.535	p-value 0.593
	Wald Test: Residual Test Statistic		Value	df	p-value
	F-statistic		65.186	(1, 488)	0.000
	Chi-square		65.186	1	0.000

The following analysis examined the provision for bad and doubtful financing by the Islamic bank in the Middle East region and Southeast Asia region. Table 5.9 presents the empirical result. The findings are consistent with the overall finding. The pooled least square and fixed effects model results also appeared to be considerably consistent for both regions.

The Redundant Fixed Effects Tests on the cross-section and period fixed effects given in Table 5.9, part 2, shows the three sets of tests. For the Islamic banks operating in the Middle East the hypothesis testing pooled model against cross-sectional heterogeneity have F-statistic $F(38, 264) = 0.77$ (ρ-value $= 0.84$). For Southeast Asia Islamic banks, the hypothesis testing pooled model against cross-sectional heterogeneity have F-statistic $F(16, 120) = 0.98$ (ρ-value $= 0.48$), hence, the null hypothesis of no cross-sectional heterogeneity cannot be rejected for both regions.

The hypothesis testing pooled against temporal heterogeneity have F-statistics $F(11,264) = 0.8$ (ρ-value $= 0.64$) for Middle East Islamic banks and $F(11,120) = 1.07$ (ρ-value $= 0.39$) for Southeast Asia Islamic banks. Therefore, the null hypothesis of no time-dimension heterogeneity is also not rejected at the 5 per cent level of significance (Table 5.9, Redundant Fixed Effects Test – Test cross-section and period fixed effects section).

The statistic values and the associated ρ-values cannot reject the null hypothesis that the cross section effects are redundant. Based on the Redundant Fixed Effects test results suggest that the corresponding effects are statistically not significant. These test results conclude that the simple pooled model is preferred to the fixed effect model.

Following the residual test of AR(1) serial autocorrelation on the pooled model the hypothesis test accepts the null hypothesis that the original idiosyncratic errors are serially uncorrelated. The estimated coefficient for the AR(1) residual is -0.06 (ρ-value $= 0.13 > .05$) for the Islamic banks of the Middle East and for Southeast Asia Islamic banks the AR(1) residual is -0.03 (ρ-value $= 0.35 > .05$), thus, the null hypothesis cannot be rejected (Table 5.9, part 3). The hypothesis test accepts the null hypothesis that the original idiosyncratic errors are serially uncorrelated.

From the regression result, all the internal determinant variables of the Islamic banks are significant at 1 per cent level and the 5 per cent level. With a 1 per cent increase in the growth of financing, the provision for bad and doubtful financing growth will increase by at 0.08 per cent at 5 per cent level of significance in the Middle East. In Southeast Asia, the Islamic bank's provision for bad and doubtful financing growth will increase by 0.4 per cent with a 1 per cent level of significance. A 1 per cent increase in the nonperforming financing growth will increase the provision for bad and doubtful financing growth by 0.47 per cent growth in Middle East Islamic banks and 1.04 per cent in Southeast Asia with a 1 per cent level of significance respectively.

Next, increase in net profit growth by 1 per cent will increase the provision for bad and doubtful financing growth by 0.08 per cent in Middle East Islamic banks and 0.09 per cent growth in Southeast Asia at 1 per cent level of significance. Therefore, the pro-cyclicality behaviour based on profit enthusiasm hypothesis does not appear in the Islamic bank operations as proven by this empirical evidence. In other words, the positive correlation between provision for bad and doubtful financing growth and bank earnings, financing and nonperforming financing growth shows the existence of income smoothening actions from the Islamic bank financing operations. This evidence clearly provides some indication of counter-cyclical behaviour of the Islamic bank financing.

Finally, the finding also shows the relationship between macroeconomic variables and the provision for bad and doubtful financing growth are not significant. Thus, make the operations failed to meet the needed conditions in order to make the Islamic bank financing operations behave counter-cyclical to the business cycle. Hence, the insignificant relationship needs some consideration from the Islamic banking services providers and policy makers.

Table 5.9: Islamic Bank Provision for Bad and Doubtful Financing Based on Region

Part	Model Variable	Middle East Region		Southeast Asia Region	
		Pooled Model	Fixed Effect Model	Pooled Model	Fixed Effect Model
		Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
1.	Constant	-0.160 (-0.060)	0.704 (0.222)	1.544 (0.764)	-1.337 (-0.451)
	Gross Domestic Product growth	0.108 (0.292)	0.201 (0.461)	0.078 (1.162)	0.066 (0.577)
	Consumer Price Index growth	0.184 (0.8594)	0.220 (0.985)	0.297 (0.933)	0.397 (1.052)
	Money supply M2 growth	0.085 (0.743)	0.053 (0.430)	0.025 (0.189)	0.202 (0.945)
	Total Financing growth	0.078** (2.347)	0.197** (2.559)	0.403* (21.345)	0.398* (20.565)
	Non-Performing Financing growth	0.471* (4.865)	0.477* (4.858)	1.042* (8.728)	1.056* (8.5130)
	Net profit growth	0.077* (4.358)	0.004 (0.106)	0.087* (4.717)	0.089* (4.711)
	Capital Requirement growth	0.017 (0.110)	-0.028 (-0.169)	0.036 (1.266)	0.029 (1.000)
	Regulatory Reserve growth	-0.541 (-1.033)	-0.572 (-1.070)	-0.005 (-0.044)	0.055 (0.444)
	R^2	0.388	0.396	0.872	0.881
	Adjusted R^2	0.380	0.377	0.866	0.866
	SEE	18.077	18.137	10.450	10.466
	F-statistic	46.741*	19.509*	144.250*	56.512*
	Durbin-Watson statistic	2.319	2.314	2.078	2.108
	*Significant at 1%; **Significant at 5%	Panel (unbalanced) observations: 322		Panel (unbalanced) observations: 156	
	Periods included: 12	Cross-sections included: 39		Cross-sections included: 17	
	Figures in parentheses are the t statistics for the coefficient				

Table 5.9: Islamic Bank Provision for Bad and Doubtful Financing Based on Region (continued)

Part	Region / Variable	Middle East Region			Southeast Asia Region		
2.	Redundant Fixed Effects Tests (H_0: There is no fixed effects)						
	Test cross-section and period fixed effects	Statistic	df	p-value	Statistic	df	p-value
	Cross-section F	0.765	(38,264)	0.839	0.978	(16,120)	0.485
	Cross-section Chi-square	33.646	38	0.671	19.122	16	0.262
	Period F	0.799	(11,264)	0.641	1.073	(11,120)	0.389
	Period Chi-square	10.544	11	0.482	14.637	11	0.200
	Cross-Section/Period F	0.753	(49,264)	0.883	0.974	(27,120)	0.509
	Cross-Section/Period Chi-square	42.148	49	0.745	30.919	27	0.275
3.	Residual Test Statistic (H_0: Original idiosyncratic errors are serially uncorrelated)						
	Total Financing	Coefficient	Std. Error	t-statistic	p-value	Coefficient	Std. Error	t-statistic	p-value
	Residual (-1)	-0.058	0.038	-1.516	0.130	-0.027	0.029	-0.929	0.353
	Wald Test: Residual Test Statistic	Value	df	p-value		Value	df	p-value
	F-statistic	35.690	(1, 264)	0.000		14.707	(1, 120)	0.000
	Chi-square	35.690	1	0.000		14.707	1	0.000

Islamic bank contingency reserve behaviour to business cycle

The following analysis examines the Islamic bank policy on its contingency reserve by looking at the association of the banks contingency reserve growths movements towards the periodic occurrences of the upswings and downswings of economic activities. The analysis is to determine whether the Islamic bank contingency reserve policy is following the instruction in the Quran (12:46-49), that is to increase the contingency reserve growth of economic expansion and to reduce it in the event of economic contraction.

Table 5.10 provides the result of the Islamic bank contingency reserve management analysis during the business cycle occurrence. In this case, the outputs of Redundant Fixed Effects tests (part 2) provide that there is no fixed effect of both cross sections and time section. The hypothesis testing pooled model against cross-sectional heterogeneity have F-statistic $F(66, 498) = 0.96$ (ρ-value $= 0.57$), so the null hypothesis of no cross-sectional heterogeneity cannot be rejected. The hypothesis testing pooled against temporal heterogeneity have F-statistics $F(11,498 = 0.68$ (ρ-value $= 0.76$), so the null hypothesis of no time-dimension heterogeneity is also not rejected at the 5 per cent significance level (Table 5.10, Redundant Fixed Effects Test – Test cross-section and period fixed effects section). Therefore, the pooled least square should be consistent and efficient against the use of the fixed effects model. Thus, the study concludes that the pooled least square model is the preferred specification model for the data.

The estimated coefficient for the AR(1) residual is -0.08 (ρ-value $= 0.2 > .05$) (Table 5.10, part 3). Thus, the hypothesis test failed to reject the null hypothesis that the original idiosyncratic errors are serially uncorrelated.

The study hypothesises that the Islamic bank operation is behaving as instructed in the Quran (12:46-49) if the contingency reserve growth is positively related to the bank's profit growth and positively related to the real gross domestic product growth.

The only condition met by the Islamic banking institutions is the current year's profit growth behaviour, which is positively correlated to the contingency reserve growth and significant at 1 per cent level. An increase in current year's profit growth of 1 per cent increases the growth of contingency reserve by 0.32 per cent.

Regarding with the relationship between the contingency reserve growth and macroeconomic indicators growth, the result shows that there is a positive relationship between the variables. However, the relationship is not significant. Thus, make the bank's contingency reserve growth failed to behave as instructed by Quran (12:46-49). This finding may explain the reason for the insignificant behaviour of Islamic bank financing growth of the real gross domestic product growth, money supply M2 growth, and general price level growth given by the consumer price index growth discussed earlier.

The study also shows a significant relationship between the Islamic bank contingency reserve growth and the nonperforming financing growth. This indicates that the loan default condition is an important factor that influences the Islamic bank contingency reserve management. Contingency reserve growth increase by 0.21 per cent with 1 per cent increase in the nonperforming financing growth.

Related to the regulatory variables as expected the capital requirement is positively related to the Islamic bank contingency reserve growth and it is significant at 1 per cent significant level. Both of the items complement each other in providing buffers during

undesirable economic conditions and as a mechanism aimed at preventing excessive risk taking.

A regulatory reserve on the other hand is negatively related to the Islamic bank contingency reserve growth and it is significant at 1 per cent significant level. The negative association for regulatory reserve and the Islamic bank contingency reserve growth is consistent with the insufficiency of fund resources faced by the Islamic bank. An Increase in regulatory reserve growth decreases the growth in contingency reserve by 4.9 per cent.

The overall result provides indication that Islamic bank contingency reserve policy did not fully comply with Allah's instruction as stated in the following verses of the Quran (12:46-49):

> *"For seven years you shall sow continuously, then what you reap **leave 5 it on the ear, except a little whereof you eat** (47). Then thereafter there shall come upon you seven hard years, in which you shall **devour all that you have reserved** for them, **except a little you keep in store"** (48).*

For the Islamic bank financing operations to behave counter-cyclically, it is vital for the institutions to adhere to Allah's instruction (Quran: 12:47-48). It is important to the Islamic bank to reserve more during the economic expansion to reduce the earning asset growth so that the financing growth will be slower. During economic downturns, the banks should reduce the contingency reserve growth more so that the earning assets can be increased and financing growth will be higher.

Table 5.10: Islamic Bank Provision for Contingency Reserve

Part Model Variable	Pooled Model		Fixed Effect Model	
	Coefficient	t-statistic	Coefficient	t-statistic
1. Constant	0.360	0.156	0.562	0.225
Gross Domestic Product growth	0.125	0.742	0.137	0.759
Consumer Price Index growth	0.046	0.248	0.081	0.416
Money supply M2 growth	0.030	0.241	0.037	0.272
Net profit growth	0.298*	8.069	0.296*	7.908
Deposits growth	2.307*	10.366	2.276*	10.125
Non-Performing Financing growth	0.206**	1.912	0.223**	2.046
Financing growth	0.735*	13.122	0.735*	12.997
Capital Based growth	0.911*	12.418	0.908*	12.225
Regulatory Reserve growth	-4.906*	-15.144	-4.836*	-14.745
R^2		0.649		0.654
Adjusted R^2		0.644		0.642
SEE		28.734		28.821
F-statistic		118.247*		53.268*
Durbin-Watson statistic		2.101		2.096
*Significant at 1%; **Significant at 5% Panel (unbalanced) observations: 585				
Periods included: 12 Cross-sections included: 67				
2. Redundant Fixed Effects Tests (H_0: There is no fixed effects)				
Test cross-section and period fixed effects		Statistic	df	p-value
Cross-section F		0.959	(66,498)	0.571
Cross-section Chi-square		69.983	66	0.345
Period F		0.678	(11,498)	0.760
Period Chi-square		8.699	11	0.650
Cross-Section/Period F		0.919	(77,498)	0.669
Cross-Section/Period Chi-square		77.751	77	0.455
3. Residual Test Statistic (H_0: Original idiosyncratic errors are serially uncorrelated)				
Provision for Contingency Reserve Residual (-1)	Coefficient	Std. Error	t-stat	p-value
	-0.078	0.060	-1.299	0.195
Wald Test: Residual Test Statistic		Value	df	p-value
F-statistic		77.930	(1, 498)	0.000
Chi-square		77.930	1	0.000

Next, the study proceeds with a subsample data analysis based on Islamic banks operating in the Middle East region and Southeast Asia region. Table 5.11 presents the empirical result. The findings for both panels of Middle East countries and Southeast Asia countries are consistent with the overall finding.

As given in Table 5.11, the regression results from the pooled least square and fixed effects model appeared to be considerably consistent for both regions. The Redundant Fixed Effects Tests results suggest that the corresponding effects are statistically not

significant. Accordingly, the pooled least square is a better estimator for both regions. Following the residual test of AR(1) serial autocorrelation on the pooled model the hypothesis test accepts the null hypothesis that the original idiosyncratic errors are serially uncorrelated.

