THE DETERMINANTS OF ISLAMIC BANKING PROFITABILITY

A THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS OF

DOCTOR OF PHILOSOPHY – BUSINESS

BY

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DEDICATION

The work of this thesis is dedicated to the memory of my parent

&

For my beloved wife; Yara and children; Joury and Abdullah

for their love, endless support and encouragement
Acknowledgements

The completion of this thesis was impossible without the help of many people who were always standby to support.

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Statement of Authentication

The work presented in this thesis is, to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material, either in whole or in part, for a degree at this or any other institution.

(Signature)

Date: 05/03/2018
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<tr>
<td>AAOIFI</td>
<td>Accounting and Auditing Organization for Islamic Financial Institutions</td>
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<td>AIR</td>
<td>Annual Inflation Rate</td>
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<td>CBs</td>
<td>Conventional Banks</td>
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<td>CG</td>
<td>Country Governance</td>
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<tr>
<td>CIR</td>
<td>Cost Income Ratio</td>
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<td>CZ</td>
<td>Capital and Size</td>
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<td>EGR</td>
<td>Economic Growth Rate</td>
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<td>EME</td>
<td>Expenses Management Efficiency</td>
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<td>ETA</td>
<td>Equity / Total Assets</td>
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<td>FE</td>
<td>Fixed Effect</td>
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<td>FRM</td>
<td>Financial Risk Management</td>
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<td>GCC</td>
<td>Gulf Cooperation Council</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>IBFI</td>
<td>Islamic Banking and Finance Industry</td>
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<td>IBs</td>
<td>Islamic Banks</td>
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<td>IFSB</td>
<td>Islamic Financial Services Board</td>
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<td>LADSF</td>
<td>Liquid Assets / Deposits &amp; Short-term Funding</td>
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<td>LLRGL</td>
<td>Loan Loss Reserve / Gross Loans</td>
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<td>MENA</td>
<td>The Middle East and North Africa</td>
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<td>MP</td>
<td>Muslim Population</td>
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<td>NIM</td>
<td>Net Interest Margin</td>
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<td>NPLR</td>
<td>Non-Performing Loans Ratio</td>
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<td>OLS</td>
<td>Ordinary Least Squares</td>
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<td>Profit - Loss Sharing</td>
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<td>RE</td>
<td>Random Effect</td>
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<td>Return on Average Assets</td>
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<td>Return on Average Equity</td>
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<td>Variance Inflation Factors</td>
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<td>WB</td>
<td>World Bank</td>
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<td>WGI</td>
<td>Worldwide Governance Indicators</td>
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Abstract

Given the sluggish growth and decreasing profitability of IBFI, and due to its importance within the international and national banking industry, the research aims at identifying the determinants of IBs profitability and examines their effects on IBs’ overall performance. IBFI which was emerged initially to find an alternative of the conventional form of financing currently exists in Muslim and non-Muslim countries with the total global financial asset in excess of $3 trillion at the end of 2017. However, while IBs dominate the IBFI with its 80 % share of the total assets, they still represent less than 1 % of global banking assets. Therefore, the performance of IBFI has become a hot topic for practitioners, researchers, policymakers, and international financial regulatory organisations.

In this perceptive, the topic of the thesis is timely and relevant especially with the high and continuous volatility of banking operating environment due to the impact of deregulation, advances in information system and technologies, financial openness, and the subsequent financial crisis. Also, the thesis attempted to fill the gap in the Islamic financial literature that were mainly focusing on theoretical issues of IBFI and ignoring the profitability drivers and their effect on the industry. Even though, the few empirical studies noted in the Islamic financial literature found to be lacking for a robust methodological framework with their finding are mix and inconclusive.

In order to identify the determinants of IBs profitability and examines their effects on IBs’ overall performance, the study firstly reviewed the existing financial performance literature for both Islamic and conventional models with a reference of the relevant
financial theories. The study then set up a methodological framework with a large panel data of 25 years from 23 IB’s operating countries spanning over six regional political groups with different Shariah jurisdiction covering the period from 1996 to 2015. The final dataset is tested using various econometric models and robustness checks.

The findings of the study revealed an influential role of all included profitability determinants on IBs’ overall performance. Therefore, the findings are significant for the practitioners, policymakers, and international financial regulatory organisations in term of providing an improved understanding of the IBs’ performance to formulate and update their financial policies to let the industry reach its full potential in their respective countries. It is also important for the researchers who are interested in taking the Islamic banking and financial literature further.
CHAPTER 1: INTRODUCTION

1.1. Research Background

Modern Islamic banking and finance model is a financial activity that complies with the principles of Shariah. It derives its practice from immutable principles rooted in the rulings of the Shariah legal code. Therefore, it involves accounting and financial norms that differ from its conventional banking counterparts (Hussain, Shahmoradi & Turk 2016).

Despite different challenges faced their emergence in the 1970s, IBs continue to grow in size and complexity, having now become an essential part of the national and international financial services industry. Today, there are more than 500 IBs that exist in sixty Muslim and non-Muslim countries with the total global financial asset in excess of $3 trillion at the end of 2017 (Basov & Bhatti 2016). Also, while IBs dominate the Islamic financial industry by their 80 % share of the total assets due to the continuous growth in sukuk, Islamic funds, derivative, real estate and investment trust, they still represent less than 1 % of global banking assets (Mansor & Bhatti 2016). However, IBs is argued to be behind their full potential and remains an unchartered territory for many practitioners and policymakers. The unchartered territory of IBs can be observed when comparing them to their CBs counterparts which are in better position in terms of product development, competition, and regulation (Hussain, Shahmoradi & Turk 2016).

Also, as the case with its CBs counterparts, the changing dynamics of Islamic Banking can be observed from its growth rate and profitability indicators. Recent empirical studies and competitiveness report (e.g. Ernst and Young (EY)’s World Islamic Banking
Competitiveness Report) indicated that IBs’ growth rate and profitability indicators have been showing negative trends. Such studies and reports agree that after years of rapid growth and consistent profit in which IBs outperformed CBs in most countries, outgrowth and profitability is waning in the main geographic regions and countries (Mejia et al. 2014). Therefore, revisiting strategic position of IBs and their operational efficiency as well as their profitability determinants has become a hot topic for practitioners, researchers, policymakers, and international financial regulatory organisations due to its increasing importance in the international and national financial industry (Hussain, Shahmoradi & Turk 2016).

Since emerged, the international banking industry including Islamic one has experienced major worldwide revolutions in its operational environment due to the impact of deregulation, advances in information systems and technologies, globalisation, and the subsequent global financial crisis (Athanasoglou, Brissimis & Delis 2008). Various external and internal factors have impacted its operation and performance\(^1\). Despite the growing trends toward reducing bank’s intermediary role in many countries, the banks remain vital in financing most of the economic activity (Athanasoglou, Brissimis & Delis 2008). A healthy and profitable banking sector is a priority for national authorities due to its contribution to the stability of the financial system and economic growth. Therefore, the determinants of bank performance have stirred the interest of practitioners, policymakers, and international financial regulatory organisations.

Apart from the structural factors of IBFI products that could reduce its profitability, a new

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\(^1\) The European Central Bank define the bank’s performance as the capacity to generate sustainable profitability that guarantee banks ongoing activity, investors’ fair returns as well as more resilient solvency ratios regulations.
strand of literature have recently emerged to explore other internal bank-specific (e.g. risk and expense management, capital structure) and external macroeconomic, legal and corporate environment factors. The new strand of literature also attempts to examine and explain the precise effects of the internal and external determinants on the overall banking performance.

Different explanatory variables were presumed and tested by the literature to examine their precise effect on the profitability and performance of the banking industry. While the empirical findings of previous studies diverge significantly as a result of differences in datasets and environments, they all confirm the importance of such determinants in explaining the profitability variations between IBs (Athanasoglou, Brissimis & Delis 2008).

