# ASSET LIABILITY MANAGEMENT: COMPARATIVE STUDY BETWEEN THE CONVENTIONAL AND ISLAMIC BANKS IN MALAYSIA

BY

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# ABSTRACT

This research evaluates the asset liability management of both conventional banks and Islamic banks in Malaysia, pre and post global financial crisis 2007/2008. This research is motivated by the fact that conventional banking system and Islamic banking system are operating on different frameworks and fundamentals. The purpose of this research study is to examine whether there are any significant differences between the Islamic banks in Malaysia and its conventional counterparts in terms of asset liability management. It is investigated from three aspects, which are interest (profit) rate risk management, credit risk management and liquidity risk management, before and after the global crisis. This research applies a descriptive method of data analysis as well as parametric and non-parametric tests, i.e. independent samples t-test and Mann Whitney U-test. The findings of this research suggest that there does not seem to be any significant differences between the conventional banks and the Islamic banks in terms of interest (profit) rate risk management (Net Interest Margin, Net Interest Income), credit risk management (Equity to Total Assets, Equity to Net Loans) and liquidity risk management (Liquidity Ratio, Net Loans to Total Assets Ratio). Limitation of this research is that the research focused on Malaysian data and to what extend Islamic banking systems is shariah compliant or not is not examined. The outcome of this research may highlight the risk that needs more significant attention in order to reduce the likelihood of exposures to the Islamic banks. Besides that, it may also highlight the need to implement new policy of asset liability composition in Islamic banks by the regulators. Further research on the area of Islamic banking system’s asset liability management from the qualitative aspect is highly recommended, as there is limited literature on this area.

# ملخص البحث

هذا البحث يدرس وينظر في إدارة الأصول والإلتزامات لكل من البنوك الإسلامية والتقليدية في ماليزيا قبل وبعد الأزمة المالية العالمية 2008/2007. وفي الحقيقة فإن هذا البحث مدعوم بحقيقة أن نظام البنوك التقليدية والإسلامية يعملان بأسس وأطر مختلفة. لذا فإن الهدف من هذا البحث هو اختبار وقياس ما إذا كانت هناك فروق ذات دلالة واعتبار بين البنوك الإسلامية ونظيرتها التقليدية من جهة إدارة الأصول والإلتزامات في ماليزيا. وقد تم هذا النظر والقياس من خلال ثلاث جوانب، والتي هي إدارة مخاطر سعر الفائدة (الربح) وإدارة مخاطر الإئتمان وإدارة مخاطر السيولة قبل وبعد حدوث الأزمة المالية العالمية. وقد توصل في البحث إلى أنه لايوجد اختلاف وفرق جذري بين البنوك الإسلامية والتقليدية من خلال جميع الجوانب سواء جانب إدارة مخاطر سعر الفائدة أو جانب إدارة مخاطر الإئتمان أو جانب إدارة مخاطر السيولة. وتجدر الإشارة إلى أن هذا البحث اقتصر على البيانات للبنوك الواقعة في ماليزيا. كما أن البحث لم يتطرق إلى مدى مطابقة النظام البنكي الإسلامي القائم للشريعة الإسلامية أو عدمها. ويمكن القول إلى أن نتائج هذا البحث تظهر نوعية المخاطر التي تحتاج إلى مزيد اهتمام وانتباه من أجل الحد من تعرض البنوك الإسلامية لها. بالإضافة إلى ذلك فإن النتائج تشير إلى أن ثمة حاجة إلى تطبيق وتنفيذ سياسة جديدة لبنية الأصول والإلتزامات في البنوك الإسلامية بواسطة المنظمين. ويجدر التنويه إلى أنه بسبب وجود شح ونقص في الجوانب البحثية لإدارة الأصول والإلتزامات للبنوك الإسلامية من الجانب النوعي، فإنه يقترح بأن تبحث هذه الجزئية في المستقبل.

# APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standard of scholarly presentation and is fully adequate, in scope and quality, as a research paper for the degree of Master of Science in Islamic Banking and Finance.

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This research paper was submitted to the IIUM Institute of Islamic Banking and Finance (IIiBF) and is accepted as a fulfilment of the requirement for the degree of Master of Science in Islamic Banking and Finance.

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# DECLARATION

I hereby declare that this research paper is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Siti Sufiya Binti Shuib

Signature……………………………………….. Date………………………..