The Redundant Fixed Effects Tests on the cross-section and period fixed effects given in Table 5.11, part 2, shows the three sets of tests. For banks of Middle East region, the hypothesis testing pooled model against cross-sectional heterogeneity have F-statistic $F(38, 274) = 0.82$ (ρ-value = 0.76). For Southeast Asia region, the hypothesis testing pooled model against cross-sectional heterogeneity have F-statistic $F(16, 119) = 0.9$ (ρ-value = 0.58), hence, the null hypothesis of no cross-sectional heterogeneity cannot be rejected for both regions.

The hypothesis testing pooled against temporal heterogeneity have F-statistics $F(11, 274) = 0.77$ (ρ-value = 0.67) for the Middle East region and $F(11,119) = 0.81$ (ρ-value = 0.63) for the Southeast Asia region. Therefore, the null hypothesis of no time-dimension heterogeneity is also not rejected at the 5 per cent significance level (Table 5.11, Redundant Fixed Effects Test – Test cross-section and period fixed effects section). The statistic values and the associated ρ-values cannot reject the null hypothesis that the cross section effects are redundant. The remaining results evaluate the joint significance of all the effects, respectively. The Redundant Fixed Effects Tests results suggest that the corresponding effects are statistically not significant. Accordingly, the pooled least square is a better estimator.

A residual test of AR(1) serial autocorrelation on the pooled model is then followed. The estimated coefficient for the AR(1) residual is -0.08 ($\rho = 0.15 > .05$) for the Islamic banks of the Middle East and for Southeast Asia Islamic banks the AR(1) residual is

-0.1 (ρ-value = 0.23 > .05), thus, the null hypothesis cannot be rejected (Table 5.11, part 3). The hypothesis test accepts the null hypothesis that the original idiosyncratic errors are serially uncorrelated.

The relationship between contingency reserve and bank's profit for both regions are positively related and consistent with the overall finding. The results of both variables are significant at 1 per cent level in Southeast Asia and 5 per cent in the Middle East region. This suggests Islamic bank of both regions did manage their contingency reserve well and according to the theoretical predictions. A 1 per cent increase in the profit growth increases the contingency reserve growth of 0.13 per cent by the Islamic banks in the Middle East region. On the other hand, the contingency reserve growth of the Islamic banks of Southeast Asia increased by 0.43 per cent with an increase in the profit growth.

Next, the empirical result shows the relationship between macroeconomic variables and the provision for contingency reserve growth in both regions are not significant. Thus, make the operations failed to meet the needed conditions in order to make the Islamic bank operations behave as instructed by the Quran (12:47-48).

The study also shows a significant relationship between the Islamic bank contingency reserve growth and the nonperforming financing growth of both regions. This indicates that the loan default condition is a significant factor in influencing the Islamic bank decision on contingency reserve in both regions. An increase in nonperforming financing growth increases the contingency reserve growth of 0.12 per cent in the Middle East region and 1.0 per cent in Southeast Asia with the significant level at 5 per cent in both regions.

Related to the regulatory variables, the capital requirement is positively related to the Islamic bank contingency reserve growth of both regions and the results is significant at 1 per cent level in Southeast Asia and 5 per cent level in the Middle East region. The coefficient size is 0.36 in the Middle East region and 0.79 in Southeast Asia. Regulatory reserve is significant only in Southeast Asia and it is negatively related to the Islamic bank contingency reserve growth at 1 per cent significant level.

As a conclusion, looking at the relationship between contingency reserve and the macroeconomic variables, the Islamic bank management on contingency reserve in both regions failed to meet the needed conditions to behave as instructed by the Quran (12:46-49). The result provides indication that Islamic bank contingency reserve policy did not fully complies with the Quran instruction in verse 46 to 49 (chapter 12).

Table 5.11: Islamic Bank Provision for Contingency Reserve Based on Region

Part	Model Variable	Middle East Region		Southeast Asia Region	
		Pooled Model	Fixed Effect Model	Pooled Model	Fixed Effect Model
		Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
1.	Constant	4.985 (1.473)	4.272 (1.063)	8.541 (1.363)	3.425 (0.367)
	Gross Domestic Product growth	0.249 (-0.531)	0.434 (-0.786)	0.103 (-0.497)	0.099 (-0.279)
	Consumer Price Index growth	0.089 (-0.326)	0.013 (0.045)	1.014 (-1.027)	0.606 (-0.517)
	Money supply M2 growth	0.014 (0.093)	0.077 (0.494)	0.522 (-1.293)	0.228 (-0.342)
	Net profit growth	0.127** (2.635)	0.112** (2.292)	0.429* (6.843)	0.418* (6.429)
	Deposits growth	0.112**(2.203)	0.104**(2.019)	3.070* (9.183)	3.015* (8.547)
	Non-Performing Financing growth	0.116** (2.102)	0.115** (2.284)	1.006** (2.666)	1.156** (2.952)
	Financing growth	0.367**(3.012)	0.374 **(3.030)	0.857* (12.280)	0.867* (12.092)
	Capital Requirement growth	0.361** (2.083)	0.366** (2.076)	0.787* (6.701)	0.801* (6.572)
	Regulatory Reserve growth	-0.945 (-1.651)	-1.114** (-1.917)	-5.734 *(-10.064)	-5.697 *(-9.482)
	R^2	0.484	0.494	0.833	0.844
	Adjusted R^2	0.408	0.407	0.823	0.821
	SEE	37.718	37.755	32.317	32.502
	F-statistic	6.407*	5.717*	80.902*	36.460*
	Durbin-Watson statistic	2.201	2.202	2.126	2.106
	*Significant at 1%; **Significant at 5%	Panel (unbalanced) observations: 322		Panel (unbalanced) observations: 156	
	Periods included: 12	Cross-sections included: 39		Cross-sections included: 17	
	Figures in parentheses are the t statistics for the coefficient				

Table 5.11: Islamic Bank Provision for Contingency Reserve Based on Region (continued)

Part	Region / Variable	Middle East Region			Southeast Asia Region		
2.	Redundant Fixed Effects Tests (H_0: There is no fixed effects)						
	Test cross-section and period fixed effects	Statistic	df	p-value	Statistic	df	p-value
	Cross-section F	0.822	(38,274)	0.764	0.895	(16,119)	0.576
	Cross-section Chi-square	35.811	38	0.571	17.727	16	0.340
	Period F	0.772	(11,274)	0.668	0.809	(11,119)	0.631
	Period Chi-square	10.128	11	0.519	11.252	11	0.422
	Cross-Section/Period F	0.877	(49,274)	0.705	0.872	(27,119)	0.649
	Cross-Section/Period Chi-square	48.330	49	0.500	28.165	27	0.403
3.	Residual Test Statistic (H_0: Original idiosyncratic errors are serially uncorrelated)						
	Total Financing	Coefficient	Std. Error	t-statistic	p-value	Coefficient	Std. Error	t-statistic	p-value
	Residual (-1)	-0.083	0.058	-1.435	0.152	-0.099	0.081	-1.212	0.228
	Wald Test: Residual Test Statistic	Value	df	p-value		Value	df	p-value
	F-statistic	51.333	(1, 274)	0.000		15.065	(1, 119)	0.000
	Chi-square	51.333	1	0.000		15.065	1	0.000

5.3 Conclusion of Empirical Findings and Analysis

From the above empirical evidence taken as a whole, what can be concluded is that there are indications of a counter-cyclical behaviour from the Islamic bank financing operations. However, the counter-cyclical behaviour has a very low significant level because of the failure of contingency reserve and provision for bad and doubtful financing to put a more forceful pressure on the Islamic bank financing operations to the macroeconomic swing. This argument is evident from the insignificant relationship between the contingency reserve and provision for bad and doubtful financing with all the main macroeconomic business cycle indicators namely the gross domestic product, money supply M2 and the general price level growth.

Although the result shows that the relationship given by the coefficient sign follows the theoretical perspective of a counter-cyclical bank financing operation, however, statistically it has an insignificant relationship. In general, adherence to verse 46-49 of chapter 12 in the Quran and the Islamic values of managing the financial and commercial transaction activities is a decisive solution in achieving a counter-cyclical behaviour of the Islamic bank financing operation. This, effectively, will be able to generate a more resilient and stable financial market.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.0 Overview

The increase in the instability of the economic environment for the past 30 years has been in relation to the instability of the interest-based financial system. This has been one of the hottest issues debated among the economists, bankers, financial practitioners, and policy maker for the last twenty years. Issues arise whether the systems, policies, or instruments currently applied are able to stabilise the economic fluctuations. The business cycle occurrences related to the financial crisis since early 1990's until now has greatly increased the interest in the issue of the bank's lending pro-cyclical behaviour. This has inspired scholars to look for another alternative and instruments that can reduce the instability of the economic atmosphere.

For the Muslim scholars, the Islamic economic system and in particular the Islamic financial system with its unique characteristics and the profit and risk sharing instrument offers a solution for achieving a resilient and stable economic environment. However, the original idea of applying profit and risk sharing instrument by the Islamic bank in its operation is currently difficult to practice due to various practical and operational reasons. For those reasons, on average 60 per cent of Islamic bank financing is in the form of trade-based financing with fixed rate financing instruments. With the prevailing large amount of fixed rate financing instruments used by the Islamic bank, some of the Islamic bank proponents question the capability of Islamic bank of stabilising the economic environment.

With that in mind, this particular study takes the initiative to provide some of the empirical evidence of the advantages of the Islamic banking system. This study has

been able to provide some of the empirical evidence of the cyclicality behaviour of the present Islamic bank financing operation practices to the business cycle phenomenon.

The empirical results of this research have also provided some of the initial indications on the resiliency and stability of the Islamic bank financing operations towards the expansions and contractions in the economic atmosphere. The finding have also proven the claims made by some of the proponents of Islamic bank of the limited impact of the recent financial crisis on the Islamic banking sector due to their unique portfolio of assets. Aziz (2010) even claims that:

> *"Despite the unprecedented disruptions in the international financial system, studies show that the Islamic financial industry has weathered the global financial crisis relatively well."*

6.1 Conclusion and Recommendation

With the financing growth that is not tied to the growth of the main business cycle indicators, namely the real gross domestic product, money supply and general price level, the findings shows that the Islamic bank operations are free from any speculative activities. Thus, financing activities of Islamic banks have the potential to behave counter-cyclically to the rise and falls of the economic activities. In some ways, the behaviour of the Islamic bank was not too enthusiastic to the movement in economic environment fluctuations as compared to its counterpart, the interest-based bank.

The contingency reserve and provision for loan losses growth is positively correlated to the institution's financing growth, which has managed the Islamic bank financing's pro-cyclical behaviour. Hence, the banking sector needs to increase its security through the contingency reserve and provision for bad and doubtful financing during an economic

upturn. In the event of economic downturns, the banks need to increase their investment and financing activities.

When the economy is expanding, there is an increase in financing volume and jointly followed by the increase in bank's contingency reserve and provision for bad and doubtful financing for safety reason. This will shield the bank of the unexpected and expected loss appropriate with the increase in the economic risk. In the event of an economic upswing, the Islamic bank financing growth is at a diminishing rate of the increase in contingency reserve and provision for bad and doubtful financing. During weak economic environment, the contingency reserve and provision for bad and doubtful financing growth is on the reducing trend in order to increase the excess fund for financing activities. By avoiding speculative financial transactions and financial risk transaction, the Islamic bank is able to protect itself from economic fluctuation.

Most importantly, the result of this study confirms the possibility of Islamic bank operations in stabilising the economic environment at least for the short run business cycle event related to the Juglar fixed investment cycle and Kitchin inventory cycle. The contingency reserve and provision for loan losses policy has managed the Islamic bank financings to behave counter-cyclical. The empirical evidence is also able to provide some initial statistical proof of the recent financial crisis limited impact on the Islamic banking sector due to their unique asset portfolio of assets.

The finding shows the bank fixed rate financing growth is at a diminishing rate during strong economic growth and at an increasing rate when the economy is weaker. With its special characteristics based on *shariah* underpinning its operations, the fixed rate financing is also acting towards a counter-cyclical behaviour to the business cycle event. The contingency reserve and provision for loan losses management is able to

reduce the degree of cyclicality behaviour of fixed rate financing. Therefore, the view of pro-cyclical behaviour of fixed rate financing is unsubstantiated as long as the Islamic bank follows Allah's instructions (Quran's: 12: 46-49).

The finding of this study also shows the current financing operation practiced by the Islamic bank has the tendency to manage the business cycle at least for the short run. One of the main contributing factors of this behaviour is the bank policy on the contingency reserve and provision for bad and doubtful financing that follows the *shariah* policy on the contingency reserve and provision for bad and doubtful financing, as dictated by the Quran's (12:46-49) instruction.

Although the degree of associations is low as opposed to the gross domestic product growth and the buffering policy that is positively associated with it, the institutions still need to be more careful so that over-financing of fixed rate financing can be avoided. The concern is on the large amount of fixed rate financing instruments used by the Islamic bank financing operation that might distort the capability of the system to stabilise the economy. The empirical finding suggests that the Islamic bank should go for more profit and risk sharing to avoid any unwelcome outcome from this financing instrument.

With the combination of both financing instruments in operation, namely the profit and risk sharing and fixed rate financing instrument, the Islamic bank asset management need to determine the optimum combination of excess reserve for financing provision of the liquidity and safety requirement, particularly, in a turbulent, dynamic, complex, and an unpredictable business cycle environment. With the current financing instruments applied to the Islamic bank, it is necessary to look at how an Islamic bank should

determine the ratio of the profit and risk sharing instruments with the fixed income instrument.

Although the contingency reserve and provision for loan losses are able to control the financing activities from behaving pro-cyclically to the business cycle, the finding also shows that Islamic banks need to observe its management of contingency reserve and provision for bad and doubtful financing. The amount of contingency reserve and provision for bad and doubtful financing is still not large enough to manage the earning assets that have a direct influence on the financing volume. This is evidence of the insignificant relationship of financing growth of the Islamic bank to the real gross domestic product growth, money supply M2 growth, and the consumer price index growth. Therefore, the policy on contingency reserve and provision for bad and doubtful financing needs some serious consideration from the Islamic bank management and policy makers so that it will also be able to confirm the capability of Islamic bank to work as the transmitter mechanism of monetary policy. This will, consequently, mellow down the business cycle happening.