The global Islamic banking industry has been experiencing different performance challenges since emerged. For example, in terms of size, many IBs are found significantly smaller than their CBs in their national markets. Moreover, even the largest IBs are typically small compared to their conventional competitors. That is, no global pure-play Islamic banking leader with a broad or specialised business model. IBs are also finding it challenging to cope with the evolving global banking environment and making appropriate rules and regulations to deal with these changes while remaining competitive with their conventional counterparts. Additionally, the industry lacks consistency in product structures and investment practices that adversely affect its credibility, reputation, perception and regulation capabilities (Hussain, Shahmoradi & Turk 2016).
1.2. Research Aim and Basic Questions

Given the sluggish growth and decreasing profitability of IB and due to its importance within international banking industry and the countries where they operate, the research aims at identifying the determinants of IBs profitability and examines their effects on IBs’ overall performance. The thesis seeks to answer the following main research question:

What are the determinants of profitability of IBs and their precise effect on IBs’ performance?

Followed by sub-questions:

RQ1) What are the bank-specific profitability determinants and their precise effect on IBs performance?

RQ2) What are the macroeconomic determinants and their precise effect on IBs performance?

1.3. Methodology

In order to answer the research questions, the study conducted a thorough revision of the existing financial performance literature for both Islamic and conventional models with reference to the relevant financial theories. The study then developed a theoretical and empirical framework with a testable hypothesis. As the study attempts to explore the IBs’ profitability determinants and to examine and explain their precise effect on the overall performance during the time, various econometric methodologies are incorporated to figure out the interrelations between the presumed variables, and also to enhance the generalisation and replication of results.
The study targets IBs out of the IBFI with consideration to their dominance on the global IBFI industry. Therefore, after identification of the IBs’ profitability determinants, the study collected the required secondary bank-specific and macroeconomic data from Bankscope and world bank databases. The final data was set as a panel dataset and covered 23 IB’s operating countries spanning over six regional political groups with different Shariah jurisdiction covering the period from 1996 to 2015. The panel dataset was constructed and analysed by STATA Statistical Software. The analysis of data yielded 3240 bank-year observations.

1.4. Significance and Contribution of the Research

The study derives its significance from providing an improved understanding of the determinants of IBs profitability and their precise effect on IBs’ overall performance. Despite the increasing importance of Islamic banking industry within the international financial industry due to its rapid growth in size and geographical reach, the profitability and performance of the industry have not been covered well by Islamic financial literature compared to the conventional one. However, the findings of the few existing literature found to be inconclusive due to methodological limitations (El-Gamal & Inanoglu 2005).

Therefore, the study attempts to fill the gap in the literature especially in the light of successive reports which claim that profitability and performance of global Islamic banking industry have witnessed a negative trend during the last two decades.

With the continuous intermediary role of the banks, a healthy and profitable Islamic banking sector is a priority for national authorities due to its contribution to the stability of the financial system and economic growth.
The conclusions drawn from this study are beneficial and valuable for IBs in formulating the right operational policies that enable them to generate sustainable profitability, which is essential for them to maintain ongoing activity. The conclusions are also crucial for the investors by improving their understanding of how to take the right investment decision that enables them to obtain fair returns. Most importantly, the conclusions drawn from this study are beneficial for national policymakers as well as the international financial regulatory organisations that are in charge to formulate the right banking policies and regulations that would enhance the overall performance of their banks and eventually contribute to the economic growth and financial stability. Finally, it is also useful for the academic researchers who are interested in the findings to take the research further up.

1.5. Organisation of the Research

The thesis consists of eight chapters. It begins with an introductory analysis followed by chapter two which provides an overview of the IBFI compared to its CBs. It also discusses the legal, corporate, regulatory frameworks, supervision, efficiency and profitability measures briefly. The 3rd chapter provides a brief overview of the development status of IB industry in 23 selected countries which are grouped according to their geopolitical and jurisdiction nature. In chapter 4, the thesis presented and discussed the most related financial performance and profitability literature and theories (e.g. market power including its hypothesis; structure-conduct-performance hypothesis, efficient-structure hypothesis, banking portfolio and signalling theory, the financial intermediation theory, Galbraith - caves risk avoidance hypothesis). The chapter then reviews the empirical literature on the determinants of CBs and IBs profitability and its effects with a separate comparison section.
Chapter 5 aims at identifying the research process and research design. It starts with setting the research philosophy and approach. The chapter then identified and justified the research methods, study period, population and sampling, data collection and source. The chapter ends up with a summary of methods of data analysis. Chapter 6 is dedicated to data analysis using panel data regression estimates based on OLS and Quantile models when the ROAE is the dependent variables. It checks the robustness and conducts Hausman tests for the models with ROAA and ROAE as alternative dependent variables. Based on the descriptive and empirical findings, the chapter offers the key findings by providing a detailed examination of the results.

Chapter 7 is dedicated to the discussion of the major findings which then contrasted to the existing literature. The chapter also underscores the importance of the findings. Finally, chapter 8 reintroduce the research aim and question with a summary of research conclusion, contribution, the limitation as well as the recommendation for future research.

1.6. Originality of the Research

The present study consists of four components of originality as following:

First, unlike the previous studies that focus on a single profitability determinant, this study identified a combination of different internal (bank-specific) and external (macroeconomic) explanatory profitability variables.

Secondly, it extends the literature by introducing new explanatory variables; (i) the country corporate governance (ii) Islamic population. As it will be established, these variables are found to be influential in explaining the IBs profitability and variations across various countries.
Thirdly, it uses a large panel data of 25 years from 23 IB’s operating countries spanning over six regional political groups with different Shariah jurisdiction covering the period from 1996 to 2015.

Finally, it uses four econometric methodologies related to panel data modelling; Fixed Effects (FE), Random Effects (RE), Ordinary Least Squares (OLS), and Quantile Regression (QR) at the same time. Moreover, it uses profit of asset and equity for two consecutive years instead of end-year values, since profits are flow variables generated during the year.
CHAPTER 2: AN OVERVIEW OF ISLAMIC BANKING AND FINANCE INDUSTRY

2.1. Introduction

After the restoration of self-rule in most of the post-colonial Muslim countries in the mid-20th century, Muslim people stressed to imbue various aspects of everyday life with Islamic laws especially in developing different Shariah-compliant financial practices collectively referred to as ‘Islamic Finance’ (Fang 2014). Islamic finance and banking must comply entirely with Islamic laws (Shariah) that strictly prohibit gharar, maisir and riba in any business transactions (Basov & Bhatti 2016).

Despite the increasing international calls for global integration of financial governance, the emergence and thriving of an alternative financial structure based on Shariah come as quite a surprise (Fang 2014). As Islamic banking and finance derive its practice from immutable principles rooted in the rulings of the Shariah legal code, it involves accounting and financial norms that differ from its conventional banking counterparts. However, over the years, IBFI has been able to innovate their unique and comparable financing transactions by using a combination of traditional contracts, and other accompanying arrangements.

The 1960s witnessed the birth of the first two pioneering experiments in Islamic banking and finance. In the 1970s, few official modern IBs with small capital started to emerge. Since then, the Islamic banking and finance industry has been overgrowing in size and

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2 See (table A-1.1) in the appendices for the list of key Arabic terms and instruments of IBFI.
3 They are the Egyptian Mit-Ghamr Islamic Saving Associations (MGISA) and Malaysian Pilgrims Fund Corporation (PFC).
complexity. Today, there are more than 500 IBs that exist in sixty Muslim and non-Muslim countries with the total global financial asset in excess of $3 trillion at the end of 2017 (Basov & Bhatti 2016). The following figure shows the systematic importance of global IBFI.

Figure (2.1): A map of the systematic importance of global IBFI.


The formulation of the Islamic Development Bank (IDB) in 1975 was a turning point for the development of Islamic banking and finance. Also, the establishment and success of the first major Islamic commercial bank in the United Arab Emirates led to the emergence of a series of similar banks in 1977 such as Faisal Islamic Bank in Sudan and Kuwait Finance House in Kuwait (Hussain, Shahmoradi & Turk 2016). Other pioneering countries introduced modern IBFI are Pakistan, Iran and Sudan 1980s, which amended their legal frameworks in 1980s to allow the operation of IBs and to replace CBs.

