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Profitability of Islamic banks in Malaysa

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PROFITABILITY OF ISLAMIC BANKS IN MALAYSA

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Abstract

This thesis analyzes the effect of internal and external factors on the profitability of all full-fledged Islamic banks in Malaysia. Additionally, this study examines the robustness of results by using the financial crisis of 2008-2009 as a control variable. The study uses regression analysis to examine the data from 16 Islamic banks in Malaysia for the period from 2008 to 2012.

The results suggest that a high equity-to-asset ratio significantly increases the profitability of Islamic banks, while negatively affecting the return on equities. Simultaneously, an increase in total expenses leads to high returns on assets and return on equities. However, an increase in deposit-to-asset and loan-to-asset ratios does not significantly affect the profitability of Islamic banks. The taxes imposed on banks significantly decrease their profits. Additionally, the results indicate a positive and significant relationship between the concentration and the profitability of the banks. Moreover, an increase in the inflation rate negatively affects the profitability of Islamic banks. Finally, the results are robust with respect to the financial crisis of 2008-2009.

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1.0. Introduction

1.1. Background and Motivation

The Islamic banking concept was developed in the late 1940s, based on the norms

and standards of shariah law.[1] The first Islamic bank, Mit Ghamr Savings Bank, was

established in 1963 in Egypt (Chachi, 2005), and since 1970 its principles have been

implemented in other countries (Skinner, 2007). Currently, there are more than 300

Islamic financial institutions operating in 80 countries (Cevik & Charap, 2011). By the

end of 2013, the total assets of Islamic banks are expected to reach the level of US$1.5

trillion (Zawya, 2013).

The Islamic financial system was developed to create an environment where

Muslims could engage in financial and banking activities without violating the religious

norms. There are four fundamental bans that must be followed by Islamic banks in their

operations (Hussain & Mehboob, 2008):

- *Riba/usury* [2](i.e., prohibition of receipt and payment of any amount in the

  form of a fixed interest rate): This basically represents every interest-

  bearing banking tool practiced by conventional banks. As a result of this

  ban the Islamic alternative banking operating system or Islamic modes of

  financing were introduced (Errico & Farahbaksh, 1998). Islamic modes of

  financing, as opposed to the conventional banking instruments, operate

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[1] Shariah law consists of general rules and principles derived from different primary and secondary sources namely, *Quran* (the holy book of Islam), *Sunnah* (the practices and sayings of the Prophet), *ahadith* (narrative records about the Prophet), *Qiyas* (analogies derived from primary sources like Quran and Hadith), *Ijma* (decisions made on certain disputable topics through agreement between Islamic communities), and *Ijtihad* (decisions made based on the judgment of Islamic scholars and jurists). The first three sources, i.e. Quran, Sunnah and ahadith, are the primary sources of Shariah law, while the last three are the secondary sources of Islamic law (Alasrag, 2010; Samad, Gardner, & Cook, 2005).

[2] See Appendix 1 for a glossary of Islamic terms.

under profit and loss sharing principles where income is not guaranteed in value and is performance-based. Furthermore, for preventing the conventional debt financing operations, Islamic banks use asset-based financing.

- *Gharar* (i.e., forbiddance of uncertainty and deception): Gharar refers to the condition in which the terms of the contract and its implications are not clearly known to the parties involved, and there is a possibility of deception (Iqbal, 2005). Shariah law prohibits any uncertainty with regard to the key terms of the transaction; as such all the parties should be aware of the subject matter of the transaction, prices, risks, and the date of transaction (Alasrag, 2010). As a result of this ban, Islamic banks are obliged to pre-specify the terms and outcomes at the beginning of any contracts.

- *Haram* (i.e., prohibition of engagement in specific forbidden activities): As a result of this ban, it is not permissible for Islamic banks to invest in certain businesses (e.g., casinos, manufacturing and selling of alcohol products), which restricts the number of income sources of Islamic banks (Usmani, 2002). However, an exception could be applied in the cases when the primary production or the business of the company is shariah-compliant (Alasrag, 2010).

- *Maysir* (i.e., prohibition of gambling and speculations): According to this ban, Islamic banks are not allowed to enter into any financial speculation activities where the risk is disproportionately shared between parties, and

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the outcome is not clear (Alasrag, 2010; Usmani, 2002). However, considering that almost all financial operations include speculation, Islamic law permits a reasonable amount of speculation with an intention to gain profits (Institute of Islamic Banking and Insurance [IIBI], 2013). As a result of this ban, Islamic banks engage in operations where the risk is shared between the parties. In other words, risk is recognized but not costed in Islamic banking (Lawal, 2010).

These bans require Islamic banks to engage in banking activities that differ from those of conventional banks, and to work as investment intermediaries by using profit-and-loss sharing (PLS) arrangements among others (Errico & Farahbaksh, 1998). Under these PLS arrangements, banks engage in investment activities with customers. Depending on the PLS contract, risks and returns of the investment are shared between the banks and the customers.

By the end of 2012, approximately 81% of global Islamic banking assets were concentrated in five countries, namely Iran, Saudi Arabia, Malaysia, United Arab Emirates, and Kuwait (Zawya, 2013).[3] These countries are thought to use the best practices of Islamic banking principles. Among those countries, Malaysia holds third place in terms of Islamic banking assets. In Malaysia the Islamic banking sector accounts for 20% (i.e., US$130 billion) of its local banking system and contributes significantly to the growth of its economy (Central Bank of Malaysia [CBM], 2010; Idris et al., 2010).

Malaysia is regarded as Asia's Islamic finance hub and holds over 69% of global outstanding Sukuk (Organization of Islamic Cooperation [OIC], 2012).[4] In its current

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[3] See Appendix 2 for details.
[4] Sukuk is an Islamic alternative for conventional bond.

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form, the Islamic banking system in Malaysia is considered to be more progressive and advanced in comparison with other countries (Kuala Lumpur Business School [KLBS], 2012; PricewaterhouseCoopers [PWC], 2008). The stages of the development of the Islamic banking system in Malaysia are outlined below (KLBS, 2012):

1) Initial period: The history of Islamic finance in Malaysia started with the establishment of the "Pilgrims Management and Fund Board of Malaysia" in 1962, which was meant to help manage the savings of local Muslims, and to help them with the fulfillment of their religious obligations (Ishak, 2011). Islamic banking practice in Malaysia started with the enactment of the "Islamic Banking Act" in 1983. In the same year, the first Islamic bank, Bank Islam Malaysia Berhad (BIMB), was established.

2) Liberalization period: In order to develop the local Islamic banking system and increase the number of players in the local market, the "Islamic Banking Scheme" was introduced in 1993, which allowed local conventional banks to open "Islamic windows".[5] After the enactment of this scheme, 21 conventional banks in Malaysia were granted a license to open an Islamic window. In addition, during this period (i.e., in 1999) the second full-fledged Islamic bank of Malaysia, Bank Muamalat Malaysia Berhad, was established. As a result, during the liberalization period the Islamic banking system of

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[5] "Islamic window" is a conventional banking unit that provides Islamic banking services. This particular type of financial institution was introduced in Malaysia in order to increase the number of Islamic banks and Islamic banking services. These service-providing entities are regarded as the intermediary stage between conventional and Islamic banks. As a concept, they were considered to be the most efficient and effective way of expanding Islamic banking activities. However, the analysis of their performance in Malaysia showed relatively low technical and cost efficiency of those institutions compared with full-fledged Islamic banks (Mokhtar, Abdullah & Al-Habshi, 2006).

Malaysia comprised of 21 Islamic windows and two full-fledged Islamic banks.

3) Strengthening of the system: In 2001 the "Financial Sector Masterplan" was accepted, which also incorporated the long-term strategy for Islamic banks. This master plan introduced the long-term plan for strengthening the Islamic banking industry of Malaysia in order to transform it into the world leader in this sector. During this period first licenses for foreign Islamic banks were granted, which gave them the right to operate in the local market. Moreover, six local conventional banks transferred their Islamic windows to Islamic subsidiaries. At the end of this period, the Islamic banking sector of Malaysia comprised of six Islamic subsidiaries, and two local and three foreign full-fledged Islamic banks.

4) Further progress: In 2006 the International Islamic Finance Centre was established. The primary goal of this centre was to assist in the development of Malaysia as an international Islamic finance hub. Currently 16 full-fledged Islamic banks operate in Malaysia.

Profitability of Islamic banks, in general, has been the subject of research for the last three decades. Most of these studies focused on the profitability of Islamic banks from the Middle East and North Africa (MENA) region countries. The profitability of Islamic banks in Malaysia was studied in only a few studies (e.g., Idris et al., 2011; Kok, Tan, Yong, & Tan, 2012; Wasiuzzaman & Tarmizi, 2010). These studies, however, have limitations with regards to the sample and the methodology used. For instance, in the study conducted by Idris et al. (2011) the authors used data collected from nine Islamic

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banks for the period from 2007 to 2009. Even though the world financial crisis was a factor during this period, the authors did not examine the effect of it. The study conducted by Wasiuzzaman and Tarmizi (2010) uses data for 16 banks of which 12 were "Islamic windows". No study has considered the profitability of all full-fledged Islamic banks in Malaysia. The purpose of this study is to analyze the profitability of 16 full-fledged Islamic banks in Malaysia for the period from 2008 to 2012.

1.2. Objectives and Implications

The objective of this study is to analyze the impact of internal and external factors on the profitability of Islamic banks in Malaysia. We also examine the robustness of the results by including the financial crisis as a control variable.

In this study we used data from 16 Islamic banks operating in Malaysia during the time frame from 2008 to 2012. During this time, all 16 banks were operating as full-fledged Islamic banks.

Different measures are used to calculate profitability. The profitability of Islamic banks is usually expressed as the return on assets (ROA) and return on equities (ROE) ratios. The literature uses either both of these ratios or uses them alternatively. In this study we use ROA as a primary profitability measure, due to the asset-based feature of Islamic banking operations. We also use ROE as an alternative profitability measure.

The factors that affect the profitability of banks are classified into two groups, namely internal and external factors. The internal factors are the bank level or micro-level factors that represent the banking operations and are managed by the bank. They represent the efficiency, liquidity, and other operational aspects of banks. Data on internal factors are derived from the balance sheets, income statements, and the financial

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statements of the banks. The external factors, on the other hand, are the macro-level factors that are not managed by the banks. They represent the macroeconomic environment within the country. The internal factors initially considered in the study are the capital to asset ratio, fund source management ratio, liquidity ratio, efficiency ratio, and the bank size. The external factors considered in the study are GDP, inflation rate, money supply, concentration variable, taxation indicator variable, and the financial crisis variable. As we know from the literature, these factors have a direct linkage to Islamic banking operations and affect their profitability. These factors have been widely used in profitability studies conducted for both conventional and Islamic banks. The applicability of these ratios to both banking systems is explained by the similarity between accounting practices and operations of Islamic and conventional banks (Smaoui & Salah, 2012).

The objective of this study can be formulated by the following two questions:

Q.1: What are the impacts of the internal and external factors on the profitability of Islamic banks in Malaysia?

Q.2: Are the results robust with respect to the financial crisis?

The study uses regression analysis to address these research questions. First, stepwise regression analysis is performed to determine the set of factors that account for most of the variation in the profitability of Islamic banks. Later, the robustness test is used to examine whether or not the profitability of the banks is resilient to the financial crisis.

There is a gap in the literature on Islamic banking that this study of full-fledged Islamic banks in Malaysia will fill, thereby providing additional theoretical and operational implications for the banking system in Malaysia.

The study is organized as follows. The literature review section, Chapter 2, initially discusses general Islamic banking concepts, and compares the Islamic banking operations with conventional banks. Then the profitability studies conducted on conventional and Islamic banks (including Islamic banks in Malaysia) are presented. Further, the studies that examine the effect of the financial crisis of 2008-2009 on Islamic banks are introduced. Chapter 3 describes the research design and the methodology used in this study. Chapter 4 presents the sample data. In Chapter 5, we present the results of the stepwise regression analysis, and examine the robustness of results by considering the financial crisis as a control variable. This chapter also discusses the findings. The last chapter summarizes our findings, presents the limitations, and provides recommendations for further studies.

2.0. Literature Review

2.1. General Islamic Banking Concepts

Islamic banking operations are based on cooperation and responsibility where all parties engaged could benefit based on their contributions and efforts. This distinctive feature of Islamic banks leads to the effective use of funds and to careful assessment of risks by both partners (i.e., entrepreneur and financier) (Alasrag, 2010).

In their current form, Islamic banks not only serve Muslims but also customers from different faiths. Islamic economy is regulated by two types of laws: positive law and shariah law (Alasrag, 2010; KLBS, 2012). Positive law represents the regulations issued by government regarding Islamic banking operations. In Malaysia, positive law is represented by the Islamic Banking Act (KLBS, 2012; Malaysian Institute of Accountants [MIA], 2012). Shariah law, on the other hand, represents the religious norms and standards derived from different Islamic sources. Compliance of Islamic banking operations to shariah law is controlled by the Shariah Board or Shariah Committee which exists in every full-fledged Islamic bank (PWC, 2008). Additionally, in Malaysia, the Shariah Advisory Council (SAC) is set by the Central Bank of Malaysia as an advanced regulatory body for supervising the whole Islamic banking system in the country, and for ensuring uniformity in Islamic banking practices (PWC, 2008). However, at the international level, Islamic banking operations differ from each other based on the interpretation of shariah law by various Islamic scholars and the shariah board members.

2.1.1. Islamic banking principles. There are certain distinctive features of Islamic banks in terms of operations, products, and funding sources that differentiate them from conventional banks. The specific features of Islamic banks are the following:

1) *Asset-based financing*: One of the most distinctive features of Islamic banks is the asset-based nature of its operations. Generally, money is not recognized as a subject matter of trade in Islam, due to money not having an intrinsic utility, or due to it not being a commodity; instead, it is regarded as a medium of exchange (Parashar & Venkatesh, 2010; Usmani, 2002). Furthermore, income generated on the same currency is forbidden in Islam due to prohibition of *riba*. Hence, Islamic banking operations are always backed by real or tangible assets (Usmani, 2002). Due to it not having a real value, money is converted to the investment asset. For instance, in the case of PLS modes of financing (e.g., *mudharabah* and *musharakah*), investment should be transferred to the assets with intrinsic utility for generating returns (Usmani, 2002).

   According to the shariah law, the subject matter of trade (i.e., commodities) should be in existence and in the possession of the seller when the agreement on sale is obtained (Alasrag, 2010; Usmani, 2002). Under the *Salam* and *Istisna* contracts this rule could be violated (Usmani, 2002).

2) *Deposit structure*: There are two types of deposits used by the Islamic banking system: investment deposits and demand deposits (i.e., safekeeping). Investment deposits are not guaranteed in capital value and, as in the case of equity shareholders, the bank shares profits and losses with investment deposit holders based on the performance of investment at a pre-agreed rate (Errico &

Farahbaksh, 1998). In the case of demand deposits, however, banks guarantee their principal amounts, and charge service fees (Asian Finance Bank, 2013). Banks could also give a *hibah* (i.e., gift) as a payment to the holders of the demand deposits in return for the benefit of using these funds (Bankinginfo.com, 2009). However, they are not obliged to do so. In 2012, investment deposits comprised 56% of all customer deposits in Islamic banks in Malaysia.