Another important aspect to be raised up from this study is the need to do an in-depth analysis on the chapter Yusuf (12) from verse 47 and 48 in the Quran. Through the statistical and dynamic analyses, the precise amount of provisioning on the contingency reserve and provision for bad and doubtful financing could be determined. A forceful provisioning for contingency reserve and provision for bad and doubtful financing system may perhaps make the correlation more convincing with higher coefficients between the financing activities and the macroeconomics business cycle indicators, namely the real gross domestic product, money supply M2, and the consumer price index. As an example, Spain has implemented a dynamic provisioning system called

'statistical provisioning' that came into effect on July 1ˢᵗ, 2000 (De Lis et al., 2000). A similar provisioning approach is compulsive for Portuguese banks.

In this dynamic provisioning system, the banks estimate their expected credit losses over the business cycle using their own internal models or a standard approach developed by the regulators. As a result, banks build up their statistical provisions during upswing phases. The statistical provision is obvious to anticipate the next economic cycle rather than to reflect past ones (De Lis et al., 2000).

During upswing phases, banks build up their statistical provisions (when contemporaneous problem loans and consequently specific provisions are weak compared to total loans) and draw down these contingency reserve during downturns. According to Bouvatier and Lepetit (2008), the full business cycle occurrences are therefore smoothed with this approach over the specific, general, and statistical provisions. The Spanish strategy would possibly be relevant to what is mentioned in that chapter Yusuf (Quran; 12:47-48). Bikker and Metzmakers (2005) reported that the French supervisors firmly advocated a comparative approach, called 'dynamic provisioning'. Other countries, such as the Netherlands, also allowed certain forward-looking elements in provisioning.

Furthermore, studies by De Lis et al. (2000), Borio et al. (2000), and Jim´enez and Saurina, (2006) show the positive outcomes of the effect of dynamic provisioning to smooth bank income and to stabilize bank capital. Bouvatier and Lepetit (2008) subsequent studies show that provisioning also influences credit fluctuations. The effect of non-discretionary provisions on credit fluctuation results directly from an unsatisfactory backward-looking provisioning system. This system could therefore remove the banks' incentive to grant new loans when non-discretionary provisions are

decreasing, that is when the expected credit risk could be underestimated (Bouvatier and Lepetit, 2008).

It is also important for the banking institutions to have their own internal models to manage their contingency reserve and provision for bad and doubtful financing to comply with the Quran's (12:46-49) instruction and to anticipate future economic cycle. A standard approach also needs to be developed by the regulators following the Quran's (12:46-49) instruction. The existing contingency reserve policy model practiced by the bank needs to be reviewed to suit with the Quran's (12:46-49) instruction.

From the reserve requirement theoretical view, the reserve requirement is to make the institutions to be less enthusiastic and they trim down the speculative activities during an economic upswing. This is the essence behind chapter Yusuf (12) verse 46 to verse 49. However, as we know, reserve requirements are no longer binding for most banks. Central banks in many countries in the world have been reducing or eliminating their reserve requirements. Many economists advocate the elimination of reserve requirements especially in the United States. This has already been done in Canada, Australia, and New Zealand (Mishkin 2007). The argument according to economists is that the reserve requirements act as a tax on banks (Mishkin, 2007). Since central banks typically do not pay interest on reserve, the bank earns nothing on them and loses the interest that could have been earned if the bank held loans instead.

The cost imposed on banks from the reserve requirement means that banks, in effect, have a higher cost of funds than intermediaries that are not subject to the reserve requirements, making them less competitive. Central banks thus reduced reserve requirements to make banks more competitive and stronger. This might be one of the main contributing factors to the relentless economic instability for the past twenty years.

Ultimately, in reference to the overall finding of this study, adherence to the Islamic values in financial transaction activities offers a solution in achieving financial market stability. The ban on interest-based instrument and all of its forms of usage, avoiding from speculative, ambiguous, uncertain, and transactions of financial risk and abiding to all other forms of *shariah* instructions are the criteria needed to achieve a stable economic environment. Indirectly, the empirical evidence also provides some initial explanation of the limited impact of the recent financial crisis on the Islamic banking sector due to their unique portfolio management.

6.2 Limitation of Study and Future Research Suggestion

The overall result of this research shows a possible counter-cyclical economic behaviour of the Islamic bank financing. However, in some way, this study has its own limitation. The limitation of this paper comes in the form of small sample size and it is only able to analyse the short run cyclical behaviour of the Islamic bank financing activities. The reason for this is that, it is mainly because of the recent nature of the Islamic bank and the lack of a systematic financial record of the Islamic bank at the early stage of their establishment in the financial market scene.

A larger sample size with a longer time span will be able to provide a more concrete evidence and understanding of the Islamic bank cyclicality behaviour. Monitoring the Islamic bank financing cyclicality behaviour is essential for managerial as well as regulatory purposes. Without persistent monitoring of the Islamic bank financing behaviour, existing problems can remain unnoticed and will lead to financial failure in the future.

Another limitation foreseen in this study is how to determine the precise amount of provision for bad and doubtful debts and contingency reserve needed for the Islamic

bank to put into operation in the event of economic cycle. The statistical provisioning (as the term used by De Lis et al., 2000) and dynamic reserve model needs to be developed to fit the Quran's (12:46-49) instruction. The study also does not separate the various forms of contingency reserve and provision for bad and doubtful financing proportions by the Islamic banks for the reason of the different names and items used by some of the banks. The study also does not take into consideration the effectiveness of the profit equalisation reserve. Those limitations definitely invite the needs for further research.

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Islamic Bank List

	Islamic Bank Institution	Country	Year
1.	Bank Islam Malaysia Berhad	Malaysia	1998-2009
2.	Bank Muamalat Malaysia Berhad	Malaysia	2000-2009
3.	Maybank Bhd (Islamic bank division)	Malaysia	1998-2009
4.	HongLeong Bank Bhd (Islamic bank division)	Malaysia	1998-2009
5.	Public Bank Bhd (Islamic bank division)	Malaysia	1998-2009
6.	RHB Bhd (RHB) (Islamic bank division)	Malaysia	1998-2009
7.	Affin Bank Bhd (Islamic bank division)	Malaysia	1998-2009
8.	AM Bank Bhd (Islamic bank division)	Malaysia	1998-2009
9.	Alliance Bank Bhd (Islamic bank division)	Malaysia	1999-2009
10.	Hong Kong and Shanghai Bank Malaysia Bhd (Islamic bank division)	Malaysia	1998-2009
11.	Citibank Malaysia Bhd (Islamic bank division)	Malaysia	1998-2009
12.	Standard Chartered Bank Malaysia Bhd (Islamic bank division)	Malaysia	1998-2009
13.	Overseas Chinese Bank Malaysia Bhd (Islamic bank division)	Malaysia	1998-2009
14.	Bank Rakyat	Malaysia	1998-2008
15	Eon Bank (Islamic bank division)	Malaysia	2001-2008
16.	Abu Dhabi Islamic Bank	UAE	1998-2008
17.	Development Islamic Bank	UAE	1998-2008
18.	Sharjah Islamic Bank	UAE	2002-2009
19.	Al Jazira Bank	Saudi Arabia	1998-2009
20	Al Rajhi Banking	Saudi Arabia	1998-2009
21.	The National Commercial Bank	Saudi Arabia	1998-2009
22.	Arab National Bank	Saudi Arabia	1998-2009
23.	The Saudi British Bank	Saudi Arabia	2000-2009
24.	Banque Saudi Fransi	Saudi Arabia	2001-2009
25	The Saudi Investment Bank	Saudi Arabia	2001-2009
26	Samba Financial Group	Saudi Arabia	2000-2009
27	Shamil Bank	Bahrain	1999-2008
28	Gulf Finance House	Bahrain	2001-2009
29	ABC Islamic Bank	Bahrain	2003 -2009
30	AlBaraka Islamic Bank	Bahrain	1998-2009
31	Bahrain Islamic Bank	Bahrain	1998-2009
32	ARCAPITA	Bahrain	1998-2009
33	Kuwait Finance House	Bahrain	2002-2009
34	Faisal Islamic Bank of Egypt	Egypt	1999-2009
35	Egyptian Saudi Finance Bank	Egypt	1998-2008
36	Qatar Islamic Bank	Qatar	1998-2009
37	Qatar International Islamic Bank	Qatar	1998-2009
38	Jordan Islamic Bank	Jordan	1998-2008
39	Islamic International Arab Bank	Jordan	1998-2008
40	Tadhamon International Islamic Bank	Yemen	1998-2008
41	Islamic Bank of Yemen	Yemen	1999-2006
42	Saba Islamic Bank	Yemen	2004-2008
43	Omdurman National Bank	Sudan	1998-2008
44	Sudanese Islamic Bank	Sudan	2000-2007
45	Faisal Islamic Bank	Sudan	2003-2009

46	Tadamon Islamic Bank	Sudan	1998-2007
47	Kuwait Finance House	Kuwait	1998-2009
48	Kuveyt	Turk	1998-2009
49	Baraka	Turk	1998-2009
50	Baraka	South Africa	1998 -2009
51	Meezan	Pakistan	2000 -2009
52	Faysal Bank	Pakistan	2000 -2009
53	AlBaraka Islamic Bank	Pakistan	2003 -2009
54	Islami Bank Bangladesh	Bangladesh	1999-2009
55	Al-Arafah Islami Bank Limited	Bangladesh	1998-2008
56	Social Islami Bank	Bangladesh	1998-2008
57	Shahjalal Islami Bank Limited	Bangladesh	2001-2009
58	Export Import Bank of Bangladesh Limited	Bangladesh	2003-2009
59	PT Bank Syariah Mandiri	Indonesia	1999-2009
60	PT Bank Muamalat	Indonesia	1999-2009
61	Bank Keshavarzi	Iran	1998-2008
62	Bank Saderat Iran	Iran	1999-2009
63	Bank sepah	Iran	1998-2008
64	Bank Mellat	Iran	2003-2009
65	Karafarin Bank	Iran	2000-2009
66	Parsian Bank	Iran	2002-2009
67	Bank Tejarat	Iran	2003-2009

APPENDIX 2

Statistical Result

Panel unit root test

Panel unit root test:	Series: Total Financing Growth				
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel				
Method		Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)					
Levin, Lin & Chu t*		-1259.97	0.0000	66	490
Null: Unit root (assumes individual unit root process)					
Im, Pesaran and Shin W-stat		-82.0377	0.0000	66	490
ADF - Fisher Chi-square		280.227	0.0000	66	490
PP - Fisher Chi-square		514.210	0.0000	66	560
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.					

Panel unit root test:	Series: Fixed Rate Financing Growth				
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel				
Method		Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)					
Levin, Lin & Chu t*		-782.569	0.0000	56	416
Null: Unit root (assumes individual unit root process)					
Im, Pesaran and Shin W-stat		-64.6375	0.0000	56	416
ADF - Fisher Chi-square		247.969	0.0000	56	416
PP - Fisher Chi-square		438.970	0.0000	56	477
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.					

Panel unit root test:	Series: Reserve Growth				
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel				
Method		Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)					
Levin, Lin & Chu t*		-351.894	0.0000	66	492
Null: Unit root (assumes individual unit root process)					
Im, Pesaran and Shin W-stat		-35.8884	0.0000	66	492
ADF - Fisher Chi-square		260.130	0.0000	66	492
PP - Fisher Chi-square		461.159	0.0000	66	560
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.					

Panel unit root test:	Series: Loan Loss Provisions Growth			
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel			
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-41.9611	0.0000	63	456
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-9.83446	0.0000	63	456
ADF - Fisher Chi-square	272.662	0.0000	63	456
PP - Fisher Chi-square	436.461	0.0000	63	523
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

Panel unit root test:	Series: Deposits			
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel			
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-26.0239	0.0000	66	494
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.97353	0.0000	66	494
ADF - Fisher Chi-square	267.791	0.0000	66	494
PP - Fisher Chi-square	501.376	0.0000	66	563
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

Panel unit root test:	Series: Capital Based Growth			
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel			
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-111.229	0.0000	66	492
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-17.4589	0.0000	66	492
ADF - Fisher Chi-square	287.269	0.0000	66	492
PP - Fisher Chi-square	337.065	0.0000	66	561
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality				

Panel unit root test:	Series: Regulatory Reserve Growth			
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel			
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-25.1537	0.0000	65	507
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-10.1861	0.0000	65	507
ADF - Fisher Chi-square	366.872	0.0000	65	507
PP - Fisher Chi-square	420.935	0.0000	65	507
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

Panel unit root test:	Series: Provisions for Bad and Doubtful Financing Growth			
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel			
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-245.537	0.0000	58	435
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-30.3252	0.0000	58	435
ADF - Fisher Chi-square	201.235	0.0000	58	435
PP - Fisher Chi-square	337.409	0.0000	58	496
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

Panel unit root test:	Series: Non-performing financing			
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel			
Exogenous variables: Individual effects				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-71.5718	0.0000	66	447
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.45997	0.0000	66	447
ADF - Fisher Chi-square	201.149	0.0001	66	447
PP - Fisher Chi-square	431.456	0.0000	66	516
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality				

Panel unit root test:	Series: Net Profit Growth			
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel			
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-22.0467	0.0000	65	481
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.33331	0.0000	65	481
ADF - Fisher Chi-square	236.701	0.0000	65	481
PP - Fisher Chi-square	467.712	0.0000	65	550
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

Panel unit root test:	Series: Real Gross Domestic Product Growth			
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel			
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-19.1078	0.0000	66	493
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.43872	0.0000	66	493
ADF - Fisher Chi-square	268.242	0.0000	66	493
PP - Fisher Chi-square	312.548	0.0000	66	562
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