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Signature Date

*To my loving and supportive parents, Shuib Hj Ibrahim and Daliawati Binti Ismail.*

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I dedicate this research paper to the teachers of my life, which are my family, my friends and my lecturers. A special dedication to my loving and supportive parents, Shuib Hj Ibrahim and Daliawati Binti Ismail whose undying support and encouragement kept me motivated and humbled. I dedicate this to my sisters who have never left my side.

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# CHAPTER ONE

# INTRODUCTION

## 1.1 BACKGROUND OF THE STUDY

Although Islamic banking system had already started making its mark almost 40 years ago, its existence was only given due notice during the 2007/2008 global financial crisis. The stability and resilience of Islamic banking system during the financial crisis had intrigued many policy makers, bankers and investors to consider Islamic banking system as an alternative to the conventional banking system (Maher Hasan and Jemma Dridi, 2010; Beck, Demirguc-Kunt and Merrouche, 2010).

The 2007/2008 global financial crisis was actually triggered by excessive and imprudent lending, or in short, subprime lending (Adel Ahmad, 2010; Karmila Hanim Kamil, 2010; Mohamed Hashem Rashwan, 2010). According to Karmila Hanim, subprime lending is the unethical act of providing loans and mortgages to unqualified borrowers, even when the lenders know that the borrowers will not be able to repay the loan. This means that the bankers had provided loans and mortgages to borrowers that have high chances of defaulting. As a result, the subprime lending led to excessive credit expansion and leverage (Muhammad Umar Chapra, 2009) in addition to immediate house prices appreciation (Atif Mian and Amir Sufi, 2008) and finally a housing boom.

In addition to that, according to the Bank for International Settlements (2010), another main reason that intensified the 2007/2008 global financial crisis was that most of the financial institutions around the world had built up excessive leverage on its balance sheet. Thus, when the crisis started to hit the economy, the financial institutions could not absorb the losses that they faced as they were holding low quality capital base and insufficient liquidity buffers. This in turn resulted in the loss of confidence by the public in the solvency and the liquidity of the financial institutions. The crisis has shown the world that effective capital planning and strong high quality capital base can resist unpredictable threats of the economy and market conditions (Bank for International Settlements [BIS], 2009).

Besides the public's reactions towards the financial institutions, some of the major effects of the global crisis on the financial institutions are an increase in the interest rate risk, credit risk and liquidity risk. This can be seen from a huge number of mortgage defaults as a result of the increased in the interest rates (Karmila Hanim Kamil, 2010). In addition to that, the collapse of financial markets had forced many banks to be bailed out or be nationalised by their government because of the severe credit crunch and insolvency (Adel Ahmad, 2010; Karmila Hanim Kamil, 2010; Shin, H. S., 2009). This was also confirmed by the Basel Committee on Banking Supervision of the Bank for International Settlements (July, 2009) where it is stated that the 2007/2008 global financial crisis showed that most banking and financial institutions were still unaware of the type of risks and exposures related to the businesses and products they were dealing with. In addition, it is also obvious that many of the financial institutions do not adhere or obey the fundamental principles of sound and prudent business activities and risk management.

On the other hand, due to the fact that Islamic banking system operates under a different framework and has different characteristics from that of conventional banking system, the effects of financial crisis on them and the risks they were exposed to were different from the effects and risks on the conventional banking system (Boumediene and Caby, 2009). Furthermore, some believed that the Islamic principles practiced by the Islamic banks, such as ethical conduct and prohibition to sell assets which are not owned, have protected the Islamic banks from such financial crisis (Maher Hasan and Jemma Dridi, 2010).

This claim is also supported by many researches that have been conducted recently in comparing the stability, efficiency, performance and profitability of Islamic banks as opposed to conventional banks, especially during the 2007/2008 global financial crisis. For instance, the research done by Aniss Boumediene and Jerome Caby (2009) on the aspect of profitability and returns, found that the conventional banks' returns were more volatile as compared to the returns of Islamic banks because of the nature of liabilities and the principle of profit and loss sharing by the Islamic banks. According to the research done by Maher Hasan and Jemma Dridi (2010), the profitability of Islamic banks was not affected as much as the conventional banks as a result of the Islamic banks' business model. On the other hand, the research done by Mohamed Hashem Rashwan (2010) found that the Islamic banks did perform better than the conventional banking system during the 2007/2008 global crisis before the crisis started to hit the real economy. This is because the Islamic banking system deals mainly with the involvement of real assets (Mohamed Hashem Rashwan, 2010).

Thus, in order to add to the literature of comparing the performance of both the conventional banking system and the Islamic banking system, this research study compares the asset liability management of both banks, in terms of its interest (profit) rate risk, credit risk and liquidity risk, before and after the period of the 2007/2008 global financial crisis.