3) ***Islamic modes of financing (investment)***: Islamic banks use two modes of financing: PLS (profit and loss sharing) and non-PLS. The PLS-based financing (e.g., mudharabah and musharakah) is considered to be the core or original shariah-compliant mode of financing, where profits and losses are divided between parties (Errico & Farahbaksh, 1998; Usmani, 2002). In non-PLS-based financing (e.g., *bay bithaman-ajil*, *ijarah*, and *murabahah*) on the other hand, the income is not shared between parties. For example, in the case of murabahah contract, Islamic banks receive the profit in the form of a mark-up value (or the profit margin).

We outline the differences between Islamic and conventional banking practices in Table 1(Alasrag, 2010; Errico & Farahbaksh, 1998; Usmani, 2002).

Table 1: *List of the Differences Between Islamic and Conventional Banks*

Characteristics	Islamic Banks	Conventional Banks
Guarantee of the principal amount of deposits	Yes (for demand deposits) No (for investment deposits)	Yes (for all deposits)
Guaranteed returns on deposits	No (returns are performance based)	Yes
Asset-based financing where money is not regarded as the subject matter of trade	Yes	No
Profit and loss sharing mode of financing (partnership contracts)	Yes	No
Interest-based contracts	No	Yes
Requirements for the type of businesses or the sphere of operation (i.e., halal vs. haram)	Yes	No
Stability	Yes (due to the asset-based nature of operations and avoidance of risky operations)	No
Applicability of shariah law	Yes	No
Recognition of the time value of money	No (if it is used as a subject matter of trade for gaining profits) Yes (if it is transferred to a commodity with intrinsic value)	Yes

2.1.2. Islamic banking contracts. There are three main categories of contracts used by Islamic banks (Hussain & Mehboob, 2008):

1) Joint enterprise contracts (e.g., mudharabah, musharakah)

2) Contracts of sale (e.g., murabahah, bay bithaman-ajil)

3) Contract of lease (i.e., ijarah).

Joint enterprise contracts. Joint enterprise contracts fall in the category of PLS modes of financing. As noted above, there are two essential forms of PLS modes of financing: mudharabah and musharakah. Both of these contracts are earlier forms of business arrangements practiced by Muslims since ancient times (Zaher & Hassan, 2001). The major difference between these contracts is in the terms of the

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contributions of the parties to the project, and the distribution of profits and losses between the parties. In 2012, PLS-based financing contracts accounted for approximately 5% of total Islamic banks' financing in Malaysia. They operate in the following way:

a) Mudharabah (trustee finance contract): This contract represents a profit sharing arrangement between two parties (i.e., investor and entrepreneur), where one of the parties provides funds, and the other provides entrepreneurial skills. Profits are divided between parties based on pre-agreed terms. The losses incurred as a result of this agreement are mainly borne by the investor.

In mudharabah contract the investor is called *rab-al-mal*, while the entrepreneur is called the *mudarib* (Usmani, 2002). The rab-al-mal is the capital supplier, and has no right to participate in the decision making or management of the project (Islamicbanker, 2011). The mudarib, on the other hand, is exclusively responsible for the management of the project, and the work associated with it (Usmani, 2002, p.31).

There are two forms of mudharabah contract: one tier and two tier contracts. In the case of one tier, the bank acts as a mudarib, manages the funds provided by depositors, and shares the income and loss with the deposit holders. This is also called an *unrestricted mudharabah* as a bank could use the funds provided by customers to invest to an open-ended list of contracts (Zaher & Hassan, 2001).

In the case of a two tier contract, the bank acts as an agent. Initially, the bank engages in a mudharabah (i.e., unrestricted mudharabah) contract with the

investment deposit holders on the liability side of the balance sheet, as a result of which the deposit holders get their share of the profit/loss. Simultaneously, on the asset side, the bank engages in a mudharabah contract with an entrepreneur (Alasrag, 2010). The second mudharabah contract conducted on the asset side of the balance sheet is known as the *restricted mudharabah*, as the bank invests in a specific contract with a specific entrepreneur (Zaher & Hassan, 2001).

In case of a profit, the capital provider gets the principal amount invested plus a pre-agreed share in income, while the entrepreneur keeps the remaining share of income. In case of underperformance, the losses are borne by the capital provider, while the entrepreneur does not lose any money except the time he has employed. However, in a special case, losses could also be borne by the entrepreneur if the reason for the failure is negligence or misconduct from his side. The mudharabah contract is usually applied for short term investment projects (Zaher & Hassan, 2001).

b) Musharakah (joint venture or equity participation contract): The musharakah contract is very similar to the joint venture concept where all parties engaged provide funds for the business. According to this partnership agreement, profits are divided between parties based on their contribution to the project in the form of labor and capital on a pre-agreed rate, which could differ for the share of each partner in the capital. However, losses incurred are usually shared between parties based on provided share of capital (Alasrag, 2010; Bankinginfo.com, 2009; Usmani, 2002). Under this arrangement, all parties are involved in the operation

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and decision making of the business. The musharakah contract is usually used for financing long-term investment projects (Zaher & Hassan, 2001).

Contracts of sale. The contracts of sale belong to the category of non-PLS modes of financing where income is comprised of fees and mark-ups (PWC, 2008). In 2012, non-PLS financing accounted for approximately 95% of all Islamic banking financing in Malaysia. Among the non-PLS modes of financing tools used in Malaysia, the bay bithaman-ajil, ijarah, and murabahah together account for nearly 75% of all Islamic banking financing. The following describes some of the major non-PLS banking tools used in Islamic banks in Malaysia:

i. Murabahah (cost-plus profit margin): This is a sale contract, where the bank purchases the commodity and sells it to the customer with a mark-up on the price. The customer, on behalf of the bank (i.e., as the bank's agent), negotiates the key aspects of the purchase with the seller. The bank, while determining the selling price or the mark-up value, considers certain factors such as the interest rate index (e.g., LIBOR [London Interbank Offered Rate], KLBOR [Kuala Lumpur Interbank Offered Rate], US short T-bill rate), the clients' credit rating, the asset price, and the subject matter of the contract (Smolo, 2010; Zaher & Hassan, 2001). The profit margin includes compensation for the time, value of bank's money, and the income. The settled mark-up as well as the selling price cannot be changed later during the contract life.

The customer could make the payment in a lump sum on a predetermined date, or by fixed installments. It is applicable only for the commodities the

cost of which is known in advance (e.g., vehicles). One of the major requirements of the murabahah contract is the disclosure of the purchase price, other costs, and the profit margin to the customer in advance.

The murabahah contract is usually applied for short term transactions. In 2012, murabahah contracts accounted for approximately 16% of Islamic banks' financing portfolio in Malaysia.

ii. Bay Bithaman-Ajil or BBA (deferred payment sale contract): BBA is a product or the sub-contract of the murabahah contract which is used as a long term financing tool (Aminuddin , 2012; Smolo, 2010). This is also a sale contract, where the bank buys an asset, and resells it to the customer at mark-up price (i.e., adding a profit to its purchase price) on a deferred payment basis (i.e., in installments or on a lump sum basis in a predetermined time in the future) (Bankinginfo.com, 2009). The term BBA was introduced in Malaysia in order to differentiate between long term and short term sale financing products, and is mostly used in Malaysia (Smolo, 2010). In the Middle Eastern practice, BBA and murabahah refer to the same financing product (Smolo, 2010).

According to Meera and Dzuljastri, this contract requires the delivery of goods on the spot (as cited in Smolo, 2010). The installments are calculated based on the duration of the payment and the selling price. The subject matter of the BBA contracts are houses, factories, and other fixed assets (Affin Bank Berhad, 2005). The BBA contract is widely used for house financing in Malaysia.

The major differences between the BBA and murabahah contract is the duration of the contract (i.e., BBA is used in Malaysia as a medium- to long-term financing tool, while murabahah is short-term contract), payment options (i.e., the BBA is solely a deferred payment based contract, while the payment for the murabahah contract can be either on a deferred base or on a spot base), and the disclosure of the cost and the price (i.e, the price disclosure is not necessary in the case of BBA contracts, while it is mandatory for the murabahah contracts). In 2012 nearly 33% of all Islamic banking transactions in Malaysia were made under the BBA agreement.

iii.   Salam and Istisna contracts: These contracts are considered to be the Islamic alternative to the conventional forward contracts (Usmani, 2002). Under these contracts, the requirement of the shariah law with regard to the existence of the commodity at the time of agreement is violated.

The salam contract is a deferred based sale contract where the supplier undertakes the delivery of goods at a future date while receiving payment on the spot. This type of contract is usually applied for agricultural goods (Alasrag, 2010; Usmani, 2002). Being beneficial to both parties, salam contracts allow the seller to receive funds in advance and use the funds for his own benefit, while giving an advantage of low prices to the purchaser. To benefit from the salam contracts, Islamic banks engage in *parallel salam* (i.e., two tier contract) contracts. According to this arrangement, in the first place an Islamic bank acts as a buyer and engages in a salam contract with the client, by immediately paying cash for future delivery of commodities by the

client. Simultaneously, Islamic banks engage in another salam contract with the buyer, where they act as a seller, and receive a cash amount with a profit margin from the buyer. Upon receiving the commodity, the Islamic bank transfers it to the buyer while keeping the profit margin (Deloitte, 2013).

The istisna contract is another deferred delivery based contract used by Islamic banks where the manufacturer undertakes to manufacture a specific commodity for the client in exchange for a payment (Usmani, 2002). However, in contrast with the salam contract, it is not obligatory for the purchaser to transfer money in advance or at the time of delivery. The terms of payment varies based on the agreement between parties. However, the time of payment should be settled in advance. To generate profits, Islamic banks engage in a *parallel istisna* contract in the same way as the parallel salam contract. This type of contract is used for long-term large-scale construction projects (Zaher & Hassan, 2001).

Contract of lease. Ijarah (lease): Ijararah is an Islamic alternative to the conventional lease contract. Under this contract, the bank provides goods to the customers on a lease or rental basis. This is a leasing contract where the lessee pays a certain amount of fees to the bank for the right to use the equipment, building, or other facilities. The rental fee is calculated based on the price of the acquired commodity plus the mark-up value, and the length of time of the lease.

There are two types of ijarah contracts: operational ijarah (i.e., operating lease) and *ijarah muntahia bitamleek* (i.e., capital or financial lease) (Al Baraka Bank, 2013; Zaher & Hassan, 2001). In the case of ijara muntahia bitamleek, the lessee could purchase

the subject matter of the ijarah contract at the end of the specified period (Bankinginfo.com, 2009; PWC, 2008). The transfer of the ownership of the asset to the lessee under the ijara muntahia bitamleek contract could be: a) without any payment (as a gift) at the end of the contract; b) with an amount specified in the lease contract at the end of the lease contract; or c) payment of the remaining ijarah installments prior to the end of the contract (Al Baraka Bank, 2013).

In the case of the operating ijarah, by the end of the contract, the commodity continues to be the property of the bank. In fact, there are not any substantial differences between a conventional lease and the Islamic ijarah contracts, except for some specific technical issues (Zaher & Hassan, 2001). To prevent speculation with the lease payments, all the terms of the contract should be agreed to in advance (Zaher & Hassan, 2001). Ijaraha contracts account for around 26% of all financing products of Islamic banks in Malaysia in 2012.

As noted above, the mark-up based sale contracts comprise the main part of the Islamic banking loan portfolio. The Islamic banks in Malaysia have been widely criticized for the excessive use of these tools due to their resemblance to conventional interest based financing contracts (Smolo, 2010). Due to the similarity between Islamic mark-up based sale contracts and conventional debt financing tools, and the operation of both banking systems in the same market, the customers use these tools interchangeably (Smolo, 2010). Furthermore, as stated above, Islamic banks use conventional banking methods while determining the price/mark-up of sale contracts, which makes the prices and the installments close to the ones used by conventional banks (Smolo, 2010). However, compared with conventional banks, Islamic banks do not have the flexibility of

changing the mark-ups or installments even if the price of the subject matter of the contract has changed.

The inflexibility of Islamic banks in terms of adjusting mark-ups creates a potential problem of the asset-liability mismatch (Smolo, 2010). For example, in the case of high inflation when the price of the funds is increasing, Islamic banks can lose part of their income, as they cannot simultaneously adjust the installments as well as the price of the contract. This increases the demand for Islamic banking loans. Hence, the demand of Islamic banks for funding increases. However, as the deposit rates in Islamic banks are relatively low compared with conventional banks, the conventional bank deposits become more attractive to customers. To keep their customers, Islamic banks can offer hibah, which decreases the income of Islamic banks. Basically, while customers use the financing tools of one banking system, they invest in another.

The abovementioned specificity of Islamic banking operations, especially the limitations and the religious bans, requires them to follow a balanced loan building strategy while efficiently using the funds provided by depositors and shareholders. The Malaysian experience in the Islamic banking sector is relatively short considering that at the beginning of the last decade there were only two full-fledged Islamic banks in Malaysia. However, during this short period the number of banks increased to 16 and Malaysia became a hub in the Islamic banking sphere. The rapid expansion of the banking system increases the necessity for an analysis of profitability of Islamic banks and the factors that affect it.

In this study we analyze the efficiency of the financing strategy followed by Islamic banks in Malaysia, by evaluating the effect of loans issued on the profitability of

Islamic banks. Furthermore, we analyze the effect of funds provided by depositors and shareholders on the profitability of Islamic banks for evaluating their efficiency in terms of the fund management. Moreover, as the Islamic banks are new in this market, we analyze their efficiency in expense management. Additionally, we analyze the impact of Islamic banks' size on their profitability.

In Malaysia, Islamic banks operate alongside conventional banks. Considering this, we analyze the impact of market share (i.e., concentration) of Islamic banks on their profitability. Furthermore, the effect of external factors such as GDP, INF, and MS should also be considered while evaluating the profitability of Islamic banks, as the returns on PLS contracts depends on these factors. Another factor that can affect Islamic banks' profitability is the tax imposed on Islamic banks. Islamic banks, compared with other conventional banks, pay an additional religious tax called "Zakat". It should be analyzed how significantly this tax affects the profitability of Islamic banks.

2.2. Profitability studies

2.2.1. Profitability studies conducted on conventional banks. Earlier

profitability studies conducted on conventional banks considered the effect of internal

and external factors on the performance of these banks. In this section we present two

profitability studies performed on conventional banks.[6]

One of the earliest profitability studies was performed by Short (1979), where he

analyzed the impact of the concentration variable on the banks' performance.[7] The author

used data for 60 conventional banks in Canada, Western Europe, and Japan for the period

from 1971 to 1975. The author considered the return on equities (ROE) as a measure of

profitability. Additionally, the author included country-specific (i.e., discount rate and the

long-term government bond rate) and bank-specific (i.e., the ownership variable and the

rate of growth of assets) explanatory variables to account for differences in banking and

accounting practices in the countries. The results suggest that a higher concentration of

banks has a positive and statistically significant impact on banks' profitability. The

ownership variable shows a negative and statistically significant effect on the banks'

profitability, which indicates that the profits of government owned banks are significantly

lower than the profits of private banks. The second internal factor, the growth of assets,

also shows a negative effect. On the other hand, both of the country specific factors show

a positive impact on the banks' profitability.

Bourke (1989) considered 90 conventional banks from 12 European and North

American countries for the period from 1972 to 1981. The author analyzed the effects of

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[6] Appendix 3 summarizes the variables and the results of the profitability studies conducted on conventional banks.