Panel unit root test:	Series: Money supply M2 Growth			
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel			
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-7.33583	0.0000	66	493
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-8.76408	0.0000	66	493
ADF - Fisher Chi-square	208.170	0.0000	66	493
PP - Fisher Chi-square	210.600	0.0000	66	562
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

Panel unit root test:	Series: Consumer Price Index Growth			
Sample: 1998 2009	Newey-West bandwidth selection using Bartlett kernel			
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-15.8148	0.0000	66	493
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-8.68066	0.0000	66	493
ADF - Fisher Chi-square	173.405	0.0091	66	493
PP - Fisher Chi-square	248.650	0.0000	66	562
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality				

Equation: Islamic Banks Total Financing

Redundant Fixed Effects Tests	Test cross-section and period fixed effects		
Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.011686	(66,430)	0.4570
Cross-section Chi-square	74.770428	66	0.2149
Period F	0.432430	(10,430)	0.9306
Period Chi-square	5.183253	10	0.8786
Cross-Section/Period F	0.947406	(76,430)	0.6040
Cross-Section/Period Chi-square	80.197055	76	0.3489
Cross-section fixed effects test	Dependent Variable: Total Financing		
Method: Panel Least Squares	Total panel (unbalanced) observations: 518		
Sample (adjusted): 1999 2009	Periods included: 11	Cross-sections included: 67	
	Coefficient	Std. Error	t-Statistic	Prob.
---	---	---	---	---
Constant	0.973557	1.281596	0.759645	0.4478
GDP growth	-0.022452	0.118515	-0.189444	0.8498
CPI growth	-0.048021	0.065577	-0.732285	0.4643
M2 growth	-0.039278	0.092396	-0.425104	0.6709
Reserve growth	0.116412	0.015147	7.685410	0.0000
LLP growth	0.089516	0.010183	8.790970	0.0000
Deposit growth	0.570732	0.082103	6.951421	0.0000
Capital Based growth	-0.090565	0.029558	-3.063996	0.0023
Regulatory Reserve	-1.650011	0.144921	-11.38562	0.0000
Non-Performing	-0.040182	0.050662	-0.793127	0.4281
Net profit growth	0.160846	0.018892	8.513940	0.0000
Previous Year Net profit	0.010936	0.011889	0.919807	0.3581

Effects Specification	Period fixed (dummy variables)		
R-squared	0.546277	Mean dependent var	1.576629
Adjusted R-squared	0.527067	S.D. dependent var	16.12040
S.E. of regression	11.08602	Akaike info criterion	7.690789
Sum squared resid	60958.29	Schwarz criterion	7.871290
Log likelihood	-1969.914	Hannan-Quinn criter.	7.761510
F-statistic	28.43709	Durbin-Watson stat	1.692726
Prob(F-statistic)	0.000000		

Period fixed effects test equation:	Dependent Variable: Total Financing		
Method: Panel Least Squares	Total panel (unbalanced) observations: 518		
Sample (adjusted): 1999	Periods included: 11	Cross-sections included: 67	
	Coefficient	Std. Error	t-Statistic	Prob.
---	---	---	---	---
Constant	0.648390	1.376440	0.471063	0.6378
GDP growth	-0.032797	0.115889	-0.283005	0.7773
CPI growth	-0.055764	0.065898	-0.846207	0.3979
M2 growth	-0.038511	0.109135	-0.352880	0.7243
Reserve growth	0.113048	0.015934	7.094602	0.0000
LLP growth	0.086117	0.010596	8.126982	0.0000
Deposit growth	0.540652	0.086616	6.241946	0.0000
Capital Based growth	-0.087177	0.030907	-2.820648	0.0050
Regulatory Reserve	-1.635153	0.151612	-10.78515	0.0000
Non-Performing	-0.034134	0.055110	-0.619391	0.5360
Net profit growth	0.153941	0.019884	7.741825	0.0000
Previous Year Net profit	0.002798	0.012594	0.222138	0.8243

Effects Specification	Cross-section fixed (dummy variables)		

R-squared	0.603313	Mean dependent var	1.576629
Adjusted R-squared	0.533893	S.D. dependent var	16.12040
S.E. of regression	11.00573	Akaike info criterion	7.772667
Sum squared resid	53295.49	Schwarz criterion	8.412625
Log likelihood	-1935.121	Hannan-Quinn criter.	8.023405
F-statistic	8.690733	Durbin-Watson stat	1.926293
Prob(F-statistic)	0.000000		

Cross-section and period fixed effects test		Dependent Variable: Total Financing
Method: Panel Least Squares	Total panel (unbalanced) observations: 518	
Sample (adjusted): 1999 2009	Periods included: 11	Cross-sections included: 67

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.028726	1.155471	0.890309	0.3737
GDP growth	-0.012813	0.107440	-0.119258	0.9051
CPI growth	-0.050694	0.059860	-0.846886	0.3975
M2 growth	-0.031929	0.087545	-0.364718	0.7155
Reserve growth	0.116244	0.014909	7.796672	0.0000
LLP growth	0.089934	0.009886	9.096838	0.0000
Deposit growth	0.573551	0.081278	7.056676	0.0000
Capital Based growth	-0.091447	0.029165	-3.135528	0.0018
Regulatory Reserve	-1.651797	0.142578	-11.58521	0.0000
Non-Performing	-0.042040	0.050110	-0.838963	0.4019
Net profit growth	0.161333	0.018604	8.671859	0.0000
Previous Year Net profit	0.010265	0.011693	0.877901	0.3804

R-squared	0.541499	Mean dependent var	1.576629
Adjusted R-squared	0.531532	S.D. dependent var	16.12040
S.E. of regression	11.03357	Akaike info criterion	7.662655
Sum squared resid	61600.26	Schwarz criterion	7.761110
Log likelihood	-1972.628	Hannan-Quinn criter.	7.701230
F-statistic	54.32696	Durbin-Watson stat	1.680220
Prob(F-statistic)	0.000000		

Dependent Variable: Residuals	Method: Panel Least Squares	
Sample (adjusted): 2000 2009	Periods included: 10	Cross-sections included: 67
Total panel (unbalanced) observations: 437		

	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.049421	0.033772	-1.463402	0.1441
R-squared	0.003743	Mean dependent var		-0.286567
Adjusted R-squared	0.003743	S.D. dependent var		8.460269
S.E. of regression	8.444419	Akaike info criterion		7.107174
Sum squared resid	31090.38	Schwarz criterion		7.116511
Log likelihood	-1551.918	Hannan-Quinn criter.		7.110858
Durbin-Watson stat	1.789642			

Wald Test:			
Test Statistic	Value	df	Probability
F-statistic	178.0072	(1, 436)	0.0000
Chi-square	178.0072	1	0.0000
Null Hypothesis Summary:			
Normalized Restriction (= 0)	Value		Std. Err.
0.5 + C(1)	0.450579		0.033772
Restrictions are linear in coefficients.			

Equation: Middle East Banks Total Financing

Redundant Fixed Effects Tests	Test cross-section and period fixed effects		
Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.052530	(38,227)	0.3950
Cross-section Chi-square	46.575566	38	0.1603
Period F	1.712088	(10,227)	0.0991
Period Chi-square	20.204731	10	0.6685
Cross-Section/Period F	1.194307	(48,227)	0.1970
Cross-Section/Period Chi-square	64.428857	48	0.7800
Cross-section fixed effects test	Dependent Variable: Total Financing		
Method: Panel Least Squares	Total panel (unbalanced) observations: 287		
Sample (adjusted): 1999 2009	Periods included: 11 Cross-sections included: 39		
	Coefficient	Std. Error	t-Statistic	Prob.
---	---	---	---	---
Constant	-1.240099	0.703219	-1.763459	0.0790
GDP growth	-0.189845	0.093115	-2.038827	0.0725
CPI growth	-0.009895	0.049758	-0.198861	0.8425
M2 growth	-0.009507	0.026985	-0.352310	0.7249
Reserve growth	0.418785	0.031189	13.42723	0.0000
LLP growth	0.074237	0.019171	3.872283	0.0001
Deposit growth	0.844410	0.068055	12.40776	0.0000
Capital Based growth	-0.203349	0.030837	-6.594356	0.0000
Regulatory Reserve growth	-0.241999	0.192805	-1.255145	0.2105
Non-Performing Financing	-0.001473	0.019268	-0.076467	0.9391
Net profit growth	0.004143	0.008600	0.481808	0.6303
Previous Year Net profit	0.007018	0.008329	0.842566	0.4002

Effects Specification	Period fixed (dummy variables)		
R-squared	0.614821	Mean dependent var	1.120417
Adjusted R-squared	0.585860	S.D. dependent var	6.326962
S.E. of regression	4.071635	Akaike info criterion	5.716322
Sum squared resid	4409.804	Schwarz criterion	5.984089
Log likelihood	-799.2922	Hannan-Quinn criter.	5.823639
F-statistic	21.22939	Durbin-Watson stat	1.787050
Prob(F-statistic)	0.000000		

Period fixed effects test equation:	Dependent Variable: Total Financing		
Method: Panel Least Squares	Total panel (unbalanced) observations: 287		
Sample (adjusted): 1999 2009	Periods included: 11 Cross-sections included: 39		

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-2.244639	0.799766	-2.806621	0.0054
GDP growth	-0.355919	0.205715	-1.730155	0.0859
CPI growth	-0.017205	0.074992	-0.229417	0.8187
M2 growth	-0.001969	0.027063	-0.072764	0.9421
Reserve growth	0.415251	0.033392	12.43579	0.0000
LLP growth	0.492011	0.073130	6.727844	0.0000
Deposit growth	0.836664	0.074284	11.26306	0.0000
Capital Based growth	-0.207943	0.032824	-6.335147	0.0000
Regulatory Reserve growth	-0.028555	0.202392	-0.141090	0.8879
Non-Performing Financing	-0.009472	0.021440	-0.441816	0.6590
Net profit growth	0.005550	0.009319	0.595479	0.5521
Previous Year Net profit	0.006287	0.008849	0.710412	0.4781

Effects Specification	Cross-section fixed (dummy variables)		

R-squared	0.649873	Mean dependent var		1.120417
Adjusted R-squared	0.579260	S.D. dependent var		6.326962
S.E. of regression	4.103952	Akaike info criterion		5.816030
Sum squared resid	4008.497	Schwarz criterion		6.440819
Log likelihood	-785.6003	Hannan-Quinn criter.		6.066436
F-statistic	9.203215	Durbin-Watson stat		1.979598
Prob(F-statistic)	0.000000			

Cross-section and period fixed effects test equation: Dependent Variable: TF

Method: Panel Least Squares		Total panel (unbalanced) observations: 287		
Sample (adjusted): 1999 2009		Periods included: 11	Cross-sections included: 39	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-1.484726	0.594414	-2.497799	0.0131
GDP growth	-0.015684	0.008862	-1.769899	0.0883
CPI growth	-0.017826	0.047671	-0.373929	0.7087
M2 growth	-0.003008	0.025034	-0.120171	0.9044
Reserve growth	0.840550	0.064164	13.09997	0.0000
LLP growth	0.203809	0.030606	6.659110	0.0000
Deposit growth	0.851711	0.067113	12.69070	0.0000
Capital Based growth	-0.198785	0.030144	-6.594448	0.0000
Regulatory Reserve growth	-0.130568	0.190076	-0.686927	0.4927
Non-Performing Financing	-0.000798	0.019382	-0.041155	0.9672
Net profit growth	0.003707	0.008586	0.431768	0.6662
Previous Year Net profit	0.005069	0.008257	0.613957	0.5397
R-squared	0.591543	Mean dependent var		1.120417
Adjusted R-squared	0.576744	S.D. dependent var		6.326962
S.E. of regression	4.116202	Akaike info criterion		5.705312
Sum squared resid	4676.300	Schwarz criterion		5.845571
Log likelihood	-807.7123	Hannan-Quinn criter.		5.761526
F-statistic	39.97145	Durbin-Watson stat		1.732625
Prob(F-statistic)	0.000000			

Dependent Variable: Residuals		Method: Panel Least Squares		
Sample (adjusted): 2000 2009		Periods included: 10	Cross-sections included: 39	
Total panel (unbalanced) observations: 237				
	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.026634	0.028659	-0.929346	0.3532
R-squared	0.001189	Mean dependent var		0.562118
Adjusted R-squared	0.001189	S.D. dependent var		21.74483
S.E. of regression	21.73189	Akaike info criterion		8.997587
Sum squared resid	219135.7	Schwarz criterion		9.006495
Log likelihood	-2090.939	Hannan-Quinn criter.		9.001093
Durbin-Watson stat	1.798314			

Wald Test:

Test Statistic	Value	df		Probability
F-statistic	39.48678	(1, 236)		0.0000
Chi-square	39.48678	1		0.0000

Null Hypothesis Summary:

Normalized Restriction (= 0)		Value		Std. Err.
0.5 + C(1)		0.354967		0.056489
Restrictions are linear in coefficients.				