The organisation of Chapter One is as follows. Section 2 discusses the aim and the problem statement of this research. Section 3 elaborates the research question and

Section 4 explains the motivation and the expected contribution of this research. Section 5 briefly elaborates the scope and the research method involved while Section 6 clarifies the limitations of this research. Finally, this chapter is concluded with Section 7 that discusses the structure of this research.

## 1.2 PROBLEM STATEMENT

According to Tariqullah Khan and Habib Ahmed (2001), the Islamic banking system is faced with a unique risk because of its composition of assets and liabilities, which is believed to be different from the risks that the conventional banking system are facing. Although Islamic banking system is claimed to be more stable than its conventional counterpart as any shocks on the Islamic bank's assets side will be absorbed by the profit sharing nature of its liabilities side, the asset liability management is still important as high exposures to risks (maturity mismatch, payment default and changes in interest rates) will result in insolvency risk to the Islamic banks (Habib Ahmed, 2006). Besides that, according to the humble knowledge of the author of this research paper, there is no known study comparing the asset liability management of the conventional banks and the Islamic banks pre- and post- 2007/2008 global financial crisis.

Thus, the aim of this research is to find out whether there are any significant differences between conventional banks and Islamic banks in Malaysia in terms of the asset and liability management. The secondary objectives are to find out:

i. Whether there is any significant difference between conventional and Islamic banks in terms of interest (profit) rate risk management.

ii. Whether there is any significant difference between conventional and Islamic banks in terms of credit risk management.

iii. Whether there is any significant difference between conventional and Islamic banks in terms of liquidity risk management.

## 1.3 RESEARCH QUESTION

The main research question is "Are there any significant differences between Islamic banks and conventional banks in terms of asset and liability management system?" The main research question is further divided into three sub-questions. They are:

i. Is the interest rate risk management of Islamic banks better than that of the conventional banks?

ii. Is the credit risk management of Islamic banks better than that of the conventional banks?

iii. Is the liquidity risk management of Islamic banks better than that of the conventional banks?

## 1.4 MOTIVATION AND EXPECTED CONTRIBUTION OF THE STUDY

Since the 2007/2008 global financial crisis, many have reviewed their perception towards Islamic banking system and how the Islamic banking system can promote financial stability during a financial crisis. Thus the objective of this research is to show whether Islamic banks were more stable than conventional banks during the recent financial crisis, in terms of interest rate risk management, credit risk management and liquidity risk management. Besides, this research is to contribute to the limited literature on the comparison of the performance of both the conventional banking system and Islamic banking system during the 2007/2008 global financial crisis in the aspect of asset and liability management.

The result of this research paper will be able to assist policy makers and regulators in maintaining the stability of the country's banking system, especially during a period of financial crisis. This is done by showing which banking system is more stable and which banking system is more vulnerable during a financial crisis. As a result, the policy makers will know which contingency plan should be adopted and implemented during a crisis and which banking system should be closely supervised.

## 1.5 SCOPE AND RESEARCH METHOD

The research looks at the asset liability management aspect of both conventional banks and Islamic banks in Malaysia. At present, there are 17 Islamic and 25 conventional (commercial) banks, listed by the central bank of Malaysia, Bank Negara Malaysia. The ratios of each risk are lifted from Bankscope from the year 2006 to 2010, which is the period before and after the 2007/2008 global financial crisis.

The descriptive analysis of data, the independent samples t-test and the Mann Whitney U-test is used in this research. The tests are suitable in making simultaneous statistical comparisons between two or more means. The next section discusses the limitation of the research.

## 1.6 LIMITATIONS OF THE STUDY

This research coverage is only limited to the period just before and after the 2007/2008 global financial crisis, which is from the year 2006 until 2010. Besides, this study covers only both conventional and Islamic banks in Malaysia. Thus, the findings and conclusion of this research might not be applicable to other countries. Furthermore, some of the banks included in this research are not locally owned banks.

Hence, the impact of the global financial crisis on these foreign banks may depend on the impact of or may depend on the policy response in its origin country.

In addition, not all of the asset and liability management's risks and its proposed formulas are included in this research because the available data is limited. However, the limitation on data availability will not affect the result of the research significantly.

Another limitation of this research is that it does not include the shariah-compliant risk management tools.

Finally, the debate of whether the operations and products of the Islamic banking system are really shariah-compliant or just an imitation to its conventional counterpart will not be tested since it is not included in the scope of this research paper. The next section discusses the structure of the research paper.