[7] As a proxy for the concentration variable, share of market held by the one largest, two largest, and three largest banks and the H concentration index were used. The H concentration index is calculated by the sum of the squares of each bank's market share

internal and external factors on the profitability of conventional banks. Bourke used six profitability ratios, namely, BTCR (before tax profit/capital and reserves), ATCR (after tax profit/capital and reserves), BTCRTB (before tax profit/capital, reserves, and total borrowings), BTTA (before tax profit/total assets), BTSETA (before tax profit and staff expenses/total assets), and BTSEPLTA (before tax profit, staff expenses, and provision for loan losses/total assets). The author divided these profitability ratios into two categories, namely the ratios that represent the return on asset (i.e., BTTA, BTSETA, and BTSEPLTA), and the ratios that represent the return on capital (i.e., BTCR, ARCR, and BTCRTB).

The results suggest that the money supply has a positive and statistically significant relationship with profitability ratios from both categories. Furthermore, the interest rate expresses a positive effect on the return on capital, while also showing a positive and significant effect on the return on assets. The concentration variable, however, shows a positive and statistically significant effect on the return on capital, while showing both positive and negative effects on the return on asset ratios. The internal factors of the capital ratio, the liquidity ratio (cash, bank deposits, and investment securities/total assets), and the ratio of staff expenses express a positive and statistically significant impact on the return on assets. Moreover, the government ownership variable shows a negative effect on the return on capital ratios, while showing both positive and negative effects on the return on assets.

There are many other profitability studies conducted on conventional banks, however, considering the scope of our research in the rest of the study, we mainly focus on the studies of Islamic banks.

2.2.2. Profitability studies conducted on Islamic and conventional banks. In certain regions, especially in the Middle East and North Africa (MENA) and the South-East Asian countries, a dual banking system exists, where conventional and Islamic banks operate in the same market. This signifies the analysis of the performance of both banking systems, while examining the effect of internal as well as external factors on their profitability. In this section we present two profitability studies conducted on both Islamic and conventional banks.[8]

Alkassim (2005) in his study analyzed the performance of both Islamic and conventional banks, and used data from 16 Islamic and 18 conventional banks from the Gulf Cooperation Council (GCC) region (i.e., UAE, Bahrain, Saudi Arabia, Oman, Qatar, and Kuwait) for the period from 1997 to 2004. He used only internal factors, and examined their effects on the three profitability indicators (i.e., ROA, ROE, and NIM [net income margin]).

The results on conventional banks showed a negative effect of the bank size variable and a positive effect of the non-interest expenses to total assets ratio on all three profitability measures. The capital ratio showed a positive effect on ROA, and a negative effect on ROE and NIM. The liquidity ratio showed a positive effect on ROA and NIM, while a negative effect on ROE. The ratio of total deposits to total assets expressed a positive and statistically significant effect on ROA and ROE, and a negative and significant effect on NIM. Furthermore, the ratio of total expense to total assets showed a negative and statistically significant effect on ROA and ROE, and a positive and statistically significant effect on NIM.

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[8] Appendix 4 summarizes the variables and the results of the profitability studies conducted on Islamic and conventional banks.

The results on Islamic banks showed that the bank's size, the liquidity ratio, and the ratio of non-interest expenses to total assets, positively and significantly affect the profitability of Islamic banks. The capital ratio shows a positive effect on ROA and NIM, while a negative effect on ROE. Furthermore, the ratio of deposits to total assets expresses a negative effect on ROA and ROE, while a positive effect on NIM. The ratio of total expenses to total assets showed a positive effect on ROA and ROE, while a negative effect on NIM.

In a study conducted on conventional and Islamic banks by Zeitun (2012), the author analyzed the effect of both internal and external factors on the profitability of banks. Zeitun studied 38 conventional and 13 Islamic banks for the period from 2002 to 2009 from the Gulf Cooperation Council (GCC) region (i.e., Bahrain, Oman, Saudi Arabia, Qatar, Kuwait, and UAE). The author used the ROA and ROE as profitability measures.

The results on internal factors indicate a positive and significant effect of a bank's equities, and a positive effect of the foreign ownership factors on the profitability of conventional banks. On the other hand, the bank age, the ratio of operating cost to total revenues, and the ratio of bank reserves to total loans express a negative and significant relationship with conventional banks' profitability. The bank size, however, shows a positive effect on ROE, and a negative effect on ROA. The GDP growth rate expresses a positive and significant effect, while the inflation rate shows a negative and significant effect on the profitability of conventional banks. However, the financial development ratio (total assets/GDP) shows a positive effect on ROA and a negative effect on ROE.

The results for Islamic banks, however, imply that the ratio of operating costs to total revenues, and the ratio of bank reserves to total loans negatively affect the profitability of banks, while the increase in a bank's equities positively affects its performance. The bank's age and the foreign ownership variables show a positive relationship with ROA, and a negative relationship with ROE. Furthermore, the bank's size variable negatively affects the ROA, and positively affects the ROE. Results of the external factors indicate the positive effect of GDP growth rate, and the negative effect of the inflation rate and the financial development ratio on the performance of Islamic banks.

In summary, the literature suggests that both internal and external ratios are factors that influence the profitability of both conventional and Islamic banks. The most important internal factors are the capital ratio, the bank size, the liquidity ratio, the ratio of deposits to total assets, and the efficiency ratio. The external factors that are found to be important are the inflation rate, the GDP growth rate, and the financial development ratio. The ROA and ROE were the main profitability measures in these studies.

2.2.3. Profitability studies conducted on Islamic banks. Studies on the profitability of Islamic banks have been gaining importance in the literature. The common feature of those studies is that they generally cover Islamic banks in the Middle East and North Africa (MENA) region. Some of the studies have used external factors while other studies have used either internal or both.[9] In this section, we briefly explain some of their results.

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[9] Appendix 5 summarizes the variables and the results of the profitability studies conducted on Islamic banks.

Haron (1996) conducted the first known profitability study on Islamic banks. This study covered 14 Islamic banks from 10 countries (i.e., Bangladesh, Jordan, Kuwait, Malaysia, Tunisia, UAE, Bahrain, Sudan, Turkey, and the Turkish Republic of Northern Cyprus) for the period from 1982 to 1994. In this study, the author analyzed the impact of the external set of variables on the performance of Islamic banks. As the profitability measure, the study used four different ratios. They are: TITA (total income/total assets), BITA (bank's portion of income/total assets), BTTA (net profit before tax/total assets), and BTCR (net profit before tax/capitals and reserves).

The results indicate the positive effect of the discount rate[10] variable on all four profitability measures. The inflation rate, however, shows a negative and significant effect on BITA, BTTA, and BTCR, while showing a positive and significant effect on TITA. On the other hand, money supply and bank size[11] show a positive effect on BITA, BTTA, and BTCR, while showing a negative effect on the TITA. The market share variable which represents the share of the bank in total deposits, shows a negative effect on TITA and BITA, while a positive and significant effect on BTTA and BTCR.

Bashir (2003), on the other hand, analyzed the effect of internal and external factors, and their interaction with GDPPC on the profitability of 14 Islamic banks from eight countries (i.e., UAE, Egypt, Kuwait, Jordan, Bahrain, Sudan, Qatar, Turkey) for the period ranging from 1993 to 1998. As a measure of profitability Bashir used three sets of

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[10] The author used the discount rate for each country, or the interest rate, as a proxy for measuring the capital scarcity in the economy. Regardless of the absence of a direct link between Islamic banks and the interest-bearing instruments, this factor is included in the analysis as Islamic banks are operating as part of the country's financial system, and their performance is expected to be influenced by the funding available in the market.

[11] The bank size variable (i.e., the logarithmic value of the total assets) was considered as an external factor in the study.

ratios, namely the ratios of return on assets (ROA), return on equity (ROE), and before-tax profits over total assets (BTP/TA).

The results suggest a positive relationship for all three profitability indicators with the internal factors of capital ratio (equities/total assets), liquidity ratio (PLS loans/total assets), fund use management ratio (overhead/total assets), ownership variable, and the risk ratio (total liabilities/total assets). According to the results on external factors, the inflation rate has a positive and statistically significant relationship with the profitability indicators. However, the ratio of reserves of the banking system to the deposits of the banking system and the tax ratio express a negative effect on all three profitability measures.

Hassan and Bashir (2003) studied 39 Islamic banks from 21 countries[12] for the period from 1994 to 2001. In this study, the authors also examine the effects of internal and external factors, and their interaction with GDPPC on the profitability of Islamic banks. The authors use four ratios, namely ROA, ROE, PBT (before tax profits), and NNIM (net income accruing to the bank from non-interest activities/total assets) as a measure of profitability. From the internal set of variables, the liquidity ratio, the ratio of non-interest earning assets to total assets, and the fund source management ratio express a negative and statistically significant effect on the profitability of Islamic banks. However, the risk ratio (total liability/total assets) shows a positive effect on all performance measures. Furthermore, among the external set of variables used in the analysis, the GDP growth rate expresses a positive and significant relationship with the profitability of banks. Moreover, the ratio of total taxes to total assets expresses a negative effect on

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[12] Countries included in the analysis are: Algeria, Bahamas, Bahrain, Bangladesh, Brunei Darussalam, Egypt, Gambia, Indonesia, Iran, Jordan, Kuwait, Lebanon, Malaysia, Mauritania, Qatar, Saudi Arabia, Sudan, Tunisia, United Arab Emirates, United Kingdom, and Yemen

ROE, ROA, and NNIM. The inflation rate shows both positive (on ROE), and negative (on ROA, PBT, and NNIM) effects. The concentration ratio which represents the share of Islamic banks in the banking sector shows a positive and statistically significant effect on the performance of Islamic banks. The total assets[13] of banks show a positive effect on ROA, and a negative and statistically significant effect on ROE, PBT, and NNIM.

Hidayat and Abduh (2012) analyzed the effect of the financial crisis of 2008, along with internal and external factors, on the profitability of Islamic banks. The authors analyzed a sample of eight Islamic banks of Bahrain for the time frame of 2005 to 2010. The authors used ROA and ROE as performance indicators. Compared with previous studies, the authors in this study used internal banking indicators (i.e., total assets, total liabilities, total loans, overhead expenses, and total shareholder equities) instead of ratios.

The authors used dummy variables for evaluating the performance of Bahraini banks during the crisis and post-crisis periods. According to the results, the authors found that during the financial crisis the profitability of Islamic banks in Bahrain was not affected; however, after the crisis their performance was negatively affected. Furthermore, the GDP per capita shows a negative and insignificant effect on both profitability indicators. The results suggest that bank size and overhead expenses negatively affect the performance of Islamic banks. On the other hand, total liabilities and the shareholders' equity show a positive effect. Interestingly, the total loans of Islamic banks show a negative effect on ROA while a positive effect on ROE.

In summary, the results show that both internal and external factors affect the profitability of Islamic banks. The literature reviewed suggests that the capital ratio, the liquidity ratio, the bank size, the efficiency ratio, fund source management ratio (total

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[13] The author used the total banking assets as the external factor.

deposits/total assets), and the risk ratio (total liabilities/total assets) are important internal factors. Furthermore, the concentration ratio, the GDP, the inflation rate, the ratio of total taxes to total assets, growth of the money supply, and the financial crisis variables are considered to be the major external factors. As the profitability measure, the studies mainly use ROE, ROA, and BTP/TA.

2.2.4. Profitability studies conducted on Islamic banks in Malaysia.[14] The first known profitability analysis of Islamic banks in Malaysia was performed by Wasiuzzaman and Tarmizi (2010), where the authors examined the effects of both internal and external factors on the banks' profitability. The internal factors included in the analysis are: asset quality ratio (loan loss reserves/total loans), capital ratio, liquidity ratio, and the operational efficiency ratio (income from interest-free lending/total assets). The external factors are GDP and inflation rate. The authors used the ROAA (return on average assets) as the profitability indicator. They analyzed 16 banks, which include four full-fledged Islamic banks and 12 Islamic windows for the period from 2005 to 2008 (S.Wasiuzzaman, personal communication, December 12, 2012).

The results suggest that the capital ratio and the asset quality ratios had a negative and statistically significant effect, whereas the liquidity and operational efficiency ratios had a positive and statistically significant impact on bank profitability. In addition, the authors report a positive and statistically significant effect of the inflation rate and the GDP on ROAA.

Another study on the profitability of Islamic banks in Malaysia was conducted by Idris et al. (2011), where the authors analyzed the effect of internal variables on the

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[14] Appendix 6 summarizes the variables and results of the profitability studies conducted on Islamic banks in Malaysia.

profitability of Islamic banks. The study included nine Islamic banks for the period 2007 to 2009. The authors used the following internal factors: capital ratio (total equities), credit risk (allowances for doubtful debt), liquidity (total loans), bank size (total assets), and expense management (total expenses). While other studies used these variables in ratio form, this study used the logarithmic values of the variables. The authors used ROA as a profitability measure.

The results indicate that the bank's size had a positive and statistically significant effect on Islamic banks' profitability. Furthermore, the total equities and loans showed a positive effect on profitability, while the factors representing the credit risk and expense management expressed a negative effect on Islamic banks' profitability.

Kok et al. (2012) examined the effect of both internal and external ratios on the profitability of Islamic banks in Malaysia. The internal ratios were comprised of capital ratio, liquidity ratio, asset quality ratio (loan loss reserves/total loans), and the expense management ratio. The external factors included were the GDP, the inflation rate, the money supply, and competition ratio (total deposits of Islamic bank/total deposits of Islamic banking industry). The authors used the ROA as a profitability measure. The authors used data from all 16 Islamic banks in Malaysia for the period from 2006 to 2010. However, as with the study by Wasiuzzaman and Tarmizi (2010), this study also included Islamic windows.

The results indicate that the capital ratio, asset quality, and expense management have a negative and statistically significant effect on Islamic banks' profitability. Furthermore, the bank's size has a positive and statistically significant effect, while the liquidity ratio has a positive relationship with profitability. On the other hand, the GDP

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and money supply express positive effects, while the inflation rate and the competition ratio express negative effects on Islamic banks' profitability.

In summary, we find that the profitability studies conducted on Islamic banks in Malaysia used the ROA as a profitability measure. The internal factors included in the profitability studies performed on Islamic banks in Malaysia are the capital ratio, asset quality ratio, liquidity ratio, operational efficiency ratio, bank size, and the credit risk factor. The external factors used in the studies are the GDP, the inflation rate, money supply, and the competition variable. However, as mentioned earlier in this section, some of these studies included Islamic windows in their analyses.

In this study we consider only full-fledged Islamic banks in Malaysia for the period from 2008 to 2012. We use the ROA as the profitability measure, which will help us compare our results with previous studies. We also use ROE as a profitability measure to examine whether or not similar results could be obtained.

The internal factors considered in the study are the capital to asset ratio, the liquidity ratio, the fund source management ratio, the bank size, and the efficiency ratio. Furthermore, we considered the GDP, the inflation rate, the taxation indicator variable, the concentration variable, and the money supply as the external factors. Additionally, we examine the robustness of results with respect to the financial crisis of 2008-2009.

2.3. Financial Crisis of 2008-2009 and Islamic Banks

The most recent major financial crisis, which started in 2007, adversely affected the global economy in 2008 (Alasrag, 2010; Elwell, 2013; Hidayat & Abduh, 2012). The economic recession not only questioned the stability of the conventional banking system, but at the same time it turned attention to Islamic banking as a more stable banking

system, and as such an alternative to conventional banking practices (Beck, Demirgüç-Kunt, & Merrouche, 2010).