Equation: Southeast Asia Islamic Banks Total Financing

Redundant Fixed Effects Tests	Test cross-section and period fixed effects		
Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.945041	(16,108)	0.5212
Cross-section Chi-square	19.130901	16	0.2619
Period F	0.953081	(10,108)	0.4885
Period Chi-square	12.347116	10	0.2625
Cross-Section/Period F	0.991635	(26,108)	0.4856
Cross-Section/Period Chi-square	31.256294	26	0.2189
Cross-section fixed effects test equation:	Dependent Variable: Total Financing		
Method: Panel Least Squares	Total panel (unbalanced) observations: 146		
Sample (adjusted): 1999 2009	Periods included: Cross-sections included: 17		
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	7.451760	5.021734	1.483902	0.1404
GDP growth	-0.012744	0.276662	-0.046065	0.9633
CPI growth	-0.431400	0.642885	-0.671038	0.5034
M2 growth	-0.384919	0.371894	-1.035023	0.3027
Reserve growth	0.187956	0.031594	5.949047	0.0000
LLP growth	0.077536	0.033042	2.346615	0.0205
Deposit growth	0.864122	0.141523	6.105855	0.0000
Capital Based growth	-0.408207	0.062689	-6.511665	0.0000
Regulatory Reserve growth	-2.753230	0.220844	-12.46685	0.0000
Non-Performing Financing	-0.011147	0.226414	-0.049235	0.9608
Net profit growth	0.342404	0.045629	7.504111	0.0000
Previous Year Net profit	0.009802	0.019344	0.506730	0.6132
Effects Specification	Period fixed (dummy variables)		
R-squared	0.716638	Mean dependent var	2.945223
Adjusted R-squared	0.671300	S.D. dependent var	28.82065
S.E. of regression	16.52357	Akaike info criterion	8.579831
Sum squared resid	34128.55	Schwarz criterion	9.008980
Log likelihood	-605.3277	Hannan-Quinn criter.	8.754204
F-statistic	15.80655	Durbin-Watson stat	1.874642
Prob(F-statistic)	0.000000		
Period fixed effects test	Dependent Variable: Total Financing		
Method: Panel Least Squares	Total panel (unbalanced) observations: 146		
Sample (adjusted): 1999 2009	Periods included: 11	Cross-sections included:	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	4.688384	3.702032	1.266435	0.2078
GDP growth	-0.057776	0.175518	-0.329175	0.7426
CPI growth	0.895504	0.900681	0.994252	0.3221
M2 growth	-0.452791	0.224853	-2.013718	0.0463
Reserve growth	0.189901	0.032388	5.863276	0.0000
LLP growth	0.075977	0.033278	2.283078	0.0242
Deposit growth	0.824714	0.145037	5.686231	0.0000
Capital Based growth	-0.386598	0.065086	-5.939793	0.0000
Regulatory Reserve growth	-2.766244	0.227577	-12.15520	0.0000
Non-Performing Financing	0.082390	0.246707	0.333958	0.7390
Net profit growth	0.314906	0.046078	6.834160	0.0000
Previous Year Net profit	0.004503	0.020183	0.223118	0.8238
Effects Specification	Cross-section fixed (dummy variables)		

R-squared	0.729658	Mean dependent var	2.945223
Adjusted R-squared	0.670592	S.D. dependent var	28.82065
S.E. of regression	16.54134	Akaike info criterion	8.614983
Sum squared resid	32560.31	Schwarz criterion	9.166746
Log likelihood	-601.8937	Hannan-Quinn criter.	8.839177
F-statistic	12.35322	Durbin-Watson stat	2.020431
Prob(F-statistic)	0.000000		

Cross-section and period fixed effects test		Dependent Variable: Total Financing	
Method: Panel Least Squares		Total panel (unbalanced) observations: 146	
Sample (adjusted): 1999 2009		Periods included: 11	Cross-sections included:

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	5.374808	3.319834	1.618999	0.1078
GDP growth	-0.083890	0.165154	-0.507949	0.6123
CPI growth	-0.091843	0.538048	-0.170697	0.8647
M2 growth	-0.292689	0.212073	-1.380128	0.1698
Reserve growth	0.184537	0.030125	6.125693	0.0000
LLP growth	0.075305	0.031298	2.406023	0.0175
Deposit growth	0.854568	0.136563	6.257692	0.0000
Capital Based growth	-0.405601	0.059995	-6.760597	0.0000
Regulatory Reserve growth	-2.704565	0.213964	-12.64027	0.0000
Non-Performing Financing	-0.023337	0.217353	-0.107369	0.9147
Net profit growth	0.343115	0.043675	7.856043	0.0000
Previous Year Net profit	0.013297	0.018396	0.722783	0.4711

R-squared	0.700440	Mean dependent var	2.945223
Adjusted R-squared	0.678251	S.D. dependent var	28.82065
S.E. of regression	16.34793	Akaike info criterion	8.498432
Sum squared resid	36079.38	Schwarz criterion	8.723224
Log likelihood	-609.3855	Hannan-Quinn criter.	8.589770
F-statistic	31.56613	Durbin-Watson stat	1.916303
Prob(F-statistic)	0.000000		

Dependent Variable: Residuals		Method: Panel Least Squares	
Sample (adjusted): 2000 2009		Periods included: 10	Cross-sections included:
Total panel (unbalanced) observations: 126			

	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.060613	0.074736	-0.811033	0.4189
R-squared	0.003641	Mean dependent var		-0.513805
Adjusted R-squared	0.003641	S.D. dependent var		12.88980
S.E. of regression	12.86631	Akaike info criterion		7.955006
Sum squared resid	20692.73	Schwarz criterion		7.977516
Log likelihood	-500.1654	Hannan-Quinn criter.		7.964151
Durbin-Watson stat	2.181670			

Wald Test:			
Test Statistic	Value	df	Probability
F-statistic	34.56505	(1, 125)	0.0000
Chi-square	34.56505	1	0.0000

Null Hypothesis Summary:		
Normalized Restriction (= 0)	Value	Std. Err.
0.5 + C(1)	0.439387	0.074736
Restrictions are linear in coefficients.		

Equation: Islamic Banks Fixed Rate Financing

Redundant Fixed Effects Tests	Test cross-section and period fixed effects		
Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.869923	(57,366)	0.7357
Cross-section Chi-square	56.539628	57	0.4923
Period F	0.622057	(10,366)	0.7951
Period Chi-square	7.499704	10	0.6776
Cross-Section/Period F	0.854558	(67,366)	0.7813
Cross-Section/Period Chi-square	64.677408	67	0.5577
Cross-section fixed effects test equation:	Dependent Variable: Fixed Rate Financing		
Method: Panel Least Squares	Total panel (unbalanced) observations: 445		
Sample (adjusted): 1999 2009	Periods included: 11	Cross-sections included: 58	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.217321	1.590846	0.765204	0.4446
GDP growth	-0.033153	0.142268	-0.233034	0.8158
CPI growth	-0.085887	0.115130	-0.745999	0.4561
M2 growth	-0.022372	0.082709	-0.270497	0.7869
Reserve growth	0.103452	0.018130	5.706017	0.0000
LLP growth	0.115014	0.012428	9.254723	0.0000
Deposit growth	0.643922	0.099393	6.478539	0.0000
Capital Based growth	-0.210627	0.038225	-5.510230	0.0000
Regulatory Reserve growth	-2.461571	0.156584	-15.72045	0.0000
Non-Performing Financing	0.019740	0.068797	0.286925	0.7743
Net profit growth	0.275761	0.026274	10.49573	0.0000
Previous Year Net profit	0.015777	0.014876	1.060533	0.2895
Effects Specification	Period fixed (dummy variables)		
R-squared	0.660253	Mean dependent var	1.956194
Adjusted R-squared	0.643386	S.D. dependent var	19.29474
S.E. of regression	11.52228	Akaike info criterion	7.774617
Sum squared resid	56158.72	Schwarz criterion	7.977218
Log likelihood	-1707.852	Hannan-Quinn criter.	7.854506
F-statistic	39.14488	Durbin-Watson stat	1.945022
Prob(F-statistic)	0.000000		
Period fixed effects test equation:	Dependent Variable: FR		
Method: Panel Least Squares	Total panel (unbalanced) observations: 445		
Sample (adjusted): 1999 2009	Periods included: 11	Cross-sections included: 58	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.351380	1.712765	0.789005	0.4306
GDP growth	-0.052071	0.138812	-0.375120	0.7078
CPI growth	-0.027688	0.134850	-0.205322	0.8374
M2 growth	-0.037423	0.084435	-0.443217	0.6579
Reserve growth	0.102857	0.019322	5.323344	0.0000
LLP growth	0.106324	0.013087	8.124545	0.0000
Deposit growth	0.597729	0.106204	5.628103	0.0000
Capital Based growth	-0.200799	0.040538	-4.953363	0.0000
Regulatory Reserve growth	-2.479952	0.165076	-15.02312	0.0000
Non-Performing Financing	0.017122	0.075811	0.225857	0.8214
Net profit growth	0.258486	0.027932	9.254240	0.0000
Previous Year Net profit	0.004215	0.015939	0.264426	0.7916
Effects Specification	Cross-section fixed (dummy variables)		

R-squared	0.695704	Mean dependent var	1.956194
Adjusted R-squared	0.640672	S.D. dependent var	19.29474
S.E. of regression	11.56604	Akaike info criterion	7.875650
Sum squared resid	50298.74	Schwarz criterion	8.511082
Log likelihood	-1683.332	Hannan-Quinn criter.	8.126213
F-statistic	12.64176	Durbin-Watson stat	2.171875
Prob(F-statistic)	0.000000		

Cross-section and period fixed effects test Dependent Variable: Fixed Rate Financing

Method: Panel Least Squares   Total panel (unbalanced) observations: 445

Sample (adjusted): 1999 2009 Periods included: 11 Cross-sections included: 58

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.413929	1.440670	0.981439	0.3269
GDP growth	-0.082753	0.127498	-0.649051	0.5166
CPI growth	-0.080735	0.108203	-0.746149	0.4560
M2 growth	-0.018271	0.075035	-0.243501	0.8077
Reserve growth	0.103594	0.017824	5.811948	0.0000
LLP growth	0.114234	0.012095	9.444493	0.0000
Deposit growth	0.650068	0.098340	6.610415	0.0000
Capital Based growth	-0.212326	0.037803	-5.616653	0.0000
Regulatory Reserve growth	-2.451878	0.153997	-15.92161	0.0000
Non-Performing Financing	0.007052	0.067722	0.104136	0.9171
Net profit growth	0.276177	0.025937	10.64820	0.0000
Previous Year Net profit	0.015559	0.014625	1.063853	0.2880
R-squared	0.653982	Mean dependent var	1.956194	
Adjusted R-squared	0.645192	S.D. dependent var	19.29474	
S.E. of regression	11.49306	Akaike info criterion	7.747960	
Sum squared resid	57195.15	Schwarz criterion	7.858470	
Log likelihood	-1711.921	Hannan-Quinn criter.	7.791536	
F-statistic	74.39831	Durbin-Watson stat	1.919103	
Prob(F-statistic)	0.000000			

Dependent Variable: Residuals   Method: Panel Least Squares

Sample (adjusted): 2000 2009   Periods   included: Cross-sections included: 58

Total panel (unbalanced) observations: 373

	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.063360	0.038666	-1.638652	0.1021
R-squared	0.006613	Mean dependent var	-0.245620	
Adjusted R-squared	0.006613	S.D. dependent var	10.41798	
S.E. of regression	10.38347	Akaike info criterion	7.520985	
Sum squared resid	40107.74	Schwarz criterion	7.531499	
Log likelihood	-1401.664	Hannan-Quinn criter.	7.525160	
Durbin-Watson stat	2.017951			

Wald Test:

Test Statistic	Value	df	Probability
F-statistic	127.5227	(1, 372)	0.0000
Chi-square	127.5227	1	0.0000

Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
0.5 + C(1)	0.436640	0.038666

Restrictions are linear in coefficients.

Equation: Middle East Islamic Banks Fixed Rate Financing

Redundant Fixed Effects Tests	Test cross-section and period fixed effects		
Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.972229	(29,163)	0.5126
Cross-section Chi-square	34.141924	29	0.2341
Period F	0.460882	(10,163)	0.9130
Period Chi-square	5.966874	10	0.8180
Cross-Section/Period F	0.867084	(39,163)	0.6929
Cross-Section/Period Chi-square	40.343383	39	0.4107
Cross-section fixed effects test equation:	Dependent Variable: Fixed Rate Financing		
Method: Panel Least Squares	Total panel (unbalanced) observations: 214		
Sample (adjusted): 1999 2009	Periods included: 11	Cross-sections included:	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.250355	1.119155	-0.223700	0.8232
GDP growth	0.096288	0.136569	0.705048	0.4816
CPI growth	-0.066514	0.081157	-0.819574	0.4135
M2 growth	-0.009079	0.039827	-0.227963	0.8199
Reserve growth	0.099868	0.051085	1.954957	0.0505
LLP growth	0.015684	0.008862	1.769899	0.0503
Deposit growth	0.864582	0.108146	7.994589	0.0000
Capital Based growth	-0.191331	0.073469	-2.604254	0.0099
Regulatory Reserve growth	-1.087996	0.279380	-3.894329	0.0001
Non-Performing Financing	-0.038609	0.032245	-1.197355	0.2326
Net profit growth	0.041824	0.019339	2.162711	0.0318
Previous Year Net profit	0.006338	0.017423	0.363735	0.7165
Effects Specification	Period fixed (dummy variables)		
R-squared	0.586810	Mean dependent var	1.465256
Adjusted R-squared	0.541618	S.D. dependent var	7.643327
S.E. of regression	5.174833	Akaike info criterion	6.222618
Sum squared resid	5141.548	Schwarz criterion	6.568653
Log likelihood	-643.8201	Hannan-Quinn criter.	6.362447
F-statistic	12.98465	Durbin-Watson stat	2.125298
Prob(F-statistic)	0.000000		
Period fixed effects test equation:	Dependent Variable: Fixed Rate Financing		
Method: Panel Least Squares	Total panel (unbalanced) observations: 214		
Sample (adjusted): 1999 2009	Periods included: 11	Cross-sections included: 30	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-1.480449	1.183388	-1.251026	0.2126
GDP growth	0.139314	0.141074	0.987524	0.3248
CPI growth	0.025656	0.116679	0.219884	0.8262
M2 growth	0.011019	0.039799	0.276867	0.7822
Reserve growth	0.316709	0.043340	7.307569	0.0000
LLP growth	0.067106	0.027661	2.426024	0.0166
Deposit growth	0.870910	0.113596	7.666727	0.0000
Capital Based growth	-0.202180	0.075898	-2.663846	0.0085
Regulatory Reserve growth	-1.278950	0.284225	-4.499785	0.0000
Non-Performing Financing	-0.036495	0.034810	-1.048411	0.2959
Net profit growth	0.041215	0.019941	2.066832	0.0402
Previous Year Net profit	0.011493	0.017773	0.646678	0.5187
Effects Specification	Cross-section fixed (dummy variables)		