There have been various incentives underlying the role of IB within different countries. For example, in some countries, IBs is viewed to be a suitable financial revolution whose
existence further encourages that country’ standing to be as an international financial centre. Other jurisdictions accommodate IBs to meet the needs of Muslim people in their societies which form in some cases a majority or substantial minority of their population (Hussain, Shahmoradi & Turk 2016).

To catch up with the rapid growth of global IBFI, many international standard-setting and regulatory institutions were formulated to guide the operations of the IBFI globally (Hussain, Shahmoradi & Turk 2016). For example, the AAOIFI was established in 1991 to issue international accounting, auditing, and Shariah standards for financial reporting at Islamic financial institutions. As of April 2015, AAOIFI has issued 88 Shariah, accounting and governance standards for Islamic institutions.

Also, the IFSB was established in 2002 in Malaysia to issue and promote its supervisory, regulatory standards and guidelines. The IFSB currently has 188 members, including regulatory and supervisory authorities, international organisations and market players, operating in 57 jurisdictions (Hussain, Shahmoradi & Turk 2016).

The Islamic financial infrastructure was further developed in 2001 by mandating the International Islamic Financial Market (IIFM) in Bahrain to develop issuance guidelines of Islamic financial instruments and to boost active secondary market trading. Another international financial infrastructure development was in 2010 when the Malaysia-based International Islamic Liquidity Management Corporation (IILM) issued its first short-term Shariah-compliant financial instruments to facilitate and promote cross-border Islamic liquidity management (Hussain, Shahmoradi & Turk 2016).
Despite different challenges faced their emergence in the 1970s, IBs continue to grow in size and complexity. However, IBs is argued to be behind their full potential and remains an unchartered territory for many practitioners and policymakers especially if compared to their CBs counterparts which are in better position in terms of product development, competition, and regulation (Mejia et al. 2014). Also, while IBs dominate the Islamic financial industry by their 80 % share of the IBFI total assets, they still represent less than 1 % of global banking assets (Mejia et al. 2014).

The rest of this chapter aims at providing an improved understanding of the conceptual framework of IBFI. The first two sections review the key principles and instruments of IBFI briefly. Section 4 and 5 discuss the theoretical and practical financial practice of IBs as well as their legal, corporate and regulatory frameworks. Section 6 reviews the IBs growth drivers with some important stylized development facts. Section 7 reviews the efficiency, profitability and stability of Islamic banking and finance industry with a focus on risk and stability. Section 8 reviews the macroeconomic implications of IBs with an emphasis on the role of monetary and fiscal policy. The last section is a summary and conclusion to introduce the following chapter.

2.2. Key Principles of IBs

Modern Islamic banking and finance model is a financial activity that complies with the principles of Shariah. It derives its practice from immutable principles rooted in the rulings of the Shariah legal code. Therefore, it involves accounting and financial norms that differ from its conventional banking counterparts (Hussain, Shahmoradi & Turk 2016).
Unlike the conventional banking and finance which is mainly debt-based and allows for risk transfer, IBs intermediation is asset-based and centres on risk sharing. Shariah rules strictly prohibit the purchase and sale of debt contracts to receive an interest gain\textsuperscript{4}, profit without a real economic transaction and assets transfer, and legal uncertainty surrounding the contractual claims (gharar). The key principles underlying IBFI are shown in the figure below.

<table>
<thead>
<tr>
<th>Figure (2.2): The key principles underlying IBFI.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Islamic Finance and Banking</td>
</tr>
<tr>
<td>- Prohibition of riba (interest)</td>
</tr>
<tr>
<td>- Prohibition of uncertainty</td>
</tr>
<tr>
<td>- Prohibition of forbidden assets (e.g. alcohol, gambling)</td>
</tr>
<tr>
<td>- Profit sharing and risk sharing</td>
</tr>
<tr>
<td>- Existence of an underlying asset</td>
</tr>
</tbody>
</table>

Source: Adapted by the author.

To meet full compliance with Shariah laws, IBs are prohibited from undertaking business transactions based on a predetermined or fixed rate of interest. Therefore, a myriad of Islamic banking and finance transactions based on a combination of traditional trade-based contracts and accompanying arrangements have been innovated over the time. The return or profit in such contracts is replaced by various mechanisms (e.g. PLS contracts;

\textsuperscript{4} Islam is not the only religion that prohibits riba in the conduct of one’s business transactions. There are a few religions that have condemned riba even before the establishment of Islam. The Jewish Torah and the Hebrew Bible have criticised the practice of interest-taking while there are many types of prohibitions in Christian theology varying from straight prohibition of interest to warning of excessive interest by papal edicts (Fang 2014, Gait & Worthington 2008).
the purchase and resale of goods or services by a benchmark rate of return, or by the provision of services for fees (Mejia et al. 2014). Generally, the contract types in IBs can be divided into intermediation and transactional contracts. The application of both contracts is to reflect the full compliance with the principle underlying IBFI (El-Hawary & Grais 2003). Accordingly, the full application of financial Shariah principles is argued to gear the finance and banking in the operating countries toward more social justice and real economic activities and possibly reduce the complexity of financial instruments (Mejia et al. 2014).

2.3. Key Instruments of IBs

Despite the humble start of IBFI in the 1960s in term of financial products, IBFI today has a wide range of financial and banking products that are comparable to its conventional counterpart. However, most of IBFI’ products were developed over the time to respond to the need of particular IB and market. Since IBFI is growing in size and geographical reach, of IBFI’ products are also growing in variety. Although most of IBFI’ products are claimed as Islamic, some products are not accepted by Shariah scholar entirely. For example, PLS-based instruments which is one of the main financing modes of IBFI is practically play a secondary role due to the inflexibility of IBs to deal with all financial affairs. On the contrary, many other broadly accepted products are still subject to ongoing debates. Although such products deemed to be Islamic, their economic substance is argued to be a conventional one.

In IBFI, there are three financing modes categories (Namely; PLS, non-PLS contracts, and fee-based products as discussed below:
1) PLS is one of the main cornerstones in IBFI. The primary goal of PLS is to encourage equity and participation, as well as real economic activities. PLS financing can be divided into *musharakah* and *mudarabah*. *Musharakah* is a PLS partnership where two or more partners offer capital to finance a business transaction either on a diminishing or permanent basis. In this type of partnership, the partners have a right participate in management. The returns are distributed according to pre-agreed proportions; losses are distributed according to the proportion of capital contribution.

On the other hand, *Mudarabah* is PLS contract in which one party provides funding, and the other provides effort and management expertise with the purpose of generating a profit. The profit is distributed between the two sides based on the mutual agreement, but losses (if any) are taken entirely by the fund provider unless triggered by the *mudarib*’s negligence, misconduct, or breach of contract terms. *Mudarabah* according to this arrangement is called a sleeping partnership because of the duties separation. IBs largely use *Mudarabah* financing to raise funds and to manage the mutual funds in case the *mudarib* runs the business, and the financier cannot interfere in management, though preconditions may be specified to guarantee better management of capital (Hussain, Shahmoradi & Turk 2016, El-Hawary & Grais 2003).

2) Non-PLS financing products are widely used in practice to finance corporate credit, customer, asset rental, and manufacturing. Non-PLS financing instruments include *murabahah, ijarah, salam,* and *istasna’. In *murabahah*\(^5\), the IB purchases the goods and resell them to the customer with payment is deferred to a date agreed by both of them. The

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\(^5\) The majority of Islamic financing (70 to 80 %) takes the form of *murabahah*. Recently, Sudan has set a 30 % limit to *murabahah* in banks’ financing portfolios (Demirgüç-Kunt, Klapper & Randall 2013).
expected profit for IB on *murabahah* is typically similar to interest payments on conventional loans, creating a likeness between *murabahah* sales and asset-backed loans.