Generally, Islamic banks are perceived to be less affected by the financial crisis due to their non-engagement with speculative financial instruments like derivatives, and to the asset-based structure of their operations, where each transaction is backed by a real asset (Alasrag, 2010). However, Islamic banks are not fully protected from financial shocks as they are operating within the global financial system.

Opinions regarding the damage to Islamic financial institutions during this financial crisis differ. For instance, Chapra (2008) and Miniaoui and Gohou (2011) stated that Islamic banks had not been affected by the financial crisis of 2008. Parashar and Venkatesh (2010) argued that Islamic banks had been negatively affected during the financial recession in terms of decline in shareholder capital. Other studies (e.g., Beck et al., 2010) found that no significant differences existed between the profitability of Islamic and conventional banks during the 2008 financial crisis, except that Islamic banks were better capitalized during this period. Beyond that, Lahem considered the financial crisis of 2008 as a great opportunity for Islamic banks to show their stability and their superiority over conventional banks, which expresses itself in risk avoidance and loss sharing (as cited in Wasiuzzaman & Tarmizi, 2010). Reasons for considering Islamic banks to be more resistant to economic recessions and downturns are associated with their lack of engagement in risky trading activities (Beck et al., 2010; Chazi & Syed, 2010; Kassim & Majid, 2010).

Apart from the studies that focus on the profitability of Islamic banks during the financial crisis, there are some others that analyzed the pre-crisis and the post-crisis

period profitability of Islamic banks. For instance, Hidayat and Abduh (2012), after analyzing the data obtained from conventional and Islamic banks of Bahrain, concluded that Islamic banks were not significantly affected during the economic recession; however, they have been negatively affected during the post-crisis period. Simultaneously, Miniaoui and Gohou (2011) analyzed the performance changes between Islamic and conventional banks during pre- and post-crisis periods. The authors concluded that conventional banks performed better than Islamic banks prior to the economic recession of 2008, however differences gradually decreased after the recession.

During the first half of 2008, when the financial crisis transferred from USA to the European markets, it showed a minor effect on Malaysia and other developing Asian economies. However, this effect worsened during the second half of 2008 and at the beginning of 2009 when the production and income of western countries significantly decreased. As a result of the decline in trade between Malaysia and the major western economies, and the increase in the outflow of capital resources, Malaysia's economy was negatively affected by the financial crisis of 2008-2009 (Khor, 2009).

Few studies were performed on the effect of the financial crisis of 2008-2009 on the profitability of Islamic banks in Malaysia, and opinions differ regarding the resiliency of these banks to the economic recession of 2008-2009. For instance, Wasiuzzaman and Tarmizi (2010) presented Malaysia as a country that was less affected by the economic recession. The authors explained this as being due to the presence of the Islamic banking system in the country, which played a significant role in strengthening the Malaysian economy.

Kassim and Majid (2010) evaluated the effect of not only the financial crisis of 2008, but also the Asian financial crisis of 1997 on the performance of Islamic and conventional banks in Malaysia. The authors split the monthly data on Islamic and conventional banks in Malaysia from 1997 to 2009 into three periods; namely the 1997 crisis period, the non-crisis period, and the 2008 crisis period. The profitability of the banks during each of these periods was compared and, as a result, the authors concluded that both banking systems are vulnerable to economic shocks and recessions.

In conclusion, we can say that generally Islamic banks are regarded as less vulnerable to the financial recession of 2008-2009 as compared with conventional banks. This relative stability is explained by the prohibition of risky activities like derivatives, forbiddance of debt sale contracts, the asset-based structure of Islamic banking operations, which requires the real asset to be the subject matter of the contract, as well as the share of risk between the engaged parties. However, this resiliency gradually decreases as a result of the increase in non-PLS contracts and the recent trend among Islamic banks to invest in mortgages (Alasrag, 2010).

In summary, two main gaps about Islamic banking in the literature relating to Malaysia were identified. The first one is that the previously conducted studies did not analyze the profitability of all full-fledged Islamic banks in Malaysia. The second one is that regardless of the development of the Islamic banking system in Malaysia during the financial crisis period, previously conducted studies did not examine its effect on the profitability of all full-fledged Islamic banks. In the current study we will fill the gaps in the literature by studying the profitability of all full-fledged Islamic banks in Malaysia and by examining the effect of the financial crisis of 2008-2009 on their profitability.

3.0. Research Design and Methodology

Section 1 of this chapter presents the dependent and independent variables included in the analysis. Section 2 describes the methodology.

3.1. Measures

Three categories of variables, namely dependent (i.e., profitability indicators), independent (i.e., internal and external factors), and the control variable (i.e., financial crisis variable) are used in this study. From the literature review we have identified the important internal and external factors and the profitability indicators for this study, which are outlined below.

3.1.1. Dependent variable. The specificity of the Islamic banking concept should be considered while selecting the profitability indicator for this analysis. As was noted in the literature, several profitability measures were used in previous studies. However, considering the results and the asset-based structure of Islamic banking operations, the preference in this study is given to the ROA (net income/total assets). Furthermore, the ROA is considered to be one of the most common profitability indicators from both Islamic and conventional banks' perspectives (Zeitun, 2012). The ROA (net income/total assets) represents the profit gained for each asset dollar and shows how efficiently the financial resources of the bank are being utilized (Bashir, 2003). The ROA highlights the asset-based nature of Islamic banks' operations by linking their income to their total assets (Parashar & Venkatesh, 2010). Another advantage of this ratio is its wide implementation in profitability studies previously conducted on Islamic banks (e.g., Bashir, 2003; Bintawim, 2011; Hassan & Bashir, 2003; Kok et al., 2012; Zeitun, 2012).

After conducting the regression analysis on ROA, we perform the same analysis by using ROE as a dependent variable. ROE has also been widely used in previously conducted profitability studies (Bashir, 2003; Hassan & Bashir, 2003; Hidayat & Abduh, 2012) and represents the profit gained for each equity dollar. This analysis is necessary to understand the profitability of Islamic banks from an equity shareholders' perspective, and to evaluate the factors that affect it.

3.1.2. Independent variables. Two sets of independent variables, namely internal (capital to asset ratio, liquidity ratio, efficiency ratio, fund source management ratio, and bank size) and external factors (GDP, inflation rate, money supply, concentration, and taxation indicator variable) are considered in this analysis. These ratios were chosen by considering their significance from the Islamic banks' perspective and on the basis of the results found in previous studies.

Internal factors. Internal factors represent the micro-level structure of Islamic banks. The descriptions of these ratios are as follows:

a) The **capital to asset ratio** (total shareholder equities/total assets or EQTA): In this analysis, by including the capital to asset ratio, we want to evaluate the significance of the shareholder capital to Islamic banks by analyzing their direct contribution to Islamic banks' profits.

In the studies conducted by Alkassim (2005) and Bashir (2003), the capital to asset ratio showed a positive relationship with profitability. This positive impact is explained as increased financing options of well capitalized banks, which positively affects their profitability. On the other hand, Wasiuzzaman and Tarmizi (2010) and Kok et al. (2012) found a negative effect of the capital

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to asset ratio on profitability of Islamic banks in Malaysia. The authors explained it with the risk avoidance of highly capitalized banks, which decreases their income.

In the current analysis we expect it to positively affect the profitability, since it expands the production capability of the bank and stimulates the cash flow.

b) The **fund source management ratio** (total deposits/total assets or DTA): This is the indicator of the leverage that comes from the liability side of the balance sheet (Bintawim, 2011; Hassan & Bashir, 2003). It represents the share of one of the essential capital sources of Islamic banks (i.e., funds provided by customers) in total assets. This factor is included in the analysis in order to evaluate the significance of deposits on Islamic banks' profits. Furthermore, it represents the effect of liabilities on profitability (Alkassim, 2005).

Hassan and Bashir (2003), Bintawim (2011), and Alkassim (2005) found that it had a negative effect on profitability. The negative effect was due to the liability feature of deposits that are considered to be an expense to the bank. On the other hand, Bashir (2003) and Asutay and Izhar (2007) found it had a positive effect on profitability. This positive effect is the result of the opportunities that deposits give to banks as a funding source.

In the current analysis we expect a positive effect of the fund source management ratio on Islamic banks' profitability, given that deposits are a source of cheap funding that Islamic banks could use for issuing loans, which eventually could increase their profits.

c) The **liquidity ratio** (total loans/total assets or LTA): It is included in the analysis for the evaluation of the financing strategy and loan portfolio of Islamic banks. As mentioned before, Islamic banks have limited financing options due to forbiddance of haram activities in shariah law, which reduces their potential sources of income. Furthermore, shariah law requires Islamic banks to participate in risk-sharing contracts. This aspect of Islamic banking operations requires them to follow more aggressive financing strategies to increase their profits, as compared with conventional banks (Onakoya & Onakoya, 2013). However, compared with conventional banks, Islamic banks directly participate in financing agreements by supervising them in order to ensure the proper usage of funds.

In some studies (Bintawim, 2011; Smaoui & Salah, 2012) this ratio showed a negative effect, which is explained with low liquidity and inefficiency in the loan portfolio management strategy of banks. However, Alkassim (2005), Bashir (2003), and Wasiuzzaman and Tarmizi (2010) found it had a positive effect on the profitability of Islamic banks. The positive effect is explained as the successful financing strategy in the form of proper allocation of funds in loan portfolios, efficient fund management, and supervision over issued loans.

Higher loan-to-asset ratio indicates low liquidity and increased riskiness of banking operations which could negatively affect Islamic banks' profitability (Bintawim, 2011). However, we expect this ratio to positively affect the

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profitability of banks, due to better institutionalization of Islamic banks in Malaysia, and their direct supervision of loans issued.

d) The **efficiency ratio** (total expenses/total assets or EXTA): This ratio measures the efficiency of banking operations by analyzing their expenses. It represents the level of total banking expenses (i.e., personnel, and other overhead expenses) by considering the size (i.e., total assets) of those banks.

Alkassim (2005) and Bashir (2003) found a positive effect of the efficiency ratio on the profitability of Islamic banks. This is explained as an increase in personnel expenses which could positively affect the work of employees. Simultaneously, Hidayat and Abduh (2012), Idris et al. (2011), Kok et al. (2012), and Zeitun (2012) report a negative relationship between the profitability of Islamic banks and the efficiency ratio. The authors explain the lower performance with spending of the larger part of the profitability indicator, the income, as expenses. Furthermore, high salary expenses could decrease net income if they do not increase profitability (Al-Tamimi, 2010).

The experience of Islamic banks in Malaysia is short considering that most of them started their fully shariah-compliant operations between 2005 and 2008 (CBM, 2012). In the initial stage of establishment banks could spend more on expansion and new hiring which, if considered as investment, could increase their income by positively affecting their profitability. However, the increase in expenses could also negatively affect their profitability. Hence, we could not anticipate the effect of this ratio on Islamic banks' profitability.

e) **Bank size** (a logarithmic value of total assets or SIZE): This ratio represents the total assets of each bank as a proxy for their size. This variable is included in the study to evaluate the significance of the bank's size for Islamic banks.

Empirical studies conducted on Islamic banks show both positive (Alkassim, 2005; Bashir, 2003; Idris et al., 2011; Zeitun, 2012) and negative (Akhtar et al., 2011; Bintawim, 2011; Haron, 1996; Hassan & Bashir, 2003) impacts of bank size on bank's profitability. The positive effect is explained as the ease of access of large banks to the liquid assets and to the capital markets with lower cost of borrowing (Ali, Akhtar, & Sadaqat, 2011; Idrsi et al., 2011). Furthermore, large banks are considered to be more efficient in terms of cost management compared with small banks (Alkassim, 2005; Idris et al., 2011). However, increased bureaucracy and inefficiency in asset management in large banks could negatively affect their profitability (Akhtar et al., 2011; Zeitun, 2012).

Considering the advantage of larger banks in terms of easy access to capital markets and low costs, we expect bank size to have a positive effect on the profitability of Islamic banks in Malaysia.

External factors. External factors are comprised of the set of variables that represent the macroeconomic conditions within the country, which are out of the control of banks. Banks, however, can take appropriate steps to benefit from macroeconomic changes. The following external factors are included to the analysis:

1) The **concentration variable** (total Islamic banking assets/total banking assets or CONC) represents the share of Islamic banks in the local market (Al-

Tamimi, 2010). Furthermore, it reflects the competition level of Islamic banks in the banking system as a whole.

Karim et al. (2010) and Hassan and Bashir (2003) found a positive effect of the concentration variable on the profitability of Islamic banks.[15] This positive effect is the result of the increase of Islamic banks' share in the market. As a result of this expansion, new customers are engaging in Islamic banking operations, which increases their profits. However, if most of the potential customers are engaged in Islamic banking operations, then income received for each asset dollar (ROA) could decrease. For example, Al-Tamimi (2010) reports the negative effect of the concentration variable on the profitability of UAE's Islamic banks.

Considering the relatively short experience of Malaysia in the Islamic banking sector and the major Muslim population of this country (i.e., 18 million [CIA, 2013]) we expect it to positively affect the profitability of Islamic banks, since there is a potential market where the Islamic banking sector can expand.

2) **Gross domestic product** (a logarithmic value of the real gross domestic product or GDP): This variable represents the economic activity and the macroeconomic stability within the country (Kok et al., 2012; Wasiuzzaman & Tarmizi, 2010). Empirical studies indicate that the fluctuations in GDP do not significantly affect the non-interest income generated by banks (Albertazzi & Gambacorta, 2009). However, considering that all Islamic banking income

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[15] In these studies as the proxy for the concentration variable the ratio of the assets of three largest banks to the whole banking assets was used.

represents the non-interest based income, and that the share of Islamic banks is increasing in the Malaysian market, then this effect might change. Furthermore, the GDP growth rate, as the measure of macroeconomic stability affects the demand for banking services, the amount of bank lending to the private sector, new loan origination and the loans losses (Bikker & Hu, 2002; Bolt, Haan, Hoeberichts, Oordt, & Swank, 2010). During the underperformance of the economy, income of the private sector as well as of households can decrease, which might affect their ability to pay for the outstanding debt. This can affect the profitability of Islamic banks, considering that they are engaging in highly risky PLS arrangements.

Empirical results show that GDP has a positive effect on the profitability of Islamic banks in Malaysia (Kok et al., 2012; Wasiuzzaman & Tarmizi, 2010). This positive effect is explained as favorable macroeconomic conditions within the country, which create a productive environment for the banking sector.

In this study, we expect GDP to positively affect the profitability of Islamic banks, since in a strong economy banks' profits rise as only a small number of loans default (Hassan & Bashir, 2003).

3) The **inflation rate** (INF): This variable represents the percentage change in consumer price index for all goods and services (Wasiuzzaman & Tarmizi, 2010). The inflation rate expresses a significant impact on income generated by banks by affecting loan quantity, asset quality, and interest rates. For Islamic banks, where interest-bearing loans are prohibited, inflation could

potentially affect the real value of the profits and losses (Wasiuzzaman & Tarmizi, 2010).

The effect of inflation depends highly on whether it has been anticipated or not (Srairi, 2009). In the case of anticipated inflation, we expect a positive impact on profitability since banks can adjust their operations and rates. Hence, profits increase faster than expenses (Bashir, 2003). In the case of unanticipated inflation, we expect an inverse impact on profitability since banks did not succeed in adjusting their operations, leading to higher costs and relatively low profits (Hassan & Bashir, 2003; Smaoui & Salah, 2012). Anticipation of inflation is significant for Islamic banks since the mark-up values (in the case of non-PLS modes of financing) and the share of profit (in the case of PLS modes of financing) in Islamic modes of financing are predetermined. In the case of unanticipated inflation, the profit acquired by Islamic banks dilutes its initially determined value which negatively affects profitability.