R-squared	0.637782	Mean dependent var		1.465256
Adjusted R-squared	0.554032	S.D. dependent var		7.643327
S.E. of regression	5.104280	Akaike info criterion		6.268529
Sum squared resid	4507.285	Schwarz criterion		6.913412
Log likelihood	-629.7326	Hannan-Quinn criter.		6.529120
F-statistic	7.615308	Durbin-Watson stat		2.513960
Prob(F-statistic)	0.000000			

Cross-section and period fixed effects test equation: Dependent Variable: FR				
Method: Panel Least Squares		Total panel (unbalanced) observations: 214		
Sample (adjusted): 1999 2009		Periods included: 11 Cross-sections included: 30		
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.986433	0.921108	-1.070921	0.2855
GDP growth	0.154711	0.113879	1.358558	0.1758
CPI growth	-0.048054	0.075102	-0.639846	0.5230
M2 growth	0.006718	0.036253	0.185317	0.8532
Reserve growth	0.077437	0.017770	4.357693	0.0000
LLP growth	0.015758	0.008284	1.902178	0.0506
Deposit growth	0.869807	0.101837	8.541152	0.0000
Capital Based growth	-0.197557	0.069834	-2.828946	0.0051
Regulatory Reserve growth	-1.121258	0.268202	-4.180657	0.0000
Non-Performing Financing	-0.034937	0.031442	-1.111165	0.2678
Net profit growth	0.037451	0.018514	2.022889	0.0444
Previous Year Net profit	0.005701	0.016772	0.339944	0.7342
R-squared	0.574661	Mean dependent var		1.465256
Adjusted R-squared	0.551499	S.D. dependent var		7.643327
S.E. of regression	5.118750	Akaike info criterion		6.158139
Sum squared resid	5292.724	Schwarz criterion		6.346885
Log likelihood	-646.9209	Hannan-Quinn criter.		6.234409
F-statistic	24.81053	Durbin-Watson stat		2.145467
Prob(F-statistic)	0.000000			

Dependent Variable: Residuals		Method: Panel Least Squares		
Sample (adjusted): 2000 2009		Periods included: 10 Cross-sections included: 30		
Total panel (unbalanced) observations: 173				
	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.158661	0.078214	-2.028564	0.0940
R-squared	0.023366	Mean dependent var		-6.32E-05
Adjusted R-squared	0.023366	S.D. dependent var		5.130230
S.E. of regression	5.069940	Akaike info criterion		6.090299
Sum squared resid	4421.138	Schwarz criterion		6.108526
Log likelihood	-525.8108	Hannan-Quinn criter.		6.097693
Durbin-Watson stat	2.358964			

Wald Test:			
Test Statistic	Value	df	Probability
F-statistic	19.04613	(1, 172)	0.0000
Chi-square	19.04613	1	0.0000
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
0.5 + C(1)		0.341339	0.078214
Restrictions are linear in coefficients.			

Equation: Southeast Asia Islamic Banks Fixed Rate Financing

Redundant Fixed Effects **Tests**	Test cross-section and period fixed effects		
Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.546579	(16,108)	0.9157
Cross-section Chi-square	11.368005	16	0.7862
Period F	1.269699	(10,108)	0.2566
Period Chi-square	16.228191	10	0.0933
Cross-Section/Period F	0.847273	(26,108)	0.6779
Cross-Section/Period Chi-square	27.101545	26	0.4040
Cross-section fixed effects test equation:	Dependent Variable: Fixed Rate Financing		
Method: Panel Least Squares	Total panel (unbalanced) observations: 146		
Sample (adjusted): 1999 2009	Periods included: 11	Cross-sections included: 17	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	11.93147	5.786111	2.062088	0.0413
GDP growth	-0.011263	0.318774	-0.035331	0.9719
CPI growth	-0.680831	0.740741	-0.919122	0.3598
M2 growth	-0.613468	0.428501	-1.431660	0.1547
Reserve growth	0.212889	0.036403	5.848064	0.0000
LLP growth	0.361383	0.173503	2.082856	0.0380
Deposit growth	0.704027	0.163065	4.317458	0.0000
Capital Based growth	-0.480789	0.072231	-6.656295	0.0000
Regulatory Reserve growth	-3.371384	0.232904	-14.47544	0.0000
Non-Performing Financing	-0.044489	0.260877	-0.170538	0.8649
Net profit growth	0.378879	0.052574	7.206560	0.0000
Previous Year Net profit	0.006411	0.022289	0.287648	0.7741
Effects Specification	Period fixed (dummy variables)		
R-squared	0.695549	Mean dependent var	3.145603
Adjusted R-squared	0.646837	S.D. dependent var	32.03681
S.E. of regression	19.03869	Akaike info criterion	8.863202
Sum squared resid	45308.95	Schwarz criterion	9.292350
Log likelihood	-626.0137	Hannan-Quinn criter.	9.037575
F-statistic	14.27875	Durbin-Watson stat	1.816370
Prob(F-statistic)	0.000000		
Period fixed effects test equation:	Dependent Variable: Fixed Rate Financing		
Method: Panel Least Squares	Total panel (unbalanced) observations: 146		
Sample (adjusted): 1999 2009	Periods included: 11	Cross-sections included: 17	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	7.537107	4.331226	1.740179	0.0844
GDP growth	-0.155106	0.205349	-0.755331	0.4515
CPI growth	-0.597171	1.053760	-0.566705	0.5720
M2 growth	-0.154666	0.089163	-1.734653	0.0842
Reserve growth	0.213086	0.037893	5.623360	0.0000
LLP growth	0.186438	0.028159	6.620803	0.0000
Deposit growth	0.661337	0.169687	3.897381	0.0002
Capital Based growth	-0.462904	0.076148	-6.079001	0.0000
Regulatory Reserve growth	-3.387945	0.249768	-13.56435	0.0000
Non-Performing Financing	0.165389	0.288637	0.572999	0.5677
Net profit growth	0.350975	0.053910	6.510435	0.0000
Previous Year Net profit	0.003299	0.023614	0.139717	0.8891
Effects Specification	Cross-section fixed (dummy variables)		

R-squared	0.700523	Mean dependent var	3.145603
Adjusted R-squared	0.635091	S.D. dependent var	32.03681
S.E. of regression	19.35269	Akaike info criterion	8.928920
Sum squared resid	44568.69	Schwarz criterion	9.480683
Log likelihood	-624.8112	Hannan-Quinn criter.	9.153114
F-statistic	10.70614	Durbin-Watson stat	1.915407
Prob(F-statistic)	0.000000		

Cross-section and period fixed effects test equation: Dependent Variable: FR

Method: Panel Least Squares	Total panel (unbalanced) observations: 146	
Sample (adjusted): 1999 2009	Periods included: 11	Cross-sections included: 17

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	8.136168	3.844640	2.116237	0.0362
GDP growth	-0.205892	0.191262	-1.076492	0.2836
CPI growth	-0.162114	0.623104	-0.260172	0.7951
M2 growth	-0.331652	0.245598	-1.350384	0.1792
Reserve growth	0.207563	0.034887	5.949538	0.0000
LLP growth	0.415251	0.033392	12.43579	0.0000
Deposit growth	0.696560	0.158151	4.404398	0.0000
Capital Based growth	-0.484998	0.069479	-6.980486	0.0000
Regulatory Reserve growth	-3.323244	0.228454	-14.54669	0.0000
Non-Performing Financing	-0.074728	0.251713	-0.296879	0.7670
Net profit growth	0.382993	0.050580	7.572086	0.0000
Previous Year Net profit	0.014191	0.021304	0.666083	0.5065

R-squared	0.674859	Mean dependent var	3.145603
Adjusted R-squared	0.650775	S.D. dependent var	32.03681
S.E. of regression	18.93224	Akaike info criterion	8.791963
Sum squared resid	48388.01	Schwarz criterion	9.016755
Log likelihood	-630.8133	Hannan-Quinn criter.	8.883301
F-statistic	28.02050	Durbin-Watson stat	1.842810
Prob(F-statistic)	0.000000		

Dependent Variable: Residuals	Method: Panel Least Squares	
Sample (adjusted): 2000 2009	Periods included: 10	Cross-sections included: 17

Total panel (unbalanced) observations: 126

	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.041117	0.075845	-0.542115	0.5887
R-squared	0.000531	Mean dependent var		-0.635733
Adjusted R-squared	0.000531	S.D. dependent var		14.96500
S.E. of regression	14.96103	Akaike info criterion		8.256679
Sum squared resid	27979.04	Schwarz criterion		8.279189
Log likelihood	-519.1708	Hannan-Quinn criter.		8.265824
Durbin-Watson stat	2.175190			

Wald Test:

Test Statistic	Value	df	Probability
F-statistic	36.60537	(1, 125)	0.0000
Chi-square	36.60537	1	0.0000

Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
0.5 + C(1)	0.458883	0.075845

Restrictions are linear in coefficients.

Equation: Islamic Banks Provision for Bad and Doubtful Financing

Redundant Fixed Effects Tests		Test cross-section and period fixed effects		
Effects Test		Statistic	d.f.	Prob.
Cross-section F		0.812668	(66,488)	0.8510
Cross-section Chi-square		59.856122	66	0.6893
Period F		0.811691	(11,488)	0.6284
Period Chi-square		10.407169	11	0.4942
Cross-Section/Period F		0.807819	(77,488)	0.8761
Cross-Section/Period Chi-square		68.862881	77	0.7344
Cross-section fixed effects test		Dependent Variable: PBD		
Method: Panel Least Squares		Total panel (unbalanced) observations: 574		
Sample: 1998 2009		Periods included: 12	Cross-sections included: 67	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.008171	1.496195	-0.005461	0.9956
GDP growth	0.034413	0.108774	0.316370	0.7518
CPI growth	0.117302	0.118255	0.991940	0.3217
M2 growth	0.028057	0.082545	0.339893	0.7341
Total Financing growth	0.399835	0.030498	13.11025	0.0000
Non-Performing	0.471651	0.070430	6.696735	0.0000
Net profit growth	0.038700	0.020644	1.874590	0.0604
Capital Based growth	0.118877	0.037669	3.155787	0.0017
Regulatory Reserve	-0.095380	0.143604	-0.664186	0.5068
Effects Specification	Period fixed (dummy variables)			
R-squared	0.408048	Mean dependent var		2.922224
Adjusted R-squared	0.388849	S.D. dependent var		22.20980
S.E. of regression	17.36276	Akaike info criterion		8.579073
Sum squared resid	167313.3	Schwarz criterion		8.723150
Log likelihood	-2443.194	Hannan-Quinn criter.		8.635270
F-statistic	21.25419	Durbin-Watson stat		2.293946
Prob(F-statistic)	0.000000			
Period fixed effects test equation:		Dependent Variable: PBD		
Method: Panel Least Squares		Total panel (unbalanced) observations: 574		
Sample: 1998 2009		Periods included: 12	Cross-sections included: 67	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.689716	1.639619	0.420656	0.6742
GDP growth	0.050804	0.109285	0.464881	0.6422
CPI growth	0.040535	0.140726	0.288042	0.7734
M2 growth	0.021346	0.084652	0.252158	0.8010
Total Financing growth	0.401629	0.032624	12.31069	0.0000
Non-Performing	0.488214	0.077404	6.307366	0.0000
Net profit growth	0.244158	0.135227	1.805544	0.0732
Capital Based growth	0.108531	0.040179	2.701186	0.0071
Regulatory Reserve	-0.121996	0.153526	-0.794628	0.4272
Effects Specification	Cross-section fixed (dummy variables)			
R-squared	0.456654	Mean dependent var		2.922224
Adjusted R-squared	0.377325	S.D. dependent var		22.20980
S.E. of regression	17.52569	Akaike info criterion		8.685031
Sum squared resid	153575.0	Schwarz criterion		9.246172
Log likelihood	-2418.604	Hannan-Quinn criter.		8.903903
F-statistic	5.756487	Durbin-Watson stat		2.539204

Prob(F-statistic)	0.000000			
Cross-section and period fixed effects test			Dependent Variable: PBD	
Method: Panel Least Squares		Total panel (unbalanced) observations: 574		
Sample: 1998 2009		Periods included: 12	Cross-sections included: 67	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.074994	1.390697	0.053926	0.9570
GDP growth	0.046150	0.101600	0.454230	0.6498
CPI growth	0.081792	0.112930	0.724278	0.4692
M2 growth	0.040396	0.076709	0.526613	0.5987
Total Financing growth	0.400307	0.030182	13.26290	0.0000
Non-Performing	0.472836	0.069538	6.799688	0.0000
Net profit growth	0.452791	0.224853	2.013718	0.0463
Capital Based growth	0.116382	0.037235	3.125640	0.0019
Regulatory Reserve	-0.117311	0.142268	-0.824574	0.4100
R-squared	0.398441	Mean dependent var		2.922224
Adjusted R-squared	0.391002	S.D. dependent var		22.20980
S.E. of regression	17.33216	Akaike info criterion		8.556844
Sum squared resid	170028.5	Schwarz criterion		8.617507
Log likelihood	-2447.814	Hannan-Quinn criter.		8.580505
F-statistic	53.55559	Durbin-Watson stat		2.296798
Prob(F-statistic)	0.000000			
Dependent Variable: Residuals		Method: Panel Least Squares		
Sample (adjusted): 1999 2009		Periods included: 11	Cross-sections included: 67	
Total panel (unbalanced) observations: 494				
	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.015183	0.028366	-0.535257	0.5927
R-squared	0.022174	Mean dependent var		-0.357246
Adjusted R-squared	0.022174	S.D. dependent var		16.90751
S.E. of regression	16.71901	Akaike info criterion		8.472992
Sum squared resid	137806.0	Schwarz criterion		8.481499
Log likelihood	-2091.829	Hannan-Quinn criter.		8.476332
Durbin-Watson stat	2.275615			
Wald Test:				
Test Statistic		Value	df	Probability
F-statistic		65.18632	(1, 493)	0.0000
Chi-square		65.18632	1	0.0000
Null Hypothesis Summary:				
Normalized Restriction (= 0)			Value	Std. Err.
0.5 + C(1)			0.352538	0.043664
Restrictions are linear in coefficients.				