## 1.7 STRUCTURE OF RESEARCH PAPER

The rest of the research paper is structured as follows. Chapter Two reviews the theoretical framework of both conventional banking system and Islamic banking system to highlight the differences between them. Besides that, Chapter Two discusses the findings of prior researches based from the empirical evidence of asset and liability management. That chapter also includes brief discussions on the regulatory guidelines proposed and set out by the Basel Committee on Banking Supervision of the Bank for International Settlements (BCBS), by the Islamic Financial Services Board (IFSB) and by the central bank of Malaysia, Bank Negara Malaysia (BNM). Chapter Three is on the development of hypotheses and research design applied in this research while Chapter Four discusses data analysis and findings. The last chapter concludes the study.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 INTRODUCTION

The conventional banking system and Islamic banking system have the same role as financial intermediaries. However, both systems do not operate under the same theoretical framework (Mohamed Hashem Rahswan, 2010). Thus, Section 2 of this chapter discusses the theoretical framework for conventional banking system while Section 3 elaborates on the theoretical framework of Islamic financial system. Section 4 explains the differences of both financial system's asset and liability composition. Meanwhile, Section 5 presents the arguments of prior researches. Section 6 briefly elaborates on the regulatory guidelines proposed and set out by the Basel Committee on Banking Supervision of the Bank for International Settlements (BCBS), by the Islamic Financial Services Board (IFSB) and by the central bank of Malaysia, Bank Negara Malaysia (BNM). The last section summarises and concludes the whole chapter.

## 2.2 THE CONCEPT OF CONVENTIONAL BANKING SYSTEM

The conventional banking system is a banking institution that acts mainly as a financial intermediary. It borrows from savers that have surplus of funds at an agreed interest rate and then lends out to borrowers. Thus, the difference between the borrowing rate and the lending rate of interest becomes the profit for the conventional banks. Conventional banks will still charge interest to clients who borrow money even if the borrower makes a loss. This means that the borrower must still guarantee the repayment of funds or capital to the bank despite his loss. Meanwhile, the bank will continue to pay interest to the savers who provide the money as per usual. This means that in the conventional banking system, the financial risk will be borne solely by the borrower (Academy for International Modern Studies [AIMS], n.d).

The borrowing and lending activities make the relationship of conventional banks and its clients as creditor and debtor. In addition to that, conventional banks do not carry or possess any equity or assets as the conventional banks are not involved in trading business or a partnership, but only as a financial intermediary. Thus, there is no requirement for conventional banks and its clients to exchange real goods or services when making a transaction (Mohamed Hashem Rashwan, 2010).

Moreover, the conventional banking system values money as a medium of exchange, a store of value and also as a commodity. Because money is treated as a commodity and can be exchanged and expanded without any real goods or services backing the transactions, the borrowing and lending activities by conventional banks create inflation in the economy (AIMS, n.d).

The following section will discuss the framework of the Islamic banking system.

## 2.3 THE CONCEPT OF ISLAMIC BANKING SYSTEM

The Islamic banking system is a banking institution that accepts deposit and conducts other banking activities. However, it does not do borrowing and lending on the basis of interest, as the Shariah strictly prohibits it as Riba. Nevertheless, the Islamic banks do accept demand deposits but as an interest free loan from the clients or depositors of the Islamic banks provided the deposits are guaranteed (AIMS, n.d; Mohamed Hashem Rashwan, 2010).

The Islamic banking system gives out funds on the basis of profit-and-loss sharing contracts. This means that the Islamic banks also share the risk i.e. the loss with its clients in the profit-and-loss sharing contracts thus making the Islamic banks and its clients as partners. The profit for the Islamic banks comes from investments (AIMS, n.d; Mohamed Hashem Rashwan, 2010).

Because the Islamic banking system shares the risk of investments with its clients, real goods or services must back the contracts executed (Maher Hasan and Jemma Dridi, 2010; Adel Ahmed, 2010; Beck, Demirguc-Kunt and Merrouche, 2010).

The contracts of Islamic banking system are not only limited to trading contracts for parties involved to share the investment risks. This is because investment risks can still be shared between contracted parties by contracts of different nature.