Empirical studies show a positive impact of the inflation rate on Islamic banks' profitability, which in turn demonstrates that in most cases Islamic banks were able to anticipate the possible fluctuations in inflation rate (Bashir, 2003; Smaoui & Salah, 2012; Wasiuzzaman & Tarmizi, 2010). However, Kok et al. (2012) report a negative effect of the inflation rate on Islamic banks' profitability. This negative effect is the consequence of the unanticipated inflation rate in Malaysia.

Here, we cannot predict the effect of the inflation rate on Islamic banks'
profitability as we do not know how successful full-fledged Islamic banks in
Malaysia are in anticipating and adjusting their rates to the changes in the
inflation rate.

4) **Money supply** (a logarithmic value of the money supply or MS): This
variable represents the amount of currency in circulation in the local market,
demand deposits, time deposits, and saving deposits (Al-Qudah & Jaradat,
2013; Kok et al., 2012). The money supply demonstrates the financial well-
being of country, as the higher the money supply, the more access banks will
have to the financial resources for increasing the amount of issued loans.
Furthermore, the money supply reflects the monetary policy determined by
the central bank of the country (Kosmidou, 2008). However, it also depends
on the behavior of banks and households which hold the major part of the
currency (Sufian & Chong, 2008).

As an external factor the money supply is included in the study in order to
evaluate the effect of the financial well-being and the monetary policy of the
country on the profitability of Islamic banks. Furthermore, it is included in the
analysis to evaluate the effect of the market growth on the profitability of
banks (Haron, 1996). Kok et al. (2012), Haron (1996), and Srairi (2009) found
a positive effect of this variable on the profitability of Islamic banks. This
positive effect is explained as the growth in market, and an increased amount
of available currency in the market. In the present study we expect the money
supply to positively affect the profitability of Islamic banks.

5) The **taxation indicator variable** (the ratio of total taxes over before-tax profits for each bank or TAX): This ratio represents the effect of tax rates imposed on Islamic banks in Malaysia. Taxes imposed on Islamic banks in Malaysia are being regulated by the Income Tax Act (1967) and the special provisions made to this act (MIA, 2012). Based on this act, each bank in the country is obliged to pay taxes. However, high tax rates could discourage local banks and foreign investors from entering the local Islamic banking market. The rate of taxes imposed on banks could be interpreted as a policy of government that could be expressed as support by low taxes or financial repression by high taxes (Bashir, 2003). Furthermore, Islamic banks have a social responsibility that is being expressed in the form of a religious tax, *zakat*, which they are obliged to pay.

All Islamic banks in Malaysia are obliged to pay zakat, which is done in order to comply with the principles of shariah (CBM, 2013). In Malaysia, Islamic banks pay zakat on their business and not on the behalf of the shareholders and depositors (CBM, 2013). Generally, the amount of zakat paid is equal to 2.5% of net income. However, the rate and the calculation method might differ from bank to bank, which is being supervised by the Shariah Board of each Islamic bank for the compliance with the principles of shariah law.

Hassan and Bashir (2003) and Bashir (2003) found a negative effect of the taxation indicator variable on the profitability of Islamic banks. We expect the

taxation variable to have a negative effect on the profitability of Islamic banks in Malaysia.

3.1.3. The control variable. The variable that represents the financial crisis of 2008-2009 is included in the study as a control variable for the evaluation of the robustness of results. This study covers the period when the financial crisis was at its peak. Hence, we consider its effect in order to examine whether or not Islamic banks in Malaysia were affected by the financial crisis.

The financial crisis variable (CRI) is a binary variable that expresses the effect of the financial crisis of 2008-2009. As stated earlier, there are few studies that have evaluated the effect of the financial crisis of 2008-2009 on the profitability of Islamic banks. For example, Hidayat and Abduh (2012) used special dummy variables to examine its effect.

In the present study we use data for the time period of 2008 to 2012. Here we use the approach of Hidayat and Abduh by assigning the value of 1 to the financial crisis period of 2008-2009, and 0 to the rest of the period. Although the financial crisis started in 2007 in the USA as a subprime mortgage crisis, which negatively affected the global economy during the following years (Forbes, Frankel, & Engel, 2011), we consider the years 2008 and 2009 as the date when the financial crisis spread from the USA to Europe and the rest of the world (European Commission, 2013), and as the date when the financial crisis entered to the Malaysia's economy (Abidin & Rasiah, 2009).

Table 2 provides a description of the variables included in the analysis, and indicates their expected effect on the profitability indicator.

Table 2: *The Set of Variables Used in the Study*

Name of variable	Formula and/or explanation	Expected effect on profitability
	Dependent variable	
Return on assets (ROA)	Net income/total assets	
Return on equities (ROE)	Net income/total equities	
	Independent variables	
Internal factors		
Capital to asset ratio (EQTA)	Total shareholders' equity/total assets	Positive (+)
Fund source management ratio (DTA)	Total deposits/total assets	Positive (+)
Liquidity ratio (LTA)	Total loans/total assets	Positive (+)
Efficiency ratio (EXTA)	Total operating expenses/total assets	Positive (+)/Negative (-)
Bank size (SIZE)	The logarithmic value of total assets	Positive (+)
External factors		
Concentration variable (CON)	Total Islamic banking assets/total banking assets	Positive (+)
GDP	The logarithmic value of the annual gross domestic product (real)	Positive (+)
Inflation rate (INF)	Annual inflation rate	Positive (+)/Negative (-)
Money supply (MS)	The logarithmic value of the total amount of money available in the country for each year	Positive (+)
Taxation indicator variable (TAX)	Total taxes/before-tax profits for each bank	Negative (-)
	Control variable	
CRI	The binary variable used for analyzing the effect of the financial crisis of 2008-2009, where (1) represents the crisis period (i.e., 2008-2009), and (0) the rest of the years.	

3.2. Methodology

The present study uses regression analysis to evaluate the effect of internal and external factors on the profitability of Islamic banks, and to examine the robustness of the results. The stepwise regression analysis is used to find the set of variables that are

significant from Islamic banks' perspective. Furthermore, the control variable is used to evaluate the robustness of results obtained from the stepwise regression analysis.

The data used in this analysis is cross-sectional time-series data, or in other words, the panel data. Among available panel data regression models (e.g., fixed effects, random effects, between effects) we selected the fixed effects model based on the purpose of the study, the specificity of the data, and the results of the Hausman[16] specification test (Warin, 2006):

- Data are not randomly selected, and cover all Islamic banks in Malaysia,

- The analysis is performed to find the effect of time-varying factors on the profitability of Islamic banks,

- We assume that there are no differences across entities (i.e., banks) that could have an effect on the profitability of Islamic banks since all Islamic banks in Malaysia operate under the same Islamic Banking Act (1983) and MFRS (Malaysian Financial Reporting Standards) norms and standards (MIA, 2012), and

- Hausman test results supported the fixed-effects model of regression analysis to be used.

The following two regression models are used in the study:

1) $Y_{it} = \beta_1 X_{1,it} + \beta_2 X_{2,it} + \cdots + \beta_k X_{k,it} + u_{it} + \alpha_i$, and

2) $Y_{it} = \beta_1 X_{1,it} + \beta_2 X_{2,it} + \cdots + \beta_k X_{k,it} + u_{it} + \alpha_i + CRI$, where:

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[16] The Hausman test is used to choose between the fixed and the random effect regression models (Princeton University, 2007).

Y_{it} :   The dependent variable that is expressed with the ratio of ROA where i (i=16) is

the entry and t (t =2008, ... , 2012) is the time of entry,

β_k :   The coefficient of independent variables where k (k=10) is the number of

independent variables,

$X_{k,it}$:   Internal (i.e., EQTA, DTA, LTA, EXTA, and SIZE) and external (i.e., CONC,

TAX, INF, MS, and GDP) factors,

u_{it} :   Error term,

α_i :   Unknown intercept for each entity, and

CRI :   The financial crisis variable (the dummy variable)

4.0. Data and Procedure

Data used in this study are comprised of all 16 currently operating Islamic banks in Malaysia for the time frame of 2008 to 2012 (i.e., 80 observations). This time frame was selected on the basis that all 16 currently operating Islamic banks in Malaysia were active and were operating as fully-fledged Islamic banks during this period. Raw data were collected from the financial statements and annual reports of each bank. Data on external factors were collected from the International Monetary Fund (IMF) and the World Bank (WB).

As noted above, in order to calculate the ratios presented in Section 3.1, data on total banking equity, total loans, total assets, total expenses, net income, before-tax profit, total deposits, and total taxes were collected from the annual statements of each bank. A list of the licensed Islamic banks was obtained from the official website of the Central Bank of Malaysia (CBM, 2012). The names of the banks, together with available data in years, are presented in Table 3.

In order to eliminate the observations with large residuals and leverage that could affect and eventually change the regression analysis results, the scatter plots and the Cook's D[17] analyses were applied. As a result of this analysis, one influential outlier was determined and eliminated.

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[17] Cook's D analysis is used to identify the influential observations or outliers by assessing the overall impact of an observation on the regression results (Lane, n.d.; IDRE, 2013).

Table 3: *List of the Islamic Banks in Malaysia Included in the Data Sample*

#	Name	Available data (in years)	Year of establishment
1	Affin Islamic Bank Berhad	5	2006
2	Al Rajhi Banking & Investment Corporation (Malaysia) Berhad	5	2006
3	Alliance Islamic Bank Berhad	5	2008
4	AmIslamic Bank Berhad	5	2006
5	Asian Finance Bank Berhad	5	2006
6	Bank Islam Malaysia Berhad	5	1983
7	Bank Muamalat Malaysia Berhad	5	1999
8	CIMB Islamic Bank Berhad	5	2005
9	HSBC Amanah Malaysia Berhad	5	2008
10	Hong Leong Islamic Bank Berhad	5	2005
11	Kuwait Finance House (Malaysia) Berhad	5	2005
12	Maybank Islamic Berhad	5	2008
13	OCBC Al-Amin Bank Berhad	5	2008
14	Public Islamic Bank Berhad	5	2008
15	RHB Islamic Bank Berhad	5	2005
16	Standard Chartered Saadiq Berhad	5	2008

5.0. Results and Discussion

In this chapter, section 1 presents the results of the stepwise regression analysis and the robustness test. Section 2 discusses the empirical findings.

5.1. Empirical Results

5.1.1. The stepwise regression analysis. In this sub-section we perform the stepwise regression analysis in order to find the set of variables that account for most of the variation in the dependent variable. Prior to the regression analysis, this sub-section addresses the descriptive statistics and the correlation analysis for all the variables discussed in section 3.1.

Table 4 displays the means, standard deviations, and the correlation results of all study variables. The results indicate high standard deviation for ROA and ROE, which implies that there is high divergence among Islamic banks in terms of income generated per asset and equity dollar. Furthermore, the results indicate a negative mean and high standard deviation for TAX. This is due to the lack of experience of most of the Islamic banks, which were unable to generate enough income or were generating losses at the early stages of development. As a result, Islamic banks were offered capital allowances and other rebates.

The correlation analysis revealed strong and statistically significant correlation between CONC and GDP, $r=0.91$, $p<.001$. Furthermore, significant correlations were also identified between CONC and MS, $r=0.99$, $p<.001$, and between MS and GDP, $r=0.96$, $p<.001$. The high positive correlation between MS and GDP might be explained by the increase in the flow of currency to the market followed by an increase in GDP. In other words, growth of the economy is being followed by monetary growth (Shrestha,

2010). The high positive correlation between MS and CONC comes from the nature of the latter, which is calculated by the ratio of total Islamic banking assets to the total banking asset. The increase of currency in the market stimulates banking activity which expresses itself in an increase of banks' assets.

There is strong and statistically significant correlation between CRI and the CONC, $r = -.76$, $p<.001$, and between CRI and INF, $r = .85$, $p<.001$. This high correlation may be the result of the increased share of Islamic banks in Malaysian market as a result of increased investment in this sector, and high inflation witnessed during the crisis period.

To reduce the multicollinearity problem in the regression analysis, the variables MS and GDP are excluded from the analysis. The CONC variable, however, is retained due to its direct linkage to the Islamic banks. Another reason for preference being given to the CONC variable is due to the intention of the Malaysian government to increase the share of Islamic banks in the local market from 20% to 40% by 2020 (Reuters, 2013). This is necessary for understanding the possibility of expansion of Islamic banking system in Malaysia, and for analyzing the effect of this process on the profitability of Islamic banks.

Table 4 : *Descriptive Statistics and Correlations for all the Variables*

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. CRI	-	-	-												
2. EQTA	0.090	0.050	.11	-											
3. DTA	0.699	0.141	-.05	-.50***	-										
4. LTA	0.575	0.140	-.15	.06	-.06	-									
5. EXTA	0.013	0.006	-.16	.24**	-.06	-.01	-								
6. SIZE	10.046	0.377	-.23**	-.51***	.42***	.29**	-.33***	-							
7. CONC	0.175	0.020	-.84***	-.14	.06	.15	.15	.27**	-						
8. INF	2.673	1.631	.17	.04	.08	-.07	-.23**	-.07	-.35***	-					
9. TAX	- 0.021	1.578	-.06	-.14	-.03	-.13	-.26**	.13	.04	.15	-				
10.GDP	11.750	0.028	-.86***	-.13	.09	.15	.08	.26**	.92***	.01	.09	-			
11.MS	12.039	0.059	-.83***	-.14	.08	.15	.11	.28**	.99***	-.21*	.06	.96***	-		
12.ROE	0.088	0.074	-.22*	-.48***	.34***	.26**	-.26**	.64***	.25**	-.17	.16	.20*	.23**	-	
13.ROA	0.006	0.006	-.15	-.21*	.30***	.40***	-.15	.45***	.17	-.14	.11	.13	.16	.87***	-

Note. N (number of observations) = 79. CRI = Financial Crisis (1= *years of the financial crisis, i.e. 2008 and 2009*, 0= *rest of the period*); EQTA = The Ratio of Shareholder Equities to Total Asset; DTA = The Ratio of Total Deposits to Total Assets; LTA= The Ratio of Total Loans to Total Assets; EXTA = The Ratio of Total Expenses to Total Assets; SIZE = The Logarithmic Value of Total Assets ; CONC = The Ratio of Islamic Banks' Assets to Total Banking Assets; INF = Inflation Rate; TAX = The Ratio of Total Taxes to Before-tax Profits; GDP = The Logarithmic Value of Real Gross Domestic Product; MS = Money Supply; ROE = Return on Equities; ROA: Return on Assets.
*p < .05, ** p < .01, *** p < .001.

The stepwise regression analysis is performed manually through iterations performed on sets of variables by considering their significance levels.[18] We start the stepwise regression analysis by including all the variables presented in section 3.1 except MS and GDP. As a result of the analysis, we identify the model with the set of variables that explain the most of the variation in the dependent variable (i.e., ROA). However, our purpose is to find the model with the set of variables significant from the Islamic banking perspective.

In Table 5 we present the three models chosen from the stepwise regression analysis. The first model (Model 1) includes all the variables considered in the study except MS and GDP. The second model (Model 2) reports the results of the stepwise regression analysis where the effects of all the variables are statistically significant. The third model (Model 3) includes the variables that are significant from an Islamic banking perspective, which is selected as the final model for interpretation of results. These models are selected for analyzing the changes in the direction of impact of the variables, and their significance levels.