However, the notion of *murabahah* is to enable the acquisition of goods and not to exchange money over the time. In contrast to the conventional loans, the amount being financed cannot be increased in case of late payment or default. Also, no penalty can be imposed, unless the buyer has intentionally declined to make a payment (Hussain, Shahmoradi & Turk 2016, El-Hawary & Grais 2003). The IB also has to accept any liability arising from delivering faulty goods. *Murabahah* transactions are broadly used to fund international trade, liquidity management and interbank financing through a multi-step transaction known as *tawarruq*\(^6\), frequently using commodities traded on the London Metal Exchange (LME). It is worth to mention that in some countries, *tawarruq* contracts are considered non-compliant with *Shariah* laws (Hussain, Shahmoradi & Turk 2016, El-Hawary & Grais 2003).

*Ijarah* (or rent) is a contract where IBs lease their asset to the client (lessee) for a period of time. As the ownership remains with the (IB) as a leaser, the lessee can return the leased asset in case of non-payment. Both lessee and leaser have mutual obligations to keep the leased asset secured and well maintained. *Ijarah* can take place simple form whereby the lessee returns the asset at the end of the contract or in the form of hire-purchase contract, whereby the lessee can buy the leased asset at the end of the rental agreement if the residual asset price is predetermined.

In this regard, a study conducted by (Ehsan, Hasan & Bhatti 2017) attempted to measure

\(^6\) *Tawarruq* is most disliked by *Shariah* scholars when the borrower sells the commodity back to the original seller (Hussain, Shahmoradi & Turk 2016).
the customers’ perception of car *ijarah* financing transactions services provided by the IBs in Pakistan. The main findings of their study reveal that the customers who used the car *ijarah* facility from IBs have a positive attitude towards this type of contract. They also observe gender, income, marital status effects of perception about the quality of *Shariah* compliance and the quality of service of transaction issues are very important to the selected clients in the industry.

*Salam* is a forward agreement in which the delivery of goods or services to take place in the future for immediate payment. Such contracts were initially innovated to help farmers to meet their financing needs. To be a validated *salam*, the payment must be in full at the time of creating the contract. Otherwise, the *salam* outcome is considered a debt-against-debt sale, which is strictly forbidden under *Shariah* laws. Also, with all aspects of *salam* are specified in the contract, both parties are in charge of any defaults. To avoid exposure to credit risk, the IBs ask for a third-party guarantee, advance payment, or any financial guarantee (Hussain, Shahmoradi & Turk 2016).

*Istisna’* (or manufacturing) is an agreement in which a commodity can be traded before its physical existence. The exclusive feature of *istisna’* is that nothing is exchanged at the time of contract. Accordingly, *Istisna’* agreement is a future obligation for all involved parties. In theory, the *istisna’* agreement is usually a three-party contract, with the IB acting as an intermediary agent to receive the payments from the client on either longer-term schedule or in the shorter longer-term schedule. However, the *istisna’* agreement can be made directly between the manufacturer and the end (Hussain, Shahmoradi & Turk 2016).
3) The final instrument of IBs is the Fee-Based Products which comes in three types of contracts (Namely; wakalah, kafalah, or ju’ala). In such contract, IBs can generate fees and commissions income by providing services such as bank transfers, guarantees and credit letters, credit cards, and collection and safe-custody services, frequently used in trade finance. *Wakalah* occurs when IB act as the agent of a client in a trading transaction or when a letter of credit facility needs to be issued. *Kafalah* is a financial guarantee in which the IB agree to cover penalties or any other personal liabilities triggered by the debtor. *Kafalah* is broadly used with other written credits or financing methods. *Ju’ala* is basically an *istikna’* agreement that is valid for offering a specified service (Hussain, Shahmoradi & Turk 2016).

2.4. **Theoretical and Practical Financial Practice of IBs compared to CBs**

While IBs and CBs look different, they still share several similarities. Theoretically, both of them are profit-maximising institutions, which is vital to allocate resources efficiently and accordingly reduce information asymmetries, transaction costs and enable diversification for all involved parties (Mejia et al. 2014). As financial intermediaries, IBs and CBs provide services such as a payment system, asset transformations, custodial services, and risks management (Van Greuning & Iqbal 2008). On the other hand, IBs and CBs diverge significantly. While CBs intermediation role is mainly *debt-based* and permits risk transfer, IBs intermediation role is entirely asset-backed and equity-based, ethical, sustainable environmentally and socially responsible finance (Mejia et al. 2014). Therefore, the notion of IBs is to promote risk sharing, and to connects the financial industry with the real economy, which in turn can improve the financial inclusion and social welfare.
The differences between IBs and CBs are relatively little as many CBs products have been re-drafted as Shariah-compliant products by IBs (Mejia et al. 2014). Also, IBs vary in the level of risk sharing. For example, profit sharing investment accounts (PSIAs) still form an important source of funds. Also, IBs also accept demand and savings deposits without the risk-sharing features of PSIAs. The variation of credit risk level between IBs can also be noted from the risk-sharing contracts that have become an exception rather than the rule, with most financing transactions taking the form of Murabahah contracts or instalment sales (Hasan & Dridi 2011). Accordingly, the credit risk can be considered a key risk in IBs same as its CBs counterparts as claimed by most of the empirical studies (e.g. Beck, Demirgüç-Kunt & Merrouche 2013; Chong & Liu 2009; Khan, F 2010).

However, (Beck, Demirgüç-Kunt & Merrouche 2013) claim that only insignificant part of IBs financing is based on PLS, and IBs deposits are not largely different from CBs deposits as return rate on PSIAs is almost tied to CBs deposits (Chong & Liu 2009, Khan 2010). The following table explains the transactional and intermediation contracts briefly in IBs (Mejia et al. 2014, El-Hawary & Grais 2003).

<table>
<thead>
<tr>
<th>Table (2.1): The transactional and intermediation contracts in IBs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transactional contracts</strong> govern real transactions (e.g. trade and the financing of economic activities) which can take the form of sale, exchange, partnership and right-to-use (ijarah).</td>
</tr>
<tr>
<td>The main transactional contracts are based on:</td>
</tr>
<tr>
<td>i) commodity trade contracts (e.g., murabahah and salam); ii) A system that promotes equity participation (musharakah); and iii) other collateralized securities such as those originating from leasing (ijarah).</td>
</tr>
<tr>
<td><strong>Intermediation contracts</strong> is to facilitate an efficient execution of transactional contracts which help in</td>
</tr>
<tr>
<td>i) developing a partnership between the capital provider and expertise provider in turning capital into real economic activities with an agreement to share profits (mudharabah), and;</td>
</tr>
<tr>
<td>ii) Providing various financial services such as custodial services, brokerage, consulting, guarantees and insurance.</td>
</tr>
</tbody>
</table>

Source: Developed from (Mejia et al., 2014).

IBFI principles underpin IBs operations and involve financial statements structures, and
risks that differ from their CBs counterparts (Mejia et al. 2014). For example, Islamic banking operation relies on two models (Namely; two-tier *mudharabah* model, and two-window model).

In two-tier *mudharabah* model, the risk is reduced due to the active asset/liability management with IB’ assets and liabilities are completely integrated. In this model, the liability side of the balance sheet involves the Investment Account Holders (IAHs) who enters into a *mudharabah* agreement with IB to share in the returns earned by the IB. The invested fund is placed in an investment account, in which the capital is not guaranteed\(^7\). In the same vein, the IB (on the asset side of the balance sheet) can enter into a *mudharabah* agreement with entrepreneurs seeking for the fund and agree to share profits according to certain proportion specified in the contract\(^8\) (Mejia et al. 2014).

The two-window model divides IB’ liabilities into two windows according to depositors’ choice. The first window is a demand deposit and acts as safekeeping while the second window is for investment deposits and act as a finance risk-bearing investment. (Hussain, Shahmoradi & Turk 2016). See (table A-2.1) in the appendices which shows a stylized balance sheet of Islamic and CBs.

### 2.5. The Legal, Corporate and Regulatory Frameworks of IBs

Given the various inherent risks faced by IBs, they need corporate, regulatory, and legal frameworks as same as CBs does. Such frameworks aim to strengthen IBs’ operating environment, internal governance and market discipline to help address moral hazard

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\(^7\) some deposits that generate no profit but guaranteed on capital value.