The type of contracts that allow parties to share the investment risks can be generally grouped into three categories, which are trading contracts, participating contacts and supporting contracts (Muhammad Ayub, 2007). Trading contracts are some of the normal transactions carried out by the banks such as sales contracts. These contracts include cash sales and sales with deferred payments. Examples of these sales contracts are normal cash sales, Bai al Dayn, Bai Murabahah, Salam, Istisna', Ijarah, and Bai Bithaman Ajil (Hassan O. Ahmed, 2008). The second category of contracts are the participating contracts, where the parties involved in these contracts provide equities to finance the investments and profits from the investments are shared. Examples of these contracts are the Musharakah contracts and the Mudharabah contracts. The third category of contracts in the Islamic banking system that are backed by assets and that distribute risks among the parties involved are the Supporting contracts. According to Hassan O. Ahmed (2008), this category includes contracts such as Rahnu, Kafalah, Wakalah, Wadiah, Qard Hassan, Hiwalah, Tabarruq, Hibah and Waqf.

The following section will discuss the differences between the conventional and the Islamic banking systems.

## 2.4 DIFFERENCES BETWEEN THE CONVENTIONAL BANKING SYSTEM AND THE ISLAMIC BANKING SYSTEM

The difference between the conventional banking system and the Islamic banking system can be best understood by the comparison made by Mohamed Hashem Rashwan (2010).

The most distinct feature of the conventional banking system is that its functions, operating modes, activities and products are not based on divine laws or religious guidelines. It is based only on the secular law and principles in the country it operates. This also means that conventional banks are allowed to be involved in any economic activities that are deemed lawful by the secular law. However, the first important feature of the Islamic banking system is that it is Shariah-compliant, which means that they do not violate the prescriptions of the Quran and Sunnah either in its functions, operating modes, activities or products. This also means that Islamic-based banks cannot participate in economic activities that are not Shariah-compliant such as transactions or activities that involve pork, alcohol, and prostitution (Muhammad Ayub, 2007; Parashar and Venkatesh, 2010).

While financing in the conventional banking system is interest-oriented and is charged for the use of money, the Islamic banking system does not allow interest-based financing and earning reward without taking the risks. Thus, all financing provided by the Islamic banks should be based on the risk-and-reward sharing. This means that losses are shared as well as the profits derived from the contract while in the conventional banking system, risk sharing is not an option (Parashar and Venkatesh, 2010).

In the Islamic banking system, any transactions or contracts that have elements of gambling and speculation are not allowed, whereas in the conventional banking system, they are the main source for the conventional banks to make money.

The above are only the main differences between conventional banking system and Islamic banking system. However, to assess the risk of both banking system, the balance sheet of both banking system needs to be understood in order to analyse their asset and liability composition.

According to Greuning and Zamir Iqbal (2009), in the balance sheet of a typical conventional bank, the conventional bank will hold demand and savings deposits (from depositors), will hold certificates of deposits and will also include the bank's capital. However, on the asset side, the conventional bank's balance sheet contains marketable securities, trading accounts of financial assets and lending to clients (Greuning and Zamir Iqbal, 2009).

In contrast to that, in a typical Islamic bank's balance sheet, both sides will be based on profit sharing among depositors, the bank and the entrepreneurs. On the liability side, the balance sheet will contain demand deposits and investment accounts from depositors and customers. On the asset side, the balance sheet will contain financing given out by the Islamic bank and investing accounts.

According to Greuning and Zamir Iqbal (2009), the deposits in the conventional bank can result to an instant pre-determined liability to the bank regardless of the result of the asset side of the bank i.e. the usage side. This will definitely create an asset-liability mismatch to the bank itself. Furthermore, the assets of the conventional bank expose the bank to a maturity mismatch, as the maturity of the bank's assets are mostly medium-term to long-term but are largely financed by short-term liabilities.

In contrast to that, the Islamic bank's balance sheet composition of assets and liabilities will not expose the Islamic bank to asset-liability mismatch as the return for the depositors will depend on the return of the bank's assets. Greuning and Zamir Iqbal (2010) also add that the Islamic bank lacks leverage due to the prohibition of issuing debt to finance its assets. Thus, the composition in the balance sheet of the Islamic bank makes it less risky during a time of financial crisis due to less exposure to asset-liability mismatch and lack of leverage.

Below are the extract of the balance sheet for both conventional and Islamic banks. The following section will discuss the researches done by other researchers.

Table 2.1
The balance sheet of a typical conventional bank

| **Assets** | **Liabilities** |
|---|---|
| Loans and advances to customers | Customers' deposits |
| Cash and Cash balances with other banks | Due to banks and other financial institutions |
| Investments in assocates, subsidiaries and joint ventures | Other liabilities |
| Financial assets held for trading | Sundry creditors |
| Cash and cash balances with the central bank | Equity and reserves |