Equation: Middle East Islamic Banks Provision for Bad and Doubtful Financing

Redundant Fixed Effects Tests	Test cross-section and period fixed effects		
Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.765216	(38,264)	0.8391
Cross-section Chi-square	33.645901	38	0.6710
Period F	0.798916	(11,264)	0.6411
Period Chi-square	10.544242	11	0.4822
Cross-Section/Period F	0.753455	(49,264)	0.8834
Cross-Section/Period Chi-square	42.147551	49	0.7451
Cross-section fixed effects test equation: Dependent Variable: PBD			
Method: Panel Least Squares	Total panel (unbalanced) observations: 322		
Sample: 1998 2009	Periods included: 12	Cross-sections included: 39	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.704497	3.179372	0.221584	0.8248
GDP growth	0.200506	0.434984	0.460951	0.6452
CPI growth	0.220879	0.224294	0.984774	0.3255
M2 growth	0.052887	0.122991	0.430003	0.6675
Total Financing growth	0.197148	0.077029	2.559393	0.0111
Non-Performing	0.477044	0.098206	4.857584	0.0000
Net profit growth	0.004123	0.038774	0.106324	0.9154
Capital Based growth	-0.027625	0.163151	-0.169322	0.8657
Regulatory Reserve	-0.572294	0.534867	-1.069973	0.2855
Effects Specification	Period fixed (dummy variables)		
R-squared	0.396410	Mean dependent var	3.164027
Adjusted R-squared	0.376091	S.D. dependent var	22.96159
S.E. of regression	18.13689	Akaike info criterion	8.667583
Sum squared resid	166118.1	Schwarz criterion	8.814185
Log likelihood	-2248.573	Hannan-Quinn criter.	8.724998
F-statistic	19.50942	Durbin-Watson stat	2.313915
Prob(F-statistic)	0.000000		
Period fixed effects test equation: Dependent Variable: PBD			
Method: Panel Least Squares	Total panel (unbalanced) observations: 322		
Sample: 1998	Periods included: 12	Cross-sections included: 39	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.458892	3.664416	0.398124	0.6908
GDP growth	0.022966	0.459710	0.049958	0.9602
CPI growth	-0.076767	0.336957	-0.227825	0.8200
M2 growth	0.045523	0.126825	0.358946	0.7199
Total Financing growth	0.418785	0.031189	13.42723	0.0000
Non-Performing	0.486854	0.107554	4.526591	0.0000
Net profit growth	0.008406	0.040985	0.205108	0.8376
Capital Based growth	0.006444	0.173162	0.037216	0.9703
Regulatory Reserve	-0.388984	0.574056	-0.677605	0.4986
Effects Specification	Cross-section fixed (dummy variables)		
R-squared	0.453376	Mean dependent var	3.164027
Adjusted R-squared	0.364504	S.D. dependent var	22.96159
S.E. of regression	18.30453	Akaike info criterion	8.782598
Sum squared resid	150440.0	Schwarz criterion	9.385292
Log likelihood	-2222.649	Hannan-Quinn criter.	9.018638
F-statistic	5.101442	Durbin-Watson stat	2.591444

Prob(F-statistic)	0.000000		

Cross-section and period fixed effects test		Dependent Variable: PBD	
Method: Panel Least Squares	Total panel (unbalanced) observations: 322		
Sample: 1998 2009	Periods included: 12	Cross-sections included: 39	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.159688	2.655718	-0.060130	0.9521
GDP growth	0.107500	0.368200	0.291961	0.7705
CPI growth	0.183893	0.214074	0.859019	0.3910
M2 growth	0.085037	0.114503	0.742664	0.4582
Total Financing growth	0.077536	0.033042	2.346615	0.0205
Non-Performing	0.471361	0.096882	4.865306	0.0000
Net profit growth	0.077437	0.017770	4.357693	0.0000
Capital Based growth	0.017365	0.157740	0.110084	0.9124
Regulatory Reserve	-0.540765	0.523361	-1.033254	0.3023
R-squared	0.388495	Mean dependent var		3.164027
Adjusted R-squared	0.380183	S.D. dependent var		22.96159
S.E. of regression	18.07731	Akaike info criterion		8.642370
Sum squared resid	168296.3	Schwarz criterion		8.707526
Log likelihood	-2251.980	Hannan-Quinn criter.		8.667888
F-statistic	46.74059	Durbin-Watson stat		2.319136
Prob(F-statistic)	0.000000		

Dependent Variable: Residuals	Method: Panel Least Squares		
Sample (adjusted): 1999 2009	Periods included: 11	Cross-sections included: 39	
Total panel (unbalanced) observations: 273			
	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.058231	0.038401	-1.516404	0.1301
R-squared	0.004067	Mean dependent var		-0.293476
Adjusted R-squared	0.004067	S.D. dependent var		8.533574
S.E. of regression	8.516203	Akaike info criterion		7.124104
Sum squared resid	31621.21	Schwarz criterion		7.133440
Log likelihood	-1555.617	Hannan-Quinn criter.		7.127788
Durbin-Watson stat	1.954207		

Wald Test:			
Test Statistic	Value	df	Probability
F-statistic	35.68973	(1, 272)	0.0000
Chi-square	35.68973	1	0.0000
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
0.5 + C(1)		0.355190	0.059455
Restrictions are linear in coefficients.			

Equation: Southeast Asia Islamic Banks Provision for Bad and Doubtful Financing

Redundant Fixed Effects Tests	Test cross-section and period fixed effects		
Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.978062	(16,120)	0.4849
Cross-section Chi-square	19.122298	16	0.2624
Period F	1.073155	(11,120)	0.3886
Period Chi-square	14.637413	11	0.1997
Cross-Section/Period F	0.974227	(27,120)	0.5089
Cross-Section/Period Chi-square	30.918535	27	0.2745
Cross-section fixed effects test equation:	Dependent Variable: PBD		
Method: Panel Least Squares	Total panel (unbalanced) observations: 156		
Sample: 1998 2009	Periods included: 12	Cross-sections included: 17	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-1.337423	2.963125	-0.451355	0.6524
GDP growth	0.066164	0.114671	0.576990	0.5649
CPI growth	0.397126	0.377597	1.051718	0.2948
M2 growth	0.201823	0.213630	0.944732	0.3465
Total Financing growth	0.398074	0.019357	20.56473	0.0000
Non-Performing	1.055548	0.123992	8.513040	0.0000
Net profit growth	0.089307	0.018959	4.710525	0.0000
Capital Based growth	0.029277	0.029291	0.999535	0.3193
Regulatory Reserve	0.054686	0.123101	0.444239	0.6576
Effects Specification	Period fixed (dummy variables)		
R-squared	0.881305	Mean dependent var	3.627572
Adjusted R-squared	0.865711	S.D. dependent var	28.55961
S.E. of regression	10.46582	Akaike info criterion	7.647821
Sum squared resid	15006.07	Schwarz criterion	8.019277
Log likelihood	-577.5300	Hannan-Quinn criter.	7.798690
F-statistic	56.51241	Durbin-Watson stat	2.107964
Prob(F-statistic)	0.000000		
Period fixed effects test equation:	Dependent Variable: PBD		
Method: Panel Least Squares	Total panel (unbalanced) observations: 156		
Sample: 1998 2009	Periods included: 12	Cross-sections included: 17	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.962969	2.234955	0.430867	0.6673
GDP growth	0.083846	0.069791	1.201385	0.2318
CPI growth	0.008105	0.523732	0.015476	0.9877
M2 growth	0.005373	0.136284	0.039426	0.9686
Total Financing growth	0.404219	0.020244	19.96723	0.0000
Non-Performing	1.132623	0.136052	8.324953	0.0000
Net profit growth	0.084552	0.019607	4.312265	0.0000
Capital Based growth	0.024008	0.030502	0.787085	0.4326
Regulatory Reserve	-0.010052	0.126691	-0.079344	0.9369
Effects Specification	Cross-section fixed (dummy variables)		
R-squared	0.884831	Mean dependent var	3.627572
Adjusted R-squared	0.864764	S.D. dependent var	28.55961
S.E. of regression	10.50266	Akaike info criterion	7.681772
Sum squared resid	14560.37	Schwarz criterion	8.150981
Log likelihood	-575.1782	Hannan-Quinn criter.	7.872344
F-statistic	44.09306	Durbin-Watson stat	2.273954

	Coefficient	Std. Error	t-Statistic	Prob.
Prob(F-statistic)	0.000000			
Cross-section and period fixed effects test equation:		Dependent Variable: PBD		
Method: Panel Least Squares		Total panel (unbalanced) observations: 156		
Sample: 1998 2009	Periods included: 12		Cross-sections included: 17	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.543935	2.021303	0.763832	0.4462
GDP growth	0.077592	0.066789	1.161748	0.2472
CPI growth	0.297366	0.318727	0.932980	0.3523
M2 growth	0.024648	0.130411	0.189006	0.8503
Total Financing growth	0.402764	0.018869	21.34511	0.0000
Non-Performing	1.042204	0.119408	8.728093	0.0000
Net profit growth	0.086916	0.018425	4.717392	0.0000
Capital Based growth	0.036058	0.028477	1.266224	0.2074
Regulatory Reserve	-0.005258	0.118948	-0.044201	0.9648
R-squared	0.872166	Mean dependent var		3.627572
Adjusted R-squared	0.866120	S.D. dependent var		28.55961
S.E. of regression	10.44986	Akaike info criterion		7.580975
Sum squared resid	16161.55	Schwarz criterion		7.737378
Log likelihood	-583.3161	Hannan-Quinn criter.		7.644499
F-statistic	144.2501	Durbin-Watson stat		2.078165
Prob(F-statistic)	0.000000			
Dependent Variable: Residuals		Method: Panel Least Squares		
Sample (adjusted): 1999 2009		Periods included: 11	Cross-sections included:	
Total panel (unbalanced) observations: 137				
	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.026634	0.028659	-0.929346	0.3532
R-squared	0.001189	Mean dependent var		0.562118
Adjusted R-squared	0.001189	S.D. dependent var		21.74483
S.E. of regression	21.73189	Akaike info criterion		8.997587
Sum squared resid	219135.7	Schwarz criterion		9.006495
Log likelihood	-2090.939	Hannan-Quinn criter.		9.001093
Durbin-Watson stat	1.798314			
Wald Test:				
Test Statistic		Value	df	Probability
F-statistic		14.70679	(1, 136)	0.0002
Chi-square		14.70679	1	0.0001
Null Hypothesis Summary:				
Normalized Restriction (= 0)		Value		Std. Err.
0.5 + C(1)		0.312890		0.081589
Restrictions are linear in coefficients.				

Equation: Islamic Banks Provision for Contingency Reserve

Redundant Fixed Effects Tests	Test cross-section and period fixed effects		
Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.958859	(66,498)	0.5706
Cross-section Chi-square	69.982503	66	0.3454
Period F	0.678216	(11,498)	0.7597
Period Chi-square	8.698706	11	0.6497
Cross-Section/Period F	0.919323	(77,498)	0.6692
Cross-Section/Period Chi-square	77.750899	77	0.4546

Cross-section fixed effects test equation:	Dependent Variable: Contingency Reserve		
Method: Panel Least Squares	Total panel (unbalanced) observations: 585		
Sample: 1998 2009	Periods included: 12	Cross-sections included: 67	
	Coefficient	Std. Error	t-Statistic	Prob.
---	---	---	---	---
Constant	0.562371	2.495942	0.225314	0.8218
GDP growth	0.137447	0.181096	0.758974	0.4482
CPI growth	0.080964	0.194836	0.415551	0.6779
M2 growth	0.036869	0.135773	0.271548	0.7861
Net profit growth	0.295567	0.037373	7.908497	0.0000
Deposits growth	2.276195	0.224805	10.12520	0.0000
Non-Performing Financing	0.222845	0.108919	2.045977	0.0412
Financing growth	0.735365	0.056579	12.99711	0.0000
Capital Based growth	0.908011	0.074273	12.22531	0.0000
Regulatory Reserve growth	-4.835500	0.327942	-14.74497	0.0000
Effects Specification	Period fixed (dummy variables)			
R-squared	0.653851	Mean dependent var		3.692768
Adjusted R-squared	0.641576	S.D. dependent var		48.14042
S.E. of regression	28.82096	Akaike info criterion		9.595320
Sum squared resid	468485.4	Schwarz criterion		9.752250
Log likelihood	-2785.631	Hannan-Quinn criter.		9.656479
F-statistic	53.26772	Durbin-Watson stat		2.096216
Prob(F-statistic)	0.000000			

Period fixed effects test equation:	Dependent Variable: Contingency Reserve		
Method: Panel Least Squares	Total panel (unbalanced) observations: 585		
Sample: 1998 2009	Periods included: 12	Cross-sections included: 67	
	Coefficient	Std. Error	t-Statistic	Prob.
---	---	---	---	---
Constant	0.548881	2.700999	0.203214	0.8390
GDP growth	0.140415	0.180108	0.779615	0.4360
CPI growth	0.093677	0.230984	0.405557	0.6852
M2 growth	0.009048	0.137609	0.065751	0.9476
Net profit growth	0.288655	0.039445	7.317977	0.0000
Deposits growth	2.276438	0.239144	9.519096	0.0000
Non-Performing Financing	0.179728	0.117487	1.529777	0.1267
Financing growth	0.704030	0.058873	11.95848	0.0000
Capital Based growth	0.908422	0.078570	11.56200	0.0000
Regulatory Reserve growth	-4.878802	0.346218	-14.09170	0.0000
Effects Specification	Cross-section fixed (dummy variables)			
R-squared	0.688278	Mean dependent var		3.692768
Adjusted R-squared	0.642346	S.D. dependent var		48.14042
S.E. of regression	28.78996	Akaike info criterion		9.678596
Sum squared resid	421890.8	Schwarz criterion		10.24653
Log likelihood	-2754.989	Hannan-Quinn criter.		9.899932