\(^8\) This model does not require any reserve requirements on either demand deposits or investment.
considerations, safeguard the interest of demand depositors, and systemic risk. (Bhatti & Bhatti 2010) presented recent developments on legal issues associated with corporate governance in the IBFI based on a contractual pyramid. They proposed a model of Islamic Corporate Governance (ICG) that would encourage capital formation, foster active markets, and encourage judgment and transparency, which are all principles central to Shariah laws.

Given the fact that IBs are currently operating in many Muslim and non-Muslim countries in a very diverse legal, institutional and cultural traditions environment, two different legal framework approaches have been adopted by the jurisdictions to accommodate the operations of IBs (Mejia et al. 2014). The first one is the Shariah incorporated jurisdictions where Shariah standards for IBs are harmonised, although deviation reflecting national standards prevail.

Therefore, It can be noted that the countries have different methods regarding the nature of institutions that are permitted to undertake IB operations. For example, the jurisdictions with Muslim population (MP) majority such as Iraq, Kuwait and Jordan do not allow the activities of Islamic windows\(^9\) or the conversion of a CBs into an IBs. The second one is the purely secular jurisdictions where they are enacting legislative changes to ensure a level playing field for IBs operations without incorporating Shariah elements. For example, some countries with low MP such as (UK) allowed the establishment of IBs under the Financial Services and Markets Act 2000). Other countries which amended their financial tax regulations to accommodate IBs are Singapore, France, Japan and Hong

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\(^9\) For further explanation about the pros and cons of Islamic windows see (Mejia et al. 2014).
Kong (Mejia et al. 2014).

Other jurisdictions such as Lebanon, Morocco and Oman prefer to issue separate regulations. The purpose of such separation is due to the lack of experience and to improve the transparency. Other mature countries such as Malaysia maintains the separation for development motivation (Mejia et al. 2014).

However, to avoid the replication of regulatory provisions that are identically important for IBs and CBs, integrated banking regulations covering both IBs and CBs have been adopted widely by most countries that adopt Islamic banking industry within their financial system (Mejia et al., 2014). To promote for Shariah-compliance, IFSB has stressed the need for IBs to introduce a mechanism for obtaining and applying rulings from Shariah scholars and monitoring Shariah-compliance in term of corporate governance (Mejia et al. 2014). According to IFSB recommendations, any IB corporate governance should have Shariah supervisory board, qualified scholars reporting to the board of directors, periodic Shariah reviews, and internal Shariah review’s process.

The absence of standardisation in the application of Shariah governance standards can be referred mainly to the variations in the Shariah approach in most of the countries adopted IB model (Mejia et al. 2014). It also can be largely referred to the limitations of qualified scholars local availability, and also to the development state of Islamic banking industry. It is worth to mention that in most Shariah incorporated countries, IB must have a Shariah-Board which in some cases should be supported by a centralised SSB. For example, countries such as Sudan, Turkey, the UAE has centralised SSBs which is formulated as

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10 However, the relationship between SSB and IB is deemed to be advisory duty as the final responsibility of Shariah-compliance is referred to the IB’s board of directors (Song and Oosthuizen, 2014).
an independent public institution. Other countries such as Afghanistan, Bahrain, Malaysia, Pakistan, and Palestine is reported to the central bank (Mejia et al. 2014).

To improve *shariah*-compliance, most of the countries complemented the conceptual regulatory framework of the Basel Committee on Banking Supervision (BCBS) by the standards of the IFSB and AAOIFI. Recent studies found that about 65% of the countries that allow IB’s operation have tailored their conventional banking legislation for IB activities (Song & Oosthuizen 2014). To ensure that the regulatory framework for IBs puts operating countries on a level playing field with CBs, the authorities of such countries should consider the particular characteristics of IB model and accordingly the applicable regulatory framework that need to take into account many implications (e.g. licensing, liquidity, capital, disclosure, and deposit insurance and bank resolution) (Mejia et al. 2014).

IBs are also subject to prudential supervision to ensure the stability of the industry. The current state of IBs supervision can be referred to main two models; the first one incorporates a single supervisory authority. The second model, the supervision report to separate supervisory units by a single supervisory authority. While the suitability of a specific model depends on each country business environment, national authorities that in charge to supervise IB should promote to for ongoing adoption of the CAMELS rating system regarding the inherent risks of IBs (e.g. capital adequacy, asset quality, liquidity).

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11 A survey of 132 IBs conducted in 2015 from 31 countries conducted by the Asian-Oceanian Standard-Setters Group (AOSSG) in 2015 shows that IFIs comply with different financial reporting framework. Interestingly, only 18% of the sample comply with AAOIFI standards.

12 Example of the countries that incorporate a single supervisory authority includes Kuwait, Qatar, UAE, Saudi Arabia, Tunisia, Ethiopia, Kazakhstan, Kenya, Turkey, UAE, and the United Kingdom.

13 Example of such countries include, Indonesia, Lebanon, Pakistan, and Syria, Bahrain, Jordan.

14 Capital-Asset-Management-Earnings-Liquidity-Sensitivity
management and liquidity). Also, adopting financial stress testing procedures with clear financial soundness indicators can help in improving the supervision, especially in countries where Islamic windows exist.

2.6. Growth drivers and Stylized facts of IBs

While the main growth driver of IBFI was the increasing needs of Muslim people to find an alternative to the conventional model of financing, other factors have been playing a key role in the development of the industry. For example, the significant petrodollar liquidity in the Gulf region forced the Muslim petrodollar investors to seek offshore Shariah-compliant financial assets.

Also, a large proportion of the massive infrastructure projects in Gulf region have been financed by Shariah-compliant financial assets which in turn contributed to the development of the industry. Other growth drivers can be referred to the increasing demand from Muslim and non-Muslim investors who are looking for diversification in their investment base, particularly if access to wholesale funding sources remain constrained by the effect of the global financial crises. Also, part of the industry growth is driven by Ethical character and financial stability of the Shariah-compliant financial product (Čihák & Hesse 2010).

Despite different challenges faced their emergence in the 1970s, IBs continue to grow in size and complexity, has now become an essential part of the national and international financial services industry due to its presence in more than 60 Muslim and non-Muslim countries with systematic importance in 14 jurisdictions. Also, while IBs dominate the Islamic financial industry by their 80% share of the IBFI total assets, they still represent
less than 1% of global banking assets (Hussain, Shahmoradi & Turk 2016).

The Ernst and Young (EY)’s World Islamic Banking Competitiveness Report (2016) shows that participating IBs continue to show robust growth of 16%, despite political and economic instability in the major regions. The figure below shows the international participation banking assets and the shares by region.

Figure (2.3): The international participation banking assets and the shares by region.

![Graph showing international participation banking assets and shares by region.]

Source: The Ernst and Young (EY)’s World Islamic Banking Competitiveness Report (2016)

According to the report, Saudi Arabia and Malaysia are the respective leading markets in Gulf Cooperation Council (GCC) and the Asia Pacific. From 2010 to 2014, GCC region has accelerated its growth by achieving a Year-over-year Growth of c. 18%, driving the overall Compound annual growth rate (CAGR) to 16.1%. The figure below shows the regional market contributions, banking penetration participation asset, growth rate by region. As can be noted, the combined profitability of the top 20 participating IBs has increased by US$1b to cross US$7b in 2014, growing with a (CAGR) of 14% (2010-2014). Such increase resulted in substantial growth of Return On Equity (ROE), which
has positively contributed towards increasing shareholders’ equity (22 banks have crossed the equity landmark of US$1b).

Figure (2.5) below also shows the profitability and shareholders’ equity in top 20 Participation banks in the Ernst and Young (EY)’s World Islamic Banking Competitiveness Report (2016).

Figure (2.4): The IBFI regional market contributions.