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[18] The results of the stepwise regression analysis are presented in Appendix 7.

Table 5 : *Results of the Regression Analysis (ROA)*

Independent variables	Model 1	Model 2	Model 3
Internal factors		Coefficients (β)	
EQTA	0.0442 ***	0.0401 ***	0.0426 ***
DTA	0.0044		0.0042
LTA	0.0061		0.0059
EXTA	0.2810 *	0.2808 ***	0.2669 **
SIZE	0.0017		
External factors		Coefficients (β)	
CONC	0.0327	0.0512 **	0.0420 *
INF	- 0.0001		- 0.0001
TAX	- 0.0005 **	- 0.0006 ***	- 0.0005 **
Constant	- 0.0304	- 0.0102 **	- 0.0147 **
R^2	0.76	0.75	0.76
ΔR^2	0.76	- 0.01	0.01
Adj-R^2	0.65	0.67	0.66

Note. N (number of observations) = 79.
*$p < .05$, ** $p < .01$, *** $p < .001$

The results of the regression analysis from the first model (Model 1) indicate that the capital to asset ratio (EQTA) ($p<.001$), fund source management ratio (DTA), liquidity ratio (LTA), efficiency ratio (EXTA) ($p<.05$), bank size (SIZE), the concentration ratio (CONC), the inflation rate (INF), and the taxation indicator variable (TAX) ($p<.01$) explain 65 % of the total variation in ROA of Islamic banks in Malaysia (adjusted R^2 =.65, F(8,55)= 2.92, $p<.001$). As expected, the variables EQTA, DTA, LTA, SIZE, and CONC express a positive relation with ROA. Interestingly, the variable EXTA shows a positive ($p<0.5$), while INF shows a negative effect on ROA. Moreover, the variable TAX as expected expresses a negative ($p<.01$) effect.

The analysis is continued until we find the model with a set of variables that account for most of the variation in ROA. As a result of this analysis, Model 2 is identified (adjusted R^2 =.67, F(4,59)= 5.59, $p<.001$). In this model we have two internal (i.e., EQTA and EXTA) and two external (i.e., CONC and TAX) factors that significantly

($p<.01$ and $p<.001$) affect the profitability of Islamic banks in Malaysia. According to the results, the direction of the effect of independent variables on ROA remains the same.

Finally, we select a model for interpretation by considering the theoretical and practical significance of the variables included in the model. From this perspective, preference is given to Model 3 presented in Table 5 (adjusted $R^2 = .66$, $F(7,56)= 3.39$, $p<.001$). This model is obtained after elimination of the internal factor SIZE from Model 1. The variable SIZE is eliminated as its effect is partially reflected in the external factor of CONC.[19] Furthermore, the variable SIZE was the least significant variable in Model 1.

Further, we perform a similar analysis by using ROE as a profitability indicator. In this case, the same models presented in Table 5 are considered. The results of the new three models are presented in Table 6.

In Model 1 of the regression analysis where ROE is a dependent variable, the conflicting results are obtained in the direction of impact with regard to the internal factors EQTA, DTA and the external factor CONC (adjusted $R^2 = .68$, $F(8,55)= 3.26$, $p<.001$). All three variables show an inverse relation with ROE, compared with a positive effect on ROA. Furthermore, the variable EQTA is statistically not significant in the new model. However, the variable SIZE shows statistically significant effect ($p<.05$) on ROE. Among the remaining variables, LTA and EXTA ($p<.001$) show positive, while INF and TAX ($p<.001$) show negative effect on ROE.

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[19] We perform a simultaneous analysis, where we eliminate the CONC variable, and keep the SIZE in the model. Interestingly, in this case the variable SIZE becomes statistically significant at 5% level. It shows that these variables could be used interchangeably, which is explained with the calculation of both of these variables. However, considering the theoretical significance of the variable CONC from Islamic banks' perspective, we keep it in the model.

Table 6: *Results of the Regression Analysis (ROE)*

Independent variables	Model 1	Model 2	Model 3
Internal factors		Coefficients (β)	
EQTA	- 0.0097	- 0.1010	- 0.1623
DTA	- 0.0377		- 0.0549
LTA	0.0038		- 0.0175
EXTA	3.7544 **	2.6240 ***	2.3684 **
SIZE	0.1652 *		
External factors		Coefficients (β)	
CONC	- 0.1623	0.7457 **	0.7557 **
INF	- 0.0013		- 0.0008
TAX	- 0.0078 ***	- 0.0090 ***	- 0.0092 ***
Constant	- 1.5643 *	- 0.0685	- 0.0110
R^2	0.77	0.76	0.76
ΔR^2	0.77	- 0.01	0.00
Adj-R^2	0.68	0.68	0.67

Note. N (number of observations) = 79.
*$p < .05$, ** $p < .01$, *** $p < .001$

In Model 2 of the regression analysis the results are consistent with the same model of the previous analysis, except for the EQTA which shows negative and statistically non-significant effect on ROE (adjusted R^2 =.68, F(4,59)= 5.61, $p<.001$).

In Model 3 of the regression analysis conducted on ROE, we again get conflicting results with regard to EQTA, DTA, and LTA which negatively affect the ROE (adjusted R^2 =.67, F(8,55)= 3.26, $p<.001$). The results of the analysis indicate consistency in the effects of TAX, INF, CONC and EXTA.

5.1.2. The robustness analysis. In this sub-section we analyze the robustness of the regression analysis results by using CRI as a control variable. CRI is a dummy variable and represents the effect of the financial crisis of 2008-2009. The robustness test is performed on the selected three models presented in Table 5 and 6. Initially we analyze the robustness of results of the regression analysis where ROA is a dependent variable. Later we perform a similar analysis by considering ROE as a profitability indicator. The

results of the initial robustness test where ROA is a dependent variable are presented in Table 7.

Table 7: *The Robustness Test (ROA)*

Independent variables	Model 1	Model 2	Model 3
Internal factors		Coefficients (β)	
EQTA	0.0448 ***	0.0404 ***	0.0429 ***
DTA	0.0044		0.0042
LTA	0.0063		0.0060
EXTA	0.2946 *	0.2862 ***	0.2772 *
SIZE	0.0020		
External factors		Coefficients (β)	
CONC	0.0448	0.0626	0.0550
INF	- 0.0001		- 0.0001
TAX	- 0.0005 **	- 0.0006 ***	- 0.0005 **
The Control variable		Coefficients (β)	
CRI	0.0006	0.0006	0.0006
Constant	- 0.0364	- 0.0125	- 0.0175
R^2	0.76	0.75	0.76
ΔR^2	0.76	- 0.01	0.01
Adj-R^2	0.65	0.67	0.65

Note. N (number of observations) = 79.
$*p < .05, **p < .01, ***p < .001$

The robustness test on all three models does not reveal any significant changes, except in Model 2 and Model 3 where the external factor CONC becomes statistically insignificant. Furthermore, the financial crisis variable, CRI, shows a statistically non-significant effect on ROA in all three models. The results on all three models suggest that the inclusion of the variable CRI to the analysis does not change the direction of the impact of internal and external factors obtained from the previous analysis.

The results of the robustness test with ROE as a dependent variable are presented in Table 8.

Table 8: *The Robustness Test (ROE)*

Independent variables	Model 1	Model 2	Model 3
Internal factors		Coefficients (β)	
EQTA	- 0.0152	- 0.1049	- 0.1668
DTA	- 0.0377		- 0.0545
LTA	0.0018		- 0.0199
EXTA	3.6335 **	2.5627 ***	2.2164 *
SIZE	0.1624 *		
External factors		Coefficients (β)	
CONC	- 0.2696	0.6172	0.5640
INF	- 0.0017		- 0.0012
TAX	- 0.0078 ***	- 0.0091 ***	- 0.0092 ***
The Control variable		Coefficients (β)	
CRI	- 0.0057	- 0.0063	- 0.0090
Constant	- 1.5110 *	- 0.0423	0.0312
R^2	0.77	0.76	0.76
ΔR^2	0.77	- 0.01	0.00
Adj-R^2	0.67	0.68	0.66

Note. N (number of observations) = 79.
*$p < .05$, ** $p < .01$, *** $p < .001$

The results of the robustness test indicate that the directions of impact of all variables remain unaltered in all three models except for CONC which becomes statistically insignificant in Model 2 and Model 3. Moreover, as in the previous analysis, the financial crisis variable, CRI, shows an insignificant effect on ROE.

5.2. Discussion of the Findings

As mentioned earlier, five internal (i.e., capital to asset ratio, fund source management ratio, liquidity ratio, expense management ratio, and bank's size) and five external (i.e., concentration ratio, GDP, inflation rate, tax indicator variable, and money supply) factors were considered in this analysis. However, the money supply and the GDP were excluded from the analysis to reduce the multicollinearity problems. Furthermore, two profitability measures, ROA and ROE, are selected as dependent variables to analyze the effect of the internal and external factors.

The stepwise regression analysis is performed on the remaining variables, and the model that includes the variables with practical and theoretical significance from Islamic banks' perspective is selected for interpretation. The selected model includes four internal factors, namely EQTA, DTA, LTA, and EXRA, and three external factors, namely CONC, INF and TAX. The results of the regression analysis and the robustness test of the selected model are presented in Table 8.

Conflicting results are obtained on EQTA, DTA, LTA, and CRI in terms of the direction of impact depending on the profitability measure used in the regression analysis.

Table 9: *The Regression Analysis Results and the Robustness Test*

Dependent variables	ROA	ROA (robustness test)	ROE	ROE (robustness test)
Independent variables				
Internal factors	Coefficients (β)			
EQTA	0.0426 ***	0.0429 ***	- 0.1623	- 0.1668
DTA	0.0042	0.0042	- 0.0549	- 0.0545
LTA	0.0059	0.0060	- 0.0175	- 0.0199
EXTA	0.2669 **	0.2772 *	2.3684 **	2.2164 *
External factors				
CONC	0.0420 *	0.0550	0.7557 **	0.5640
INF	- 0.0001	- 0.0001	- 0.0008	- 0.0012
TAX	- 0.0005 **	- 0.0005 **	- 0.0092 ***	- 0.0092 ***
The Control variable	Coefficients (β)			
CRI		0.0006		- 0.0090
Constant	- 0.0147 **	- 0.0175	- 0.0110	0.0312
R^2	0.76	0.76	0.76	0.76
ΔR^2	0.76	0.00	0.76	0.00
Adj-R^2	0.66	0.65	0.67	0.66

Note. N (number of observations) = 79.
*$p < .05$, ** $p < .01$, *** $p < .001$

The capital to asset ratio, EQTA, shows a positive and statistically significant effect on ROA, while a negative and non-significant effect on ROE. Alkassim (2005),

Bashir (2003), Hidayat and Abduh (2012), Idris et al. (2011), and Zeitun (2012) also found a positive relationship between the capital to asset ratio and ROA. Simultaneously, Hassan and Bashir (2003) and Alkassim (2005) report a negative effect of EQTA on ROE. The positive and statistically significant effect may indicate that Islamic banks' shareholders significantly contribute to the overall performance and the profitability of Islamic banks in Malaysia. However, the negative effect can be interpreted such that the increase in capital to asset ratio decreases the returns on equity of Islamic banks.

The fund source management ratio, DTA, which represents the share of funds provided by customers in total assets, also shows a positive effect on ROA. This may imply that Islamic banks are efficiently using funds provided by customers. However, its effect is statistically not significant. Considering that customer deposits are one of the primary funding sources of Islamic banks, the insignificant effect may indicate that Islamic banks are not utilizing these funds to the full extent. This is associated with the deposit structure of Islamic banks. As mentioned before, investment deposits account for approximately 56% of total deposits, which indicates that Islamic banks are allowed to use nearly half of the consumer funds for financing purposes. On the other hand, Islamic banks charge service fees on the remaining consumer provided funds, which is relatively lower than income from financing operations. This result supports the findings of Asutay and Izhar (2007) and Bashir (2003).

Simultaneously, DTA expresses a negative effect on ROE, which supports the findings of Hassan and Bashir (2003) and Alkassim (2005). This indicates that the increase in the amount of funds provided by deposit holders decreases the revenue generated on shareholder equities.

The third internal factor, LTA, which represents the liquidity of Islamic banks and the share of loans in total Islamic banking assets, expresses a positive effect on ROA and a negative effect on ROE. The positive effect can be the result of an efficient loan portfolio management strategy of Islamic banks in Malaysia, as well as efficient allocation of resources and the proper supervision over issued loans. It may imply that the aggressive loan-building strategy followed by Islamic banks to maintain the competitive return on investments (Onakoya & Onakoya, 2013) proves itself in the case of Islamic banks in Malaysia. The same positive effect of the ratio of loans to total assets on Islamic banks' profitability was observed by Bashir (2003), Alkassim (2005), Idris et al. (2011), Kok et al. (2010), and Wasiuzzaman and Tarmizi (2010). The negative effect, however, indicates that the increase in the amount of issued loans decreases the return on equities. Hassan and Bashir (2003) also report a negative effect of LTA on ROE.

Furthermore, the results suggest that the variable EXTA, which represents the operational efficiency by evaluating the expense management of Islamic banks, expresses a positive and statistically significant effect on ROA and ROE. The positive relationship with profitability may indicate the efficiency of Islamic banks in Malaysia in terms of expense management as increases in expenses increase the profits (Hassan & Bashir, 2003). Bashir (2003), Hassan and Bashir (2003) and Alkassim (2005) found similar results with respect to the relationship between total expenses and profitability. However, it contradicts the results of the studies previously conducted on Islamic banks in Malaysia (i.e., Idris et al., 2011; Kok et al., 2012).

Among the external factors included in the analysis, the CONC variable shows a positive and statistically significant effect on both of the profitability measures. The

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CONC variable represents the share of Islamic banks in the total Malaysian market. Currently, Islamic banks account for approximately 20% of local market (CBM, 2012), and the government's plan of increasing this market share to 40% by 2020 is considered to be very ambitious by Malaysian Islamic scholars (Reuters, 2013). However, the positive effect of this variable on profitability can be interpreted such that there is still potential for Islamic banks to grow in Malaysia. In other words, the concentration of Islamic banks in the local market has not reached the level where the increase in this variable will negatively affect the profitability. Hassan and Bashir (2003) and Karim et al. (2010) also report the positive effect of the concentration ratio on Islamic banks' profitability.

The second external factor, the inflation rate (INF), shows a negative effect on ROE and ROA. As mentioned earlier, Islamic banks adjust their operations to the anticipated macroeconomic changes in order to decrease their effect on profitability. The negative effect of the inflation rate, however, may imply that Islamic banks in Malaysia were relatively less efficient in anticipating the changes in the inflation rate and in adjusting their operations to these changes. Considering that Islamic banks are engaging in PLS agreements and that the Islamic banks' share of income is predetermined, then anticipation of changes in the inflation rate is necessary for Islamic banks to secure the initially expected amount of income. This result supports the findings of Zeitun (2012), Haron (1996), Hassan and Bashir (2003), and Kok et al. (2012).

The third external factor, the taxation indicator variable (TAX), expresses a negative and statistically significant effect on both profitability measures. Intuitively, the negative effect was expected due to a decrease in income as a result of increased taxes.