F-statistic	14.98487	Durbin-Watson stat		2.346711
Prob(F-statistic)	0.000000			
Cross-section and period fixed effects test		Dependent Variable: Contingency Reserve		
Method: Panel Least Squares		Total panel (unbalanced) observations: 585		
Sample: 1998 2009		Periods included: 12	Cross-sections included:	
	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.360145	2.315239	0.155554	0.8764
GDP growth	0.125271	0.168905	0.741666	0.4586
CPI growth	0.046168	0.186047	0.248152	0.8041
M2 growth	0.030424	0.126161	0.241153	0.8095
Net profit growth	0.297338	0.036848	8.069371	0.0000
Deposits growth	2.307061	0.222564	10.36584	0.0000
Non-Performing Financing	0.205907	0.107719	1.911529	0.0544
Financing growth	0.735090	0.056021	13.12159	0.0000
Capital Based growth	0.910574	0.073327	12.41803	0.0000
Regulatory Reserve growth	-4.906396	0.323981	-15.14407	0.0000
R-squared	0.649223	Mean dependent var		3.692768
Adjusted R-squared	0.643733	S.D. dependent var		48.14042
S.E. of regression	28.73411	Akaike info criterion		9.570993
Sum squared resid	474748.1	Schwarz criterion		9.645721
Log likelihood	-2789.515	Hannan-Quinn criter.		9.600116
F-statistic	118.2466	Durbin-Watson stat		2.101076
Prob(F-statistic)	0.000000			
Dependent Variable: Residuals		Method: Panel Least Squares		
Sample (adjusted): 1999 2009		Periods included: 11	Cross-sections included: 67	
Total panel (unbalanced) observations: 509				
	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.078002	0.060058	-1.298778	0.1951
R-squared	0.004280	Mean dependent var		1.167616
Adjusted R-squared	0.004280	S.D. dependent var		26.24113
S.E. of regression	26.18491	Akaike info criterion		9.371954
Sum squared resid	183754.1	Schwarz criterion		9.385317
Log likelihood	-1259.528	Hannan-Quinn criter.		9.377321
Durbin-Watson stat	1.905118			
Wald Test:				
Test Statistic		Value	df	Probability
F-statistic		77.93003	(1, 498)	0.0000
Chi-square		77.93003	1	0.0000
Null Hypothesis Summary:				
Normalized Restriction (= 0)			Value	Std. Err.
0.5 + C(1)			0.372533	0.042200
Restrictions are linear in coefficients.				

Equation: Middle East Islamic Banks Provision for Contingency Reserve

Redundant Fixed Effects Tests	Test cross-section and period fixed effects		
Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.821633	(38,274)	0.7640
Cross-section Chi-square	35.810641	38	0.5711
Period F	0.772037	(11,274)	0.6679
Period Chi-square	10.127943	11	0.5189
Cross-Section/Period F	0.876605	(49,274)	0.7051
Cross-Section/Period Chi-square	48.329774	49	0.5002

Cross-section fixed effects test equation:	Dependent Variable: Contingency Reserve		
Method: Panel Least Squares	Total panel (unbalanced) observations: 333		
Sample: 1998 2009	Periods included: 12	Cross-sections included: 39	
	Coefficient	Std. Error	t-Statistic	Prob.
---	---	---	---	---
Constant	4.272346	4.017463	1.063444	0.2884
GDP growth	0.433900	0.552196	0.785771	0.4326
CPI growth	0.012656	0.279634	0.045260	0.9639
M2 growth	0.076527	0.154756	0.494498	0.6213
Net profit growth	0.111708	0.048745	2.291679	0.0226
Deposits growth	0.103529	0.051276	2.019045	0.0443
Non-Performing Financing	0.114624	0.050190	2.283791	0.0231
Financing growth	0.373748	0.123346	3.030073	0.0026
Capital Based growth	0.366222	0.176390	2.076213	0.0387
Regulatory Reserve growth	-1.114452	0.581456	-1.916656	0.0542

Effects Specification	Period fixed (dummy variables)		
R-squared	0.493628	Mean dependent var	3.888035
Adjusted R-squared	0.407279	S.D. dependent var	49.03926
S.E. of regression	37.75455	Akaike info criterion	10.23527
Sum squared resid	677067.8	Schwarz criterion	10.87163
Log likelihood	-2768.524	Hannan-Quinn criter.	10.48381
F-statistic	5.716617	Durbin-Watson stat	2.202049
Prob(F-statistic)	0.000000		

Period fixed effects test equation:	Dependent Variable: Contingency Reserve		
Method: Panel Least Squares	Total panel (unbalanced) observations: 333		
Sample: 1998 2009	Periods included: 12	Cross-sections included: 39	
	Coefficient	Std. Error	t-Statistic	Prob.
---	---	---	---	---
Constant	6.353194	4.596868	1.382070	0.1680
GDP growth	0.328173	0.577362	0.568402	0.5702
CPI growth	0.578691	0.425984	1.358480	0.1754
M2 growth	0.062512	0.158306	0.394880	0.6932
Net profit growth	0.126199	0.051386	2.455898	0.0146
Deposits growth	0.114791	0.054388	2.110575	0.0357
Non-Performing Financing	0.099868	0.051085	1.954957	0.0503
Financing growth	0.333797	0.132039	2.528022	0.0118
Capital Based growth	0.293327	0.188686	1.554578	0.1211
Regulatory Reserve growth	-1.249227	0.618722	-2.019044	0.0444

Effects Specification	Cross-section fixed (dummy variables)		
R-squared	0.414182	Mean dependent var	3.888035
Adjusted R-squared	0.408866	S.D. dependent var	49.03926
S.E. of regression	37.70396	Akaike info criterion	10.10812
Sum squared resid	783295.1	Schwarz criterion	10.15468
Log likelihood	-2809.112	Hannan-Quinn criter.	10.12631

F-statistic	77.91302	Durbin-Watson stat	1.946259
Prob(F-statistic)	0.000000		

Cross-section and period fixed effects test equation:	Dependent Variable:
Method: Panel Least Squares	Total panel (unbalanced) observations: 333
Sample: 1998 2009	Periods included: 12 Cross-sections included: 39

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	4.984947	3.384645	1.472812	0.1418
GDP growth	0.248982	0.469176	0.530679	0.5960
CPI growth	0.088057	0.269856	0.326313	0.7444
M2 growth	0.013438	0.145015	0.092665	0.9262
Net profit growth	0.126624	0.048062	2.634573	0.0088
Deposits growth	0.111905	0.050800	2.202870	0.0283
Non-Performing Financing	0.116001	0.055182	2.102160	0.0365
Financing growth	0.367097	0.121884	3.011844	0.0027
Capital Based growth	0.361383	0.173503	2.082856	0.0380
Regulatory Reserve growth	-0.945240	0.572688	-1.650532	0.0998
R-squared	0.483969	Mean dependent var		3.888035
Adjusted R-squared	0.408426	S.D. dependent var		49.03926
S.E. of regression	37.71799	Akaike info criterion		10.21826
Sum squared resid	689983.5	Schwarz criterion		10.77701
Log likelihood	-2773.786	Hannan-Quinn criter.		10.43649
F-statistic	6.406556	Durbin-Watson stat		2.201438
Prob(F-statistic)	0.000000			

Dependent Variable: Residuals	Method: Panel Least Squares
Sample (adjusted): 1999 2009	Periods included: 11 Cross-sections included: 39
Total panel (unbalanced) observations: 288	

	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.083426	0.058143	-1.434843	0.1524
R-squared	0.007028	Mean dependent var		0.246678
Adjusted R-squared	0.007028	S.D. dependent var		25.39016
S.E. of regression	25.30078	Akaike info criterion		9.303014
Sum squared resid	183717.2	Schwarz criterion		9.315732
Log likelihood	-1338.634	Hannan-Quinn criter.		9.308111
Durbin-Watson stat	1.873292			

Wald Test:			
Test Statistic	Value	df	Probability
F-statistic	51.33301	(1, 274)	0.0000
Chi-square	51.33301	1	0.0000

Null Hypothesis Summary:		
Normalized Restriction (= 0)	Value	Std. Err.
0.5 + C(1)	0.416574	0.058143
Restrictions are linear in coefficients.		

Equation: Southeast Asia Islamic Banks Provision for Contingency Reserve

Redundant Fixed Effects Tests	Test cross-section and period fixed effects		
Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.895035	(16,119)	0.5763
Cross-section Chi-square	17.726745	16	0.3401
Period F	0.809111	(11,119)	0.6309
Period Chi-square	11.251804	11	0.4224
Cross-Section/Period F	0.872089	(27,119)	0.6488
Cross-Section/Period Chi-square	28.164890	27	0.4025
Cross-section fixed effects test equation:	Dependent Variable: Contingency Reserve		
Method: Panel Least Squares	Total panel (unbalanced) observations: 156		
Sample: 1998 2009	Periods included:	Cross-sections included: 17	
	Coefficient	Std. Error	t-Statistic	Prob.
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Constant	3.425472	9.321447	0.367483	0.7138
GDP growth	0.099475	0.356236	0.279240	0.7805
CPI growth	0.606048	1.173250	0.516555	0.6063
M2 growth	0.228297	0.667659	0.341936	0.7329
Net profit growth	0.417924	0.065010	6.428597	0.0000
Deposits growth	3.014570	0.352695	8.547240	0.0000
Non-Performing Financing	1.155564	0.391393	2.952437	0.0037
Financing growth	0.866899	0.071693	12.09179	0.0000
Capital Based growth	0.801026	0.121886	6.571933	0.0000
Regulatory Reserve growth	-5.696958	0.600836	-9.481717	0.0000
Effects Specification	Period fixed (dummy variables)		
R-squared	0.843785	Mean dependent var	-0.294675
Adjusted R-squared	0.820642	S.D. dependent var	76.74502
S.E. of regression	32.50206	Akaike info criterion	9.925133
Sum squared resid	142611.8	Schwarz criterion	10.33569
Log likelihood	-753.1604	Hannan-Quinn criter.	10.09188
F-statistic	36.45961	Durbin-Watson stat	2.106228
Prob(F-statistic)	0.000000		
Period fixed effects test equation:	Dependent Variable: Contingency Reserve		
Method: Panel Least Squares	Total panel (unbalanced) observations: 156		
Sample: 1998 2009	Periods included: 12	Cross-sections included: 17	
	Coefficient	Std. Error	t-Statistic	Prob.
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Constant	11.38248	6.920201	1.644819	0.1024
GDP growth	0.128457	0.216245	0.594036	0.5535
CPI growth	2.151618	1.629988	1.320021	0.1891
M2 growth	0.421557	0.422898	0.996828	0.3207
Net profit growth	0.409405	0.067297	6.083593	0.0000
Deposits growth	3.008332	0.362056	8.309031	0.0000
Non-Performing Financing	0.817257	0.425619	1.920161	0.0570
Financing growth	0.815656	0.072836	11.19852	0.0000
Capital Based growth	0.806617	0.124896	6.458292	0.0000
Regulatory Reserve growth	-5.677387	0.602740	-9.419294	0.0000
Effects Specification	Cross-section fixed (dummy variables)		
R-squared	0.850136	Mean dependent var	-0.294675
Adjusted R-squared	0.821316	S.D. dependent var	76.74502
S.E. of regression	32.44092	Akaike info criterion	9.947730
Sum squared resid	136813.7	Schwarz criterion	10.45604
Log likelihood	-749.9229	Hannan-Quinn criter.	10.15418

F-statistic	29.49811	Durbin-Watson stat	2.286946
Prob(F-statistic)	0.000000		
Cross-section and period fixed effects test		Dependent Variable: Contingency	
Method: Panel Least Squares		Total panel (unbalanced) observations: 156	
Sample: 1998 2009		Periods included: 12 Cross-sections included: 17	
	Coefficient	Std. Error	t-Statistic	Prob.
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Constant	8.541219	6.264427	1.363448	0.1748
GDP growth	0.102816	0.206817	0.497133	0.6198
CPI growth	1.013702	0.986756	1.027308	0.3060
M2 growth	0.521931	0.403663	1.292986	0.1981
Net profit growth	0.428702	0.062651	6.842742	0.0000
Deposits growth	3.069951	0.334317	9.182754	0.0000
Non-Performing Financing	1.005911	0.377254	2.666404	0.0085
Financing growth	0.857096	0.069795	12.28016	0.0000
Capital Based growth	0.787173	0.117479	6.700552	0.0000
Regulatory Reserve growth	-5.733595	0.569728	-10.06374	0.0000
R-squared	0.832975	Mean dependent var		-0.294675
Adjusted R-squared	0.822678	S.D. dependent var		76.74502
S.E. of regression	32.31699	Akaike info criterion		9.851019
Sum squared resid	152480.6	Schwarz criterion		10.04652
Log likelihood	-758.3795	Hannan-Quinn criter.		9.930424
F-statistic	80.90205	Durbin-Watson stat		2.125799
Prob(F-statistic)	0.000000			
Dependent Variable: Residuals		Method: Panel Least Squares		
Sample (adjusted): 1999 2009		Periods included: 11 Cross-sections included: 17		
Total panel (unbalanced) observations: 137				

	Coefficient	Std. Error	t-Statistic	Prob.
Residuals	-0.098513	0.081275	-1.212094	0.2275
R-squared	0.010041	Mean dependent var		-0.847445
Adjusted R-squared	0.010041	S.D. dependent var		45.57987
S.E. of regression	45.35047	Akaike info criterion		10.47379
Sum squared resid	287933.1	Schwarz criterion		10.49470
Log likelihood	-737.4018	Hannan-Quinn criter.		10.48228
Durbin-Watson stat	2.267179			

Wald Test:

Test Statistic	Value	df	Probability
F-statistic	15.06520	(1, 119)	0.0002
Chi-square	15.06520	1	0.0001

Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
0.5 + C(1)	0.312721	0.080569

Restrictions are linear in coefficients.