Source: The Ernst and Young (EY)’s World Islamic Banking Competitiveness Report (2016).
It can be concluded from the figure that the growth level of the industry can vary between adopting countries. Most of the empirical studies referred this variation to major worldwide transformations in the operating environment of the international banking industry in general and in Islamic banking industry in particular. Different internal and external factors have been suggested in the banking literature to affect the structure and performance of the banking industry.
2.7. Risk Management in IBs

The Islamic banking literature suggests that IBs face more risks than their CBs counterpart due to the specification of Shariah-compliant assets and liabilities (Hesse, Jobst & Sole 2008). While both of the banking models face the common market, credit, liquidity, operational, and legal risks, IBs face the risk noncompliance with Shariah principles\(^\text{15}\) which is mostly caused by differences in opinion among Shariah scholars. Also, operational variances across countries result in diverse permissible financial products, leading to more legal uncertainty in the area of cross-border Islamic financial activities. IBs may challenge CBs pressure to pay competitive return rates that exceed returns on the financed assets, resulting in investors to sacrifice part, or all, of their share of profits to reduce the risk of funds withdrawal. The exposure to such risk engenders IBs to a unique to displaced commercial risk (Hesse, Jobst & Sole 2008).

IBs are also exposed to equity risk when such banks enter into mudarabah and musharakah as funds providers while sharing the business risk of the activity being financed. Finally, IBs are also exposed to high judicial risk in case the client turns to Shariah courts that rule on a case-by-case basis, or to regular courts to seek compensation (Hesse, Jobst & Sole 2008). It is worth to mention that the report of IDB issued in 2001 confirmed that IBs face more severe interest rate (markup) risk in fixed-income instruments (e.g. murahabah and istisna’). The table (A-2.2) in the appendices summarise briefly the risks that are unique to IBs as well as those that are common with CBs but noted to be higher in IBs case.

\(^{15}\) The noncompliance with Shariah resulted in a significant decline in sukuk issuance following the pronouncement by a key Shariah scholar in 2007 that most sukuk structures have not complied with Shariah.
To manage the risks, IBs use different prudential reserves. For example, Profit equalisation reserve (PER) can smooth profits for IAHs. Also, Investment risk reserves (IRR) can cover future investment losses of account holders. Such prudential reserves are designed by IBs as countercyclical to address the problem of procyclicality.

While IBs use the traditional risk management measures available in the CBs, the Islamic banking literature argues that there is a need for additional risk mitigating tools to address IBs unique risk exposures. Islamic banking literature claim that the traditional risk management measures available in the CBs that do not conflict with Shariah include risk reports, internal control systems, external audits, maturity matching, internal rating systems, and GAP analysis.

2.8. Macroeconomic Implications of IBs

2.8.1. Monetary and Fiscal Policies

Islamic business principles aim at ensuring a level playing field among all market participants, thereby stimulating the economy to grow and reducing poverty. While both Islamic and conventional monetary policy objectives are theoretically looking same, the monetary authorities in a Shariah-compliant system are prohibited from using any instruments that involve a discount rate or other forms of interest rates. However, many other policies (e.g. statutory reserves, open market operations, refinancing ratios, credit policies, reserve requirements, equity-based instruments, and profit-sharing ratios) are permitted and suggested for the design of Shariah-compliant monetary policy tools (Hussain, Shahmoradi & Turk 2016).

In Sudan and Iran - where the financial system is entirely Shariah-compliant is proving to
be challenging in terms of designing a practical instrument that enables them to conduct effective monetary policy. While there have been some innovative attempts to design some comparable instruments with conventional monetary policies, in practice, such instruments have been limited to direct control over IBs operation using the central bank’s regulatory powers; limitation on deposit and lending rates as well as reserve rates; credit ceilings. However, in practice, designing such financial instruments needs to identify first an appropriate rate of return that could proxy the return on government and central bank securities (Di Mauro et al. 2013).

Another study such as (Choudhury & Bhatti 2016) attempted to bring out the topic of ethics and economics about the nature of complementarities that can exist between monetary and fiscal activities. They argue that the connector in such complementarities is the unity of knowledge that can be generated in the inter-causal relations between monetary and fiscal activities. They used quantitative modelling to explain how well there exist mutual relations or otherwise between the Central Bank and commercial bank to mathematically explain the role of participatory learning behaviour using the money, debt, and spending variables. Their argument takes the conceptual form of the result to show that there would be a prolonged extension of the non-inflationary and technological induction of economic growth in a regime of complementing money and fiscal policies.

While most of the Muslim countries adopt the conventional monetary policy tools to develop new Shariah-compliant instruments, significant efforts to produce new tools that comply with Shariah principles, have been emerged recently. However, the application of monetary policy remains a secular issue, and subject central banks regulations. Different monetary policy approaches and tools being used by Muslim countries, for example,
Bahrain and Kuwait using various forms of sukuk and reverse *murabahah*, whereas the UAE use foreign exchange swaps and *Shariah* certificates of deposits based on commodity *murabahah* contracts for monetary policy and liquidity purposes (Di Mauro et al. 2013). Other countries such as Malaysia developed various instruments (e.g., *murabahah*, *mudarabah*, *ijarah*) to enable IBs’ participation in open market operations, side by side with *Shariah*-compliant government securities used to finance government operations.

Other *Shariah*-compliant instruments are the Islamic mutual fund which works in a similar manner as a conventional fund except that the Islamic mutual fund only deploys funds in *Shariah*-Compliant investments. Various empirical studies highlighted the importance of this type of fund to the performance of IBs. For example, (Mansor & Bhatti 2011) provided risk and return analysis on the performance of the Malaysian Islamic mutual funds. They found that average of Islamic portfolio provides slightly less returns relative to the Conventional counterparts, indicating that the Islamic portfolio is riskier than the Conventional portfolio. They found also that both Islamic and Conventional portfolios were depended on the market portfolio of which the former portfolio was closely mirrored to the market movement in relation to the latter portfolio. Other study conducted by (Mansor, Bhatti & Ariff 2015) provided new evidence on the impact of fees on mutual fund performance of two types “classes” of funds. After confirming the average returns over 20 years against the market benchmark of equity only funds, they report significant reductions due to fees. They stated that publicly reported performance of substantial returns to investors is whittled away to a small return once the different fees charged by funds are factored in.
Other examples of the countries that developed *Shariah*-compliant instruments are Sudan and Iran. The central bank of Sudan issued *Musharakah* Certificates against its participation in the equity of private banks. *Ijarah* certificates are issued to improve the liquidity of the domestic banks through open market operations.

In Iran, National Participation Paper issued primarily to finance government projects and to manage liquidity in the application of monetary policy. Similar to Sudan approach, Iranian banks are permissible to deposit excess liquidity with the central bank, which offers them with complete credit lines. However, if the credit line in Sudan matures, it is automatically transformed into a *mudarabah* contract which is not the case in Iran. The central bank of Iran also recently announced that it would use debt-purchase contracts for monetary policy purposes (Hussain, Shahmoradi & Turk 2016).

Along with monetary policy discussed above, Muslim countries that adopt Islamic finance and banking system can manage their fiscal policy by activating *zakat* principle as well as developing other *Shariah*-compliant instruments such as *sukuk*. Also, the prohibition of the *riba* may imply tax implications. For example, unlike return on debt, return on equity is not a deductible cost for income tax purposes. Also, the transactional nature and the complexity of some *Shariah*-compliant instruments may lead to higher transaction taxes (Hussain, Shahmoradi & Turk 2016).

### 2.8.2. Resilience and Stability of IBs

IBs are argued to have more resilience capacity than their conventional counterparts due to the *shariah* principle of financing (Hussain, Shahmoradi & Turk 2016). For example, the risk-sharing principle, as well as the asset-based nature of *shariah* financial product,
can naturally prevent the excessive leverages assets and short selling, suggesting that they can stimulate financial stability and make the global financial system less exposed to financial distress. Also, the principle of *gharar* avoids IBs from investing in toxic assets and excessively risky subprime as well as zero-sum betting on derivatives. Further, the IAHs ongoing observation may help enforce a market discipline on IBs which in turn can assist in maintaining the financial stability.