This effect is even more significant with the religious tax, zakat, that Islamic banks are obliged to pay. However, a rebate is being granted to Islamic financial institutions based on the religious taxes paid (MIA, 2012). The results may indicate that higher taxes are imposed on Islamic banks in Malaysia, and they not only affect the profits of shareholders, but also the customers. This implies that Islamic banks pass the effect of higher taxes to their customers through low income, which might decrease the motivation of customers to further invest in Islamic banks. Hassan and Bashir (2003) and Bashir (2003) report similar results with regard to the relationship between the taxes imposed on Islamic banks and their profitability.

Finally, our results indicate that the profitability of Islamic banks in Malaysia was not significantly affected during the financial recession of 2008-2009. This is explained by the efforts taken by the government after the Asian financial crisis of 1997 in order to strengthen the banking system of the country (Ibrahim, 2011). Furthermore, the government's attempts to secure access to funding sources for businesses and households also lessened the effect of the financial crisis on Malaysia's financial system (Ibrahim, 2011).

6.0. Summary and Conclusion

This study provides new insight into Islamic banking profitability by examining the effect of internal and external factors on the profitability of Islamic banks in Malaysia. This study covers all full-fledged Islamic banks, and performs an analysis to evaluate the robustness of results with regard to the financial crisis of 2008-2009.

The results indicate that the equity to total asset ratio shows a positive and statistically significant effect on ROA, while a negative effect on ROE. This may imply that a higher equity to total asset ratio leads to higher profitability, while causing a decrease in return on equities of Islamic banks. Furthermore, according to the results, increases in Islamic banks' expenses positively and significantly affects the profitability of Islamic banks. This may imply that Islamic banks are efficient with regard to the expense management.

The increase in the share of Islamic banks in the Malaysian market (i.e., increase in the concentration) significantly increases their profitability, which may imply that there is a potential for Islamic banks to grow in the local market. On the other hand, the ratio of total taxes to before-tax profits expresses a negative and statistically significant effect on ROA and ROE. This may be interpreted as high taxes being incurred by Islamic banks, which significantly decreases their profits.

Total liquidity ratio shows a positive effect on ROA and a negative effect on ROE. This may imply that, generally, Islamic banks in Malaysia follow an efficient loan management strategy. However, it does not significantly contribute to the profitability of Islamic banks.

The inflation rate, however, shows a negative relationship with the profitability of Islamic banks. This can be interpreted as inefficiency of Islamic banks in Malaysia in terms of anticipating the fluctuations in the inflation rate and adjusting their operations to these changes.

The ratio of total deposits to total assets positively affects the ROA, and shows a reverse relationship with ROE. This may imply the efficiency of Islamic banks in fund management. However, an increase in the amount of deposits does not significantly improve the profitability of Islamic banks. Finally, the financial crisis of 2008-2009 did not significantly affect the profitability of Islamic banks in Malaysia.

This study was faced with a few limitations, especially with regard to the data set, as data on Islamic banks is not easily accessible. Furthermore, in this study we cover only 16 Islamic banks, as this concept is in the initial stage of its development in Malaysia. Moreover, due to the size of the data set, we considered only a limited number of variables.

This study could be extended by including the conventional banks in Malaysia, and by comparing the results between the two banking systems. Furthermore, the study can be extended by covering more countries with developed Islamic banking systems.

In general, the Islamic banking concept is still in its infancy period of development, and more studies with wider data sets and variables are needed in order to find practical ways to help improve their profitability.

7.0. References

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8.0. Appendices

Appendix 1: Glossary of Islamic terms

Term	Definition
Ahadith	Record of the traditions or sayings of the Prophet Muhammad, revered and received as a major source of religious law and moral guidance, second only to the authority of the Quran, the holy book of Islam
Bai` Bithaman Ajil (BBA)	A contract that refers to the sale and purchase transaction for the financing of assets on a deferred and an installment basis with a pre-agreed payment period. The sale price will include a profit margin.
Gharar	Gharar is an element of deception either through ignorance of the goods, the price, or through faulty description of the goods, in which one or both parties stand to be deceived through ignorance of an essential element of exchange.
Halal	Lawful / permitted by Shariah
Haram	Forbidden by Shariah
Hibah	A gift awarded to a person.
Ijarah	A manfaah (usufruct) type of contract whereby a lessor (owner) leases out an asset or equipment to his client at an agreed rental fee and pre-determined lease period upon the aqad (contract). The ownership of the leased equipment remains in the hands of a lessor.
Ijarah muntahia bitamleek	A contract which begins with an Ijaah contract for the purpose of leasing the lessor's asset to the lessee. Consequently, at the end of the lease period, a lessee will purchase the asset at an agreed price from a lessor.
Ijma	The universal and infallible agreement of the Muslim community, especially of Muslim scholars on any Islamic principle, at any time.
Ijtihad	In Islamic law, the independent or original interpretation of problems not precisely covered by the Quran, Hadith (traditions concerning the Prophet's life and utterances), and ijma (scholarly consensus).
Istisna	A purchase order contract of assets whereby a buyer will place an order to purchase an asset that will be delivered in the future. In other words a buyer will require a seller or a contractor to deliver or construct the asset that will be completed in the future according to the specifications given in the sale and purchase contract. Both parties to the contract will decide on the sale and purchase prices as they wish and the settlement can be delayed or arranged based on the schedule of the work completed.
Maysir	Any activity that involves betting whereby the winner will take all the bets and the loser will lose his bet. This is prohibited according to Shariah.
Mudarib	A fund manager or agent.
Mudharabah	A contract, which is made between two parties to finance a business venture. The parties are a rabb al-mal or an investor who solely provides the capital and a mudarib or an entrepreneur who solely manages the project. If the venture is profitable, the profit will be distributed based on a pre-agreed ratio. In the event of a business loss, the loss shall be borne solely by the provider of the capital.
Murabahah	A contract that refers to the sale and purchase transaction for the financing of an asset whereby the cost and profit margin (mark-up) are made known and agreed by all parties involved. The settlement for the purchase can be settled either on a deferred lump sum basis or on an installment basis, and is specified in the agreement.
Musharakah	A partnership arrangement between two parties or more to finance a business venture whereby all parties contribute capital either in the form of cash or in kind for the purpose of financing the business venture. Any

	profit derived from the venture will be distributed based on a pre-agreed profit sharing ratio, but a loss will be shared on the basis of equity participation.
Qiyas	In Islamic law, analogical reasoning as applied to the deduction of juridical principles from the Quran and the Sunnah (the normative practice of the community)
Quran	The basic source of law for Muslims, which includes all of the constitutive rules of law. The sacred scripture of Islam and, for all Muslims, the very word of God, revealed through the agency of the archangel Gabriel to the Prophet Muhammad.
Rab-al-mal	Supplier of funds, the principal.
Riba	An increase, which in a loan transaction or in exchange of a commodity, accrues to the owner (lender) without giving an equivalent counter value or recompense in return to the other party. It covers interest both on commercial and consumer loans, and is prohibited according to Shariah.
Salam	A contract whereby the payment is made in cash at the point of contract but the delivery of asset purchased will be deferred to a predetermined date.
Sunnah	Explanations rendered by the Prophet Muhammad.
Sukuk	A document or certificate, which evidences the undivided pro-rata ownership of underlying assets - the Sak (singular of Sukuk) is freely tradable at par, premium or discount.
Shariah	Islamic law, originating from the Qur'an (the holy book of Islam), as well as practices and explanations rendered by the prophet Muhammad and ijtihad of ulamak (personal effort by qualified Shariah scholars to determine the true ruling of the divine law in a subject matter on which the revelation is not explicit).
Zakat	A tax, which is prescribed by Islam on all persons having wealth above a certain amount and that, is fixed by the Shariah. According to the Islamic belief Zakat purifies wealth and souls. The objective is to take away a part of the wealth of the well-to-do and to distribute it among the 8 categories stated in the Quran.

Source: Van Greuning and Iqbal (2008) and CMDA (2012).

Appendix 2: Countries' share in Islamic banking assets by end of 2012

#	Country	Share in Islamic banking assets (%)	Share in Islamic banking asset (in billion USD)
1	Iran	42.7 %	555.1
2	Saudi Arabia	12.2 %	158.6
3	Malaysia	10.0 %	130.0
4	United Arab Emirates	8.0 %	104.0
5	Kuwait	7.9 %	102.7
6	Qatar	4.0 %	52.0
7	Turkey	3.1 %	40.3
8	Bahrain	2.0 %	26.0
9	Indonesia	1.4 %	18.2
10	Others	8.7 %	113.1

Appendix 3: Profitability studies conducted on conventional banks

General Information	Variables & Results
Short (1979) **Countries:** Austria, Belgium, Canada, Denmark, England, Wales, France, West Germany, Italy, Japan, Netherlands, Sweden, Switzerland **Timeframe:** 1971 – 1975. **Banks:** 60 conventional banks.	**Dependent variable:** 1) ROE **Internal:** 1) Ownership variable (1: government owned and 0: otherwise): negative & statistically significant 2) RGA (rate of growth of assets): negative **External factors:** 1) Concentration ratios (share of market held by the largest, two largest, or three largest banks): positive & statistically significant 2) H concentration index (the sum of the squares of each bank's market share): positive & statistically significant 3) DR (central bank discount rate): positive 4) LR (interest rate on long-term government securities): positive
Bourke (1989) **Countries:** Australia, California, Massachusetts, New York, Canada, Ireland, England, Wales, Belgium, Holland, Denmark, Norway and Spain. **Timeframe:** 1972 – 1981. **Banks:** 90 conventional banks.	**Dependent variable:** 1) BTCR (before tax profit/capital and reserves), 2) ATCR (after tax profit/capital and reserves), 3) BTCRTB (before tax profit/ capital, reserves, and total borrowings) 4) BTTA (before tax profit/total assets) 5) BTSETA (before tax profit and staff expenses/total assets) 6) BTSEPLTA (before tax profit, staff expenses, and provision for loan losses/total assets) **Internal factors;** 1) GOVT (ownership variable): negative (on BTCR); negative (on ATCR); negative (on BTCRTB); negative (on BTTA); positive (BTSETA); positive (on BTSEPLTA) 2) CRTA (capital ratio: capital and reserves /total assets): positive & statistically significant: 3) CBINVTA (liquidity ratio: cash, bank deposits, and investment securities/total assets): positive & statistically significant (on BTTA); positive & statistically significant (on BTSETA); positive & statistically significant (on BTSEPLTA) 4) SE (staff expenses/total assets): positive & statistically significant (on BTTA). **External factors:** 1) CONC (concentration ratio: total assets or deposits of three largest banks/total assets): positive & statistically significant (on BTCR); positive & statistically significant (on ATCR); positive & statistically significant (on BTCRTB); positive & statistically significant (on BTTA); negative & statistically significant (on BTSETA); negative & statistically significant (on BTSEPLTA). 2) INT (interest rate: the long-term bond rate): positive (on BTCR); positive (on ATCR); positive (on BTCRTB); positive & statistically significant (on BTTA); positive & statistically significant (BTSETA); positive & statistically significant (on BTSEPLTA); 3) MON (market growth: growth in money supply): positive & statistically significant (on BTCR); positive & statistically significant (ATCR); positive & statistically significant (BTCRTB); positive & statistically significant (on BTSETA); positive & statistically significant (on BTSEPLTA). 4) CPI (inflation: percentage increase in consumer price index): positive & statistically significant (on BTTA); negative (on BTSETA); negative (on BTSEPLTA).

Appendix 4: Profitability studies conducted on Islamic and conventional banks

General Information	Variables & Results
Alkassim (2005) **Countries**: GCC countries (i.e., UAE, Bahrain, Saudi Arabia, Oman, Qatar, Kuwait) **Timeframe**: 1997 – 2004. **Banks**: 16 Islamic banks and 18 Conventional banks.	**Dependent variables:** 1) ROA 2) ROE 3) NIM (net income margin): income from interest-free lending. **Internal factors:** **Results on conventional banks:** 1) Total assets (LogTA): negative (on ROA); negative (on ROE); negative & statistically significant (on NIM) 2) Total equity to total assets ratio (TE/TA): positive & statistically significant (on ROA); negative & statistically significant (on ROE); negative (on NIM) 3) Total loans to total assets ratio (TL/TA): positive (on ROA); negative (on ROE); positive & statistically significant (on NIM) 4) Deposits to total assets ratio: positive & statistically significant (on ROA); positive & statistically significant (on ROE); negative & statistically significant (on NIM). 5) Total expenses to total assets ratio: negative & statistically significant (on ROA); negative & statistically significant (on ROE); positive & statistically significant (on NIM). 6) Non-interest expenses to total expense ratio: positive (on ROA); positive (ROE); positive & statistically significant (NIM). **Results on Islamic banks:** 1) Total assets (LogTA): positive & statistically significant (on ROA); positive & statistically significant (on ROE); positive (on NIM). 2) Total equity to total assets ratio (TE/TA): positive & statistically significant (on ROA); negative (on ROE); positive (on NIM). 3) Total loans to total assets ratio (TL/TA): positive & statistically significant (on ROA); positive & statistically significant (on ROE); positive & statistically significant (on NIM). 4) Deposits to total assets ratio: negative (on ROA); negative (on ROE); positive (on NIM) 5) Total expenses to total assets ratio: positive (on ROA); positive (on ROE); negative (on NIM) 6) Non-interest expenses to total expense ratio: positive & statistically significant (on ROA); positive & statistically significant (on ROE); positive & statistically significant (on NIM).

Zeitun (2012)	Dependent variables:
	1) ROA
Country: Bahrain, Oman, Saudi Arabia, Qatar, Kuwait, United Arab Emirates.	2) ROE
	Results on conventional banks:
	Internal factors:
	1) Bank age (years of operation): negative (on ROA); negative & statistically significant (on ROE)
Timeframe: 2002 – 2009	2) Equity: positive & statistically significant (on ROA); positive & statistically significant (on ROE)
Banks: 13 Islamic banks and 38 conventional banks.	3) Bank size (log of total assets): negative & statistically significant (on ROA); positive (on ROE).
	4) The ratio of bank reserves to total loans: negative & statistically significant (on ROA); negative & statistically significant (on ROE).
	5) Foreign ownership: positive (on ROA); positive (on ROE).
	6) Operating costs/total revenue: negative & statistically significant (on ROA); negative & statistically significant (on ROE).
	External factors:
	1) Financial development ratio (total assets /GDP): positive (on ROA); negative (on ROE).
	2) GDP growth rate: positive & statistically significant (on ROA); positive & statistically significant (on ROE).
	3) Inflation rate: negative & statistically significant (on ROA); negative & statistically significant (on ROE).
	Results on Islamic banks:
	Internal factors:
	1) Bank age (years of operation): positive (on ROA); negative & statistically significant (on ROE).
	2) Equity: positive (on ROA); positive (on ROE).
	3) Bank size (log of total assets): negative (on ROA); positive & statistically significant (on ROE)
	4) The ratio of bank reserves to total loans: negative (on ROA); negative (on ROE).
	5) Foreign ownership: positive (on ROA); negative (on ROE)
	6) Operating costs/total revenue: negative & statistically significant (on ROA); negative & statistically significant (on ROE).
	External factors:
	1) Financial development ratio (total assets /GDP): negative (on ROA); negative (on ROE).
	2) GDP growth rate: positive (on ROA); positive (on ROE).
	3) Inflation rate: negative & statistically significant (on ROA); negative & statistically significant (on ROE).