The resilience capacity of IBs can also be referred to the prohibition of interest rate payment which in turn protect IBs from the fluctuation of interest rate compared with CBs, but they are not entirely isolated from interest rate risk. Finally, while the economic recession can affect the profitability of IBs, their ability to share the risks provides a cushion against the crisis (Hussain, Shahmoradi & Turk 2016). Other empirical studies also highlighted the impact of strategic products price fluctuations on the stock markets and in turn the performance of banking system. For example, the pioneering empirical study conducted by (Nguyen & Bhatti 2012) provided empirical evidence on the relationship between oil price and stock markets in developing countries due to their heavy dependence on oil prices co-movements. They attempted to understand the relationship between China and Vietnam markets using nonparametric (chi- and K-plots) and parametric (copula) methods. They observed that the left tail dependency between international oil prices and Vietnam’s stock market while Chinese market shows opposite results. Their findings provide new insight into the behaviour between oil prices and stock markets, thus leading to meaningful implications for policymakers, investors and risk managers dealing with these two markets.

The empirical Islamic banking literature reported inconclusive and mixed results
regarding the resilience. In a cross-country study, (Abedifar, Molyneux & Tarazi 2013) report no substantial differences in insolvency risk between CBs and IBs, while the results for credit risk are mixed and depending on how it is measured. Also, (Krasicka & Nowak 2012) reported that, while Malaysian IBs hold more capital and are more profitable than CBs, the practical differences were shrinking between them during the crisis as the market matured. However, other studies (e.g. Baele, Farooq & Ongena 2014; Čihák & Hesse 2010; Beck, Demirgüç-Kunt & Merrouche 2013) reported opposite results.

2.9. Summary and Conclusions

Chapter two attempted to provide an overview of IBFI. After introducing the key principles and instruments of Islamic banking and finance, the chapter highlighted the variation of Islamic banking and finance application between adopted countries as well as the differences with convention banking and finance model. Such variations and differences imply legal, corporate, regulatory, and risk management challenge on the development of global Islamic Banking and finance industry. Despite the considerable growth of the industry, the global Islamic Banking and finance industry is viewed behind its full potential reflecting the need for further legal, accounting, governance, regulatory and supervisory enhancements.
3.1. Introduction

The development of Islamic banking industry in the operating countries has been varying according to their motivations and needs. For example, in some countries, IB is considered to be an acceptable financial innovation whose presence further promotes the jurisdiction’s standing as an international financial hub. Other countries accommodate IB in view of the adherence of a substantial minority or majority (where Shariah law is the fundamental law, and where Islam is the state religion) of its population to Islam and the demand for IB from the Muslim community (Mejia et al. 2014).

Given the fact that IBs are currently operating in many Muslim and non-Muslim countries in a very diverse legal, institutional and cultural traditions environment, different legal, corporate and regulatory frameworks of IBs approaches have been adopted by the IBs operator countries to accommodate the operations of IBs.

Chapter 3 provides a brief overview of the development of IBFI and its regulatory landscape in the context of the selected countries. The study targeted 162 IBs from 23 countries that are grouped according to their geopolitical ties (see table (A-5.1) for a description of the selected countries and IBs sample).

3.2. GCC Region

3.2.1. Bahrain

Bahrain was the first MENA country to issue rulebooks that address Shariah-compliant
banking and insurance sector (Basov & Bhatti 2016). Bahraini Islamic legal infrastructures can be considered as one of the most sophisticated and comprehensive legal infrastructures for IBFI in the region.

The development of the industry is in continuous mode. For example, in 2015, the Bahraini central bank asks IBs to implement new capital adequacy in accordance with the requirements of the IFSB. It also issued a revised Prudential Information Returns for IBs. In the same year, the Central Bank of Bahrain (CBB) released the resolution of the establishment of a centralised SSB to harmonise and develop the Islamic Banking industry.

The resolution includes the roles of the board, membership requirements and the binding force of the board’s Fatwa. It is worth to mention that some international Islamic financial regulatory bodies are based in Bahrain including AAOIFI, IIFM, LMC, GCIFIs, WFIIRA (Basov & Bhatti 2016). According to the Central Bank of Bahrain (CBB), there are at least 14 Islamic wholesale banks, six Shariah retail banks, one Islamic financing company, three branches of Islamic foreign banks and one Shariah compliant microfinance institution.

The financial sector of Bahrain also has 23 conventional retail banks, 69 wholesale banks, two specialised banks as well as 36 representative offices of overseas banks (IFN, 016). In 2016, Moody’s16 maintained its negative outlook on Bahrain’s banking system to reflect the challenges posed by weakening economic growth, the sector’s exposure to government debt and the authorities’ lower capacity to support banks. The rating agency

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16 Moody’s is an essential component of the global capital markets, providing credit ratings, research, tools and analysis that contribute to transparent and integrated financial markets.
expects modest pressure on asset quality over the outlook period, with problem loans rising to around 7% of gross loans from the already weak 6.3% at the end of 2016. Moody’s also considers that the banks’ high liquidity and capital buffers will continue to provide financial stability.

Economic growth is forecast to decline to around 2% in 2017-18 from 3.1% in 2016. While internationalisation was a recurring theme over 2015 and 2016, in April 2017, Kuveyt Turk Katilim Bankasi, KFH’s subsidiary in Turkey, relocated its Gulf operations and staff to Bahrain to centralise its regional treasury activities out of Bahrain under its existing wholesale banking license (Basov & Bhatti 2016). See (figure A-3.1) in the appendices for a brief of Bahrain’s IBFI profile.

3.2.2. Kuwait

According to the annual report of IFN (2016), the regulatory environment in Kuwait has improved significantly post-2008, driven mainly by the Capital Market Authority (CMA); it is widely acknowledged that the CMA has implemented effective measures to upgrade the legal infrastructure to facilitate Islamic capital market transactions. However, there is still need to test this infrastructure before the Kuwaiti courts. IBs are regulated under Law No 30 of 2003, which was expanded to include new rules on currency. In 2015, the CMA issued Sukuk regulations. The CMA Law, which amended the Kuwaiti Companies Law 10/2012, removed the restriction on the size of a Sukuk program a company may issue and provide greater clarity on issuance including in the area of structuring and governance (IFN, 2016). The regulator is also working on regulation for a secondary market to trade bonds and Sukuk. The Central Bank of Kuwait
(CBK) issued new *Shariah* supervisory governance rules in 2016 and had given IBs until the end of 2017 to meet the requirements. One recurring issue is the disconnect between the commercial law and the CMA’s laws on issuances - creating discrepancies, confusion and inefficiencies in the Islamic markets (IFN, 2016).

Kuwait hosts the largest number of IBs and is ranked as fifth, as per Islamic Finance Country Index (IFCI) composite report. The Kuwaiti financial sector is expected to be predominantly Islamic by 2020 (Basov & Bhatti 2016). According to the annual report of IFN (2016), there are six fully-fledged IBs (out of 22) in Kuwait: Ahli United Bank (AUB), Boubyan Bank, Kuwait International Bank, KFH, Warba Bank and Al Rajhi Bank of Kuwait. KFH, the first Islamic bank to operate in Kuwait in 1977, is also present in Germany through Kuwait Turkish Participation Bank - the first fully-fledged Islamic bank in the eurozone nation. The Commercial Bank of Kuwait which announced plans to convert itself into being fully *Shariah*-compliant by 2014 has yet to complete its transformation. See (figure A-3.2) in the appendices for a brief of Kuwait’s IBFI profile.

### 3.2.3. Oman

According to the annual report of IFN (2016), since the issuance of the royal decree authorising Islamic Banking and Finance in 2011, Oman has been attempting to enhance its Islamic banking regulatory infrastructure. A dedicated Islamic banking department to supervise the industry was established by the Central Bank of Oman (CBO) in 2015. In 2016, the Capital Market Authority (CMA) issued *Sukuk* regulations outlining the processes of issuing *Sukuk*. While the Islamic Banking Regulatory Framework (IBRF) has served its purpose, industry participants, however, stressed to updated it to reflect the
evolving needs of the market.

Industry participants and players have also noted a disconnection and inconsistency between layers of laws. For example, there is a disconnection between the IBRF and the conventional banking law, or between the Central Bank of Oman (CBO) and other government departments. Such disconnections between the regulatory departments have resulted in IBs’ operational activities being more bureaucratic and complicated (IFN, 2016).