Appendix 5: Profitability studies conducted on Islamic banks

General Information	Variables & Results
Haron (1996) **Countries:** Bangladesh, Jordan, Kuwait, Malaysia, Tunisia, UAE, Bahrain, Sudan, Turkey, and the Turkish Republic of Northern Cyprus **Timeframe:** 1982 – 1994 **Banks:** 14 Islamic banks	**Dependent variables:** 1) TITA (total income as a percentage of total assets); 2) BITA (bank's portion of income as a percentage of total assets); 3) BTTA (net profit before tax as a percentage of total assets); 4) BTCR (net profit before tax as a percentage of capital and reserves). **External factors:** 1) Competition (MKTPL: A dummy variable representing two different markets, 1 - when a bank operates in a monopolistic market; and 0 otherwise): negative (on TITA); positive & statistically significant (on BITA); negative & statistically significant (on BTTA); positive & statistically significant (on BTCR) 2) Market share (MKTSH: Market share (total deposits of an Islamic bank as a percentage of a country's total deposits): negative & statistically significant (on TITA); negative (on BITA); positive & statistically significant (on BTTA); positive & statistically significant (on BTCR). 3) INT (discount rate for each country): positive (on TITA); positive & statistically significant (BITA); positive (on BTTA); positive (on BTCR) 4) MON (growth in money supply): negative (on TITA); positive (on BITA); positive & statistically significant (BTTA); positive (on BTCR). 5) CPI (consumer price index): positive & statistically significant (on TITA); negative & statistically significant (on BITA); negative & statistically significant (BTTA); negative (on BTCR). 6) Size (logarithmic value of total assets): positive & statistically significant (on TITA); negative & statistically significant (BITA); negative & statistically significant (on BTTA); negative & statistically significant (on BTCR).
Bashir (2003) **Countries:** UAE, Egypt, Kuwait, Jordan, Bahrain, Sudan, Qatar, Turkey. **Timeframe:** 1993 – 1998. **Banks:** 14 Islamic banks	**Dependent variable:** 1) BTP/TA (Before tax profit: ratio of before tax profit to total assets) 2) ROA 3) ROE. **Internal factors:** 1) Capital ratio (equities/total assets or EQTA): positive (on ROA); positive (on ROE); positive and statistically & significant (on BTP/TA) 2) Interaction term (EQTA*GDPPC): negative (on ROA); positive (on ROE); negative & statistically significant (on BTP/TA) 3) Liquidity (PLS loans/total assets or LOAN): positive & statistically significant (on ROA); positive (on ROE); positive & statistically significant (on BTP/TA) 4) Interaction term (LOAN*GDPPC): negative & statistically significant (on ROA); positive & statistically significant (on ROE); negative & statistically significant (on BTP/TA) 5) Funds source management ratio (consumer & short term funds/total assets or CSTF): positive & statistically significant (on ROA); negative (on ROE); positive (on BTP/TA) 6) Interaction term (CSTF*GDPPC): negative & statistically significant (on ROA); positive & statistically significant (on ROE); negative & statistically significant (on BTP/TA) 7) Ratio of non-interest earning assets/total assets (NIEATA): positive & statistically significant (on ROA); negative & statistically significant (ROE); negative & statistically significant (BTP/TA) 8) Interaction term (NIEATA*GDPPC): negative & statistically significant (on

	ROA); negative & statistically significant (on ROE); negative (on BTP/TA)
	9) Fund use management ratio (overhead/total assets or OVRHD): positive (on ROA); positive & statistically significant (on ROE); positive (on BTP/TA)
	10) Interaction term (OVRHD*GDPPC): positive (on ROA); negative & statistically significant (on ROE); positive & statistically significant (on BTP/TA).
	11) Foreign ownership (FRGN): positive & statistically significant (on ROA); positive (on ROE); positive & statistically significant (on BTP/TA)
	12) Interaction term (FRGN*GDPPC): negative (on ROA); positive & statistically significant (on ROE); negative & statistically significant (on BTP/TA)
	13) Risk ratio (total liabilities/total assets): positive (on ROA); positive & statistically significant (on ROE); positive & statistically significant (on BTP/TA)
	External factors:
	1) GDP per capita: positive & statistically significant (on ROA); negative & statistically significant (on ROE); positive & statistically significant (on BTP/TA)
	2) GDP growth rate: negative (on ROA); positive (on ROE); positive (on BTP/TA)
	3) Inflation rate: positive & statistically significant (on ROA); positive & statistically significant (on ROE); positive & statistically significant (on BTP/TA)
	4) Ratio of reserves of the banking system to deposits of the banking system (RES): negative (on ROA); negative (on ROE); negative (on BTP/TA)
	5) Interaction term (RES*GDPPC): negative (on ROA); negative & statistically significant (on ROE); positive & statistically significant (on BTP/TA)
	6) Ratio of total taxes to before tax profits (TAX): negative & statistically significant (on ROA); negative & statistically significant (on ROE); negative (on BTP/TA)
	7) Interaction term (TAX*GDPPC): positive & statistically significant (on ROA); negative (on ROE); negative & statistically significant (on BTP/TA)
	7) Bank size (total assets): positive & statistically significant (on ROA); positive (on ROE); negative (on BTP/TA)
	8) Ratio of stock market capitalization to GDP (MCAP): negative (on ROA); positive & statistically significant (on ROE); positive & statistically significant (on BTP/TA)
	9) Interaction term (MCAP*GDPPC): negative & statistically significant (on ROA); negative & statistically significant (on ROE); negative & statistically significant (on BTP/TA).
	10) Ratio of total assets of the deposit money banks divided by GDP (BNK): positive (on ROA); negative (on ROE); positive (on BTP/TA)
	11) Interaction term (BNK*GDPPC): positive & statistically significant (on ROA); negative (on ROE); positive (on BTP/TA).
	12) Interaction term (MCAP*BNK): positive & statistically significant (on ROA); positive (on ROE); negative & statistically significant (on BTP/TA).
	13) Interaction term (MCAP*BNK*GDPPC): positive & statistically significant (on ROA); negative & statistically significant (on ROE); positive & statistically significant (on BTP/TA).
Hassan and Bashir (2003) **Countries:** Algeria, Bahamas, Bahrain, Bangladesh, Brunei Darussalam, Egypt, Gambia, Indonesia, Iran, Jordan, Kuwait, Lebanon, Malaysia, Mauritania, Qatar,	**Dependent variables:** 1) ROA 2) ROE 3) PBT (profit before tax) 4) NNIM: Net non- interest Margin (net income accruing to the bank from non-interest activities /total assets) **Internal factors:** 1) Capital ratio (total equities/total assets or EQTA): negative (on ROA); negative (on ROE); negative (on PBT); positive & statistically significant (on NNIM) 2) Interaction term (EQTA*GDPPC): positive (on ROA); positive (on ROE); positive (on PBT); negative & statistically significant (on NNIM) 3) Liquidity ratio (total loans/ total assets or LOAN): negative & statistically

Saudi Arabia, Sudan, Tunisia, United Arab Emirates, United Kingdom, and Yemen. **Timeframe**: 1994-2001 **Banks**: 39 Islamic banks.	significant (on ROA); negative & statistically significant (on ROE); negative & statistically significant (on PBT); negative (on NNIM) 4) Interaction term (LOAN*GDPPC): positive & statistically significant (on ROA); positive & statistically significant (on ROE); positive (on PBT); positive (on NNIM) 5) Ratio of non-interest earning assets to total assets (NIEATA): negative & statistically significant (on ROA); negative & statistically significant (on ROE); negative & statistically significant (on PBT); negative & statistically significant (on NNIM) 6) Interaction term (NIEATA*GDPPC): positive & statistically significant (on ROA); positive & statistically significant (on ROE); positive & statistically significant (on PBT); negative (on NNIM). 7) Fund source management (consumer and short-term funding /total assets or CSTFTA): negative (on ROA); negative (on ROE); negative (on PBT); negative & statistically significant (on NNIM). 8) Interaction term (CSTFTA*GDPPC): negative (on ROA); negative (on ROE); negative (on PBT); positive (on NNIM). 9) Funds use management ratio (overhead / total assets or OVRHD): negative (on ROA); positive (on ROE); negative (on PBT); positive & statistically significant (on NNIM) 10) Interaction term (OVRHD*GDPPC): positive & statistically significant (on ROA); negative (on ROE); positive & statistically significant (on PBT); negative (on NNIM). 11) Risk ratio (total liabilities/total assets or LATA): positive (on ROA); positive (on ROE); positive (on PBT); positive & statistically significant (on NNIM) 12) Interaction term (LATA*GDPPC): negative (on ROA); negative (on ROE); negative (on PBT); negative & statistically significant (on NNIM). **External factors:** 1) GDP per capita: negative (on ROA); negative (on ROE); negative (on PBT); positive & statistically significant (on NNIM) 2) GDP growth rate: positive & statistically significant (on ROA); positive (on ROE); positive & statistically significant (on PBT); positive & statistically significant (on NNIM) 3) Inflation rate (INF): negative (on ROA); positive (on ROE); negative (on PBT); negative (on NNIM) 4) Interaction term (INF*GDPPC): positive (on ROA); positive (on ROE); positive (on PBT); positive (on NNIM) 5) Reserve requirements for banks (RES): positive (on ROA); negative (on ROE); positive (on PBT); positive (on NNIM) 6) Interaction term (RES*GDPPC): negative (on ROA); negative (on ROE); negative (on PBT); positive (on NNIM) 7) Taxes (Taxes/total assets or TAX): negative & statistically significant (on ROA); negative (on ROE); negative & statistically significant (on PBT); positive & statistically significant (on NNIM). 8) Interaction term (TAX*GDPPC): positive & statistically significant (on ROA); positive (on ROE); positive & statistically significant (on PBT); negative (on NNIM) 9) Financial structure (total deposits/ GDP or BANK): positive (on ROA); positive (on ROE); positive (on PBT); negative (on NNIM) 10) Interaction term (BANK*GDPPC): positive (on ROA); positive (on ROE); positive (on PBT); positive (on NNIM) 11) Number of banks: positive (on ROA); negative (on ROE); negative (on PBT); positive (on NNIM) 12) Concentration ratio (ratio of the three largest banks' asset to total banking sector assets): positive & statistically significant (on ROA); positive & statistically significant (on ROE); positive & statistically significant (on PBT); positive (on

	NNIM) 13) Real interest rate: negative & statistically significant (on ROA); negative & statistically significant (on ROE); negative & statistically significant (on PBT); negative (on NNIM) 14) Total assets of banks: positive & statistically significant (on ROA); negative & statistically significant (on ROE); negative & statistically significant (on PBT); negative (on NNIM).
Hidayat and Abduh (2012) **Country**: Bahrain. **Timeframe**: 2005 – 2010 **Banks**: 8 Islamic banks.	**Dependent variables** 1) ROA 2) ROE **Internal factors:** 1) LNTA (logarithmic value of total assets): negative (on ROA); negative & statistically significant (on ROE). 2) LEV (liabilities of bank): positive (on ROA); positive (on ROE). 3) FIN (total loans): negative (on ROA); positive (on ROE) 4) OHE (overhead expenses): negative & statistically significant (on ROA); negative & statistically significant (on ROE). 5) Equity (total shareholders' equity): positive & statistically significant (on ROA); positive & statistically significant (on ROE). **External factors:** 1) GDP per capita: negative (on ROA); negative (on ROE). 2) Dummy variable for financial crisis: dropped from analysis. 3) Dummy variable for a period after financial crisis: negative (on ROA); negative & statistically significant (on ROE).

Appendix 6: Profitability studies conducted on Islamic Banks in Malaysia

General Information	Variables & Results
Wasiuzzaman and Tarmizi (2010) **Country**: Malaysia **Timeframe**: 2005 – 2008. **Banks**: 16 Islamic banks and windows.	**Dependent variable:** 1) ROAA (the average return on assets) **Internal factors:** 1) Asset quality ratio(loan loss reserves/total loans): negative & statistically significant. 2) Capital ratio (total equity/total assets): negative & statistically significant 3) Liquidity ratio (total loans/total assets): positive & statistically significant. 4) Operational efficiency (income from interest-free lending/total assets): positive & statistically significant. **External factors:** 1) GDP: positive & statistically significant 2) INF: positive & statistically significant.
Idris et al. (2011) **Country**: Malaysia **Timeframe**: 2007 – 2009. **Banks**: 9 Islamic banks	**Dependent variables:** ROA **Internal factors:** 1) Capital (total equities): positive. 2) Credit risk (allowances for doubtful debt): negative 3) Liquidity (total loans): positive. 4) Banks size (total assets): positive & statistically significant. 5) Expense management (total expenses): negative.
Kok et al. (2012) **Country**: Malaysia **Timeframe**: 2006 - 2010 **Banks**: 16 Islamic banks	**Dependent variable:** ROA (Return on Assets) **Internal factors:** 1) Capital ratio (total equities / total assets): negative & statistically significant 2) Bank size (total assets): positive & statistically significant 3) Liquidity (total loans/total assets): positive 4) Asset quality (loan loss reserve/total loans): negative & statistically significant 5) Expense management (operating expenses/total assets): negative & statistically significant **External factors:** 1) GDP: positive 2) Inflation rate: negative & statistically significant 3) Money supply: positive & statistically significant 4) Competition (total deposit of bank/total deposit of Islamic banking industry): negative

Appendix 7: The results of the stepwise regression analysis (all the iterations).

Factors	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11
		M1 - SIZE	M2 - INF	M3 + SIZE	M3 - DTA	M5 + SIZE	M5 + INF	M5 – LTA	M8 + DTA	M8 + SIZE	M8 + INF
EQTA	0.04415 ***	0.04260 ***	0.04222 ***	0.04351 ***	0.03823 ***	0.03904 ***	0.03815 ***	0.04007 ***	0.04235 ***	0.04049 ***	0.04002 ***
EXTA	0.28099 *	0.26692 **	0.27886 **	0.29151 **	0.26906 ***	0.27768 **	0.26182 **	0.28080 ***	0.28755 **	0.28516 **	0.27497 **
LTA	0.00609	0.00587	0.00559	0.00576	0.00423	0.00431	0.00428				
DTA	0.00436	0.00418	0.00370	0.00382					0.00184		
SIZE	0.00168			0.00142		0.00100				0.00049	
INF	- 0.0001	- 0.00009					- 0.00005				- 0.00004
CONC	0.03266	0.04197 *	0.04449 *	0.03673	0.04651 **	0.04113	0.04528 **	0.05123 **	0.05098 **	0.04862	0.05026 ***
TAX	- 0.00049 **	- 0.00050 **	- 0.00054 ***	- 0.00053 ***	- 0.00057 ***	- 0.00056 ***	- 0.00056 ***	- 0.0006 ***	- 0.00059 ***	- 0.00060 ***	- 0.00059 ***
Cons	- 0.03041	- 0.01465 **	- 0.01496 **	- 0.02836	- 0.01145 ***	- 0.02074	- 0.01103 **	- 0.01017 **	- 0.01171 **	- 0.01474	- 0.00981 **
R^2	0.7551	0.7549	0.7545	0.7546	0.7532	0.7532	0.7533	0.7514	0.7517	0.7510	0.7515
ΔR^2	0.7551	- 0.0002	- 0.0004	0.0001	- 0.0014	0.	0.0001	- 0.0019	0.0003	- 0.0007	0.0005
Adj-r-sq	0.6527	0.6586	0.664	0.6583	0.668	0.6623	0.6624	0.6713	0.6661	0.666	0.6658

Note. M = model

*$p < .05$, ** $p < .01$, *** $p < .001$