According to the annual report of IFN (2016), there are two fully-fledged IBs and six Islamic banking windows in Oman. Despite the overcrowded status of Omani banking market with 22 banks serving a population less than four million, IBs and windows are performing well according to CBO. For example, the latest data released by CBO shows that as the total Islamic banking assets accounted for 8.5% of the total banking system assets, or US$ 6.99 billion at the end of July 2016. Total Islamic banking deposits were up 57.49% year-on-year to US$ 4.92 billion while total Islamic financing extended increased by 53.09% to US$5.44 billion from US$3.63 billion.

3.2.4. Qatar

According to the annual report of IFN (2016), the first introduction of Islamic banking was in early 1982s by its first fully-fledged IBs - Qatar Islamic Bank (QIB). However, the formal legislation of Islamic banking and finance was in 2013 when the Qatar Central Bank Law introduced Law No 13 of 2012 that was devoted to the scope of Shariah-compliant banking as well as the formation process of a Shariah board. The directive that prohibited Islamic banking windows by CBs in 2011 led to a closing of eight CBs that
operate such windows.

Despite the prohibition of Islamic window operations, Qatari IBFI has expanded rapidly in the recent years with the support of national authorities and is growing faster than any other countries in the Middle East. Recent reports issued by the Qatar Central Bank (QCB) suggest that Qatari IBFI industry is posting overall asset growth of 17.5% between January 2015 and January 2016, compared with 14.4% growth in the conventional banking segment during the same period (Basov & Bhatti 2016). There are five fully-fledged IBs in Qatar17. Despite the decline in oil prices, domestic IBs performed resiliently and managed to go more profitable year-on-year (IFN, 2016). See (figure A-3.3) in the appendices for a brief of Qatar’s IBFI profile.

3.2.5. Saudi Arabia

The IBFI in Saudi Arabia is theoretically Shariah compliant. However, this is not the case in practice as its banking and financial laws do not refer to Islamic banking as the country adopts a single regulatory framework for all banks. Shariah compliance supervisory relies largely on the individual Shariah boards of respective banks, as there is not a specific body at a national level which oversees the Shariah compliance of financial transactions and products; all banking matters.

However, fall under the purview of the Saudi Arabian Monetary Agency (SAMA), which acts as the central bank whereas the nation’s capital markets are regulated by the Capital Market Authority (CMA). IBFI activities in Saudi Arabia have rapidly grown over recent years, with its two major players; Al Rajhi Banking and Investment Corporation, and Bank

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17 The banks are QIB, Qatar International Islamic Bank (QIIB), Qatar First Bank (QFB), Masraf Al Rayan (MAR) and Barwa Bank.
Al Jazira. CBs are also serving IBFI clientele through their Islamic window or subsidiary in the country. IBFI operations now capture 64% of countries’ total financial market operations (Basov & Bhatti 2016).

Saudi Arabia is the second largest IBFI market followed by Iran. Its total market IBFI share is 31.7%. According to Ernst and Young (EY)’s World Islamic Banking Competitiveness Report (2015), the total Islamic banking assets account for 48.9% of the total domestic banking segment in 2013. This figure is projected to reach 70% by 2019, expanding the country’s global market share to over one-third at US$683 billion. Also, during 2009–13, the Shariah banking industry doubled in size with more than 54% of all financing transactions in the country in 2013 were Shariah compliant (Basov & Bhatti 2016).

The Islamic banking and finance industry in Saudi Arabia composed of 12 licensed banks and 13 licensed foreign investment banks. Out of the 12 domestic banks, four are fully-fledged IBs: Al Rajhi, Aljazira, Alinma, Albilad; with the rest offering Shariah-compliant products on a window basis. Jadwa Investment is another CMA-licensed Islamic investment bank. According to the annual report of IFN (2016), the drop-in oil prices from its mid-2014 peak has exerted significant pressure on the Kingdom’s finances and economic strength as well as its banking sector as a result of reduced government support in times of stress as well as a tighter operating environment among others. Moody’s Investors Service in 2016 downgraded 11 Saudi banks to reflect the ongoing negative impact of softer oil prices.

According to the latest data from SAMA, total assets of banks reached US$140.33 billion
in the second quarter of 2015, higher than the US$126.17 billion the year before. Earnings before tax and Zakat for banks in the same period totalled US$1.47 billion against US$1.32 billion in 2014. Islamic banking assets represent 51.2% of Saudi’s total banking assets and 33% of the global Islamic banking market according to a 2016 EY report. It is worth noting that Saudi Arabia is reportedly keen to join Turkey, Indonesia and the (IDB) in becoming a founding member of the (IDB)’s proposed Islamic infrastructure bank. See (figure A-3.4) in the appendices for a brief of Saudi Arabia’s IBFI profile.

3.2.6. United Arab Emirates (UAE)

According to the annual report of IFN (2016), the civil code in the UAE highly complies with Shariah laws. The country also has a relatively full Islamic Banking and finance legal infrastructure. The national authorities in UAE have set up the Islamic Banking and finance industry in development mode. For example, the creation of a national Shariah authority to harmonise and optimise the supervision of Islamic financial institutions was approved by the cabinet in 2016 while the Central Bank of the UAE made reinforcing the regulatory and supervisory Islamic Banking and finance industry infrastructure a part of its 2017-21 strategy.

The UAE is one of the largest Islamic banking markets in the world after Malaysia and Saudi Arabia with 24.4% (US$134.59 billion) of gross banking assets are Shariah-compliant in 2016. According to the data released by UAE central bank, the industry growth has been outstripping their conventional counterparts with 10.6% year-on-year growth rate against 3.1% in conventional counterparts (IFN, 2016).

The overall banking industry in the UAE market is seen to be overbanked with 50 CBs
and 8 IBs serving a population of over nine million. However, demanding for Shariah banking has been growing and showing positive trends. Despite the lending slowdown triggered by the increasing economic pressure and by default riskier environment for banks, the central bank credit survey in 2016 indicated that 22.5% of senior credit officers expect Islamic financing to increase moderately over the next quarter (IFN, 2016). Also, At the end of 2016, a group of large IBs and lenders started investing in government’s Wallet platform developed to replace traditional cash payments (IFN, 2016). See (figure A-3.5) in the appendices for a brief of United Arab of Emirate’ IBFI profile.

3.3. Southeast Asia Region

3.3.1. Brunei

According to the annual report of IFN (2016), Brunei Darussalam’s legal system is based on the English common law although the country has a strong Islamic tradition that is embedded in various legislation introduced over the years including in the areas of banking, Takaful and accounting. In May 2014, the Sultanate enforced the Shariah Penal Code and to be implemented in three phases. The second phase of the code has yet to be carried out.

There is only one fully-fledged Islamic bank in Brunei - Bank Islam Brunei Darussalam (BIBD), the result of a merger between Islamic Development Bank of Brunei (previously Development Bank of Brunei) and Island Bank of Brunei in 2005. Shariah-compliant banking services have, however, been made available as early as 1991 through Perbadanan Tabung Amanah Islam Brunei (TAIB) which is essentially a trust fund (IFN, 2016).

Despite the limited number of Islamic banking players in the country, the Islamic banking
segment is recording impressive growth. According to the annual report of IFN (2016), Shariah banking assets accounted for a majority of national banking assets in 2015. The plunge in global oil prices, however, has affected the finances of the oil-dependent nation and its ability to support BIBD - S&P in February 2016 revised the outlook on the bank’s ‘A-/A-2’ ratings from stable to negative in light of the challenging macroeconomic environment. Nonetheless, Brunei’s Islamic banking potential is immense: several foreign banks have previously expressed interest in opening an Islamic banking arm in the Sultanate including Standard Chartered Bank Brunei (IFN, 2016).

3.3.2. Indonesia

According to the annual report of IFN (2016), Indonesia has made considerable efforts to develop its Islamic banking industry with various regulations have already passed. Among the new rules issued over the 2015-16 period, are regulations covering Islamic hedging transactions and regulations relating to the Islamic capital market. These improvements were enacted by the Indonesia Financial Services Authority) which took over the supervision and development of the financial industry from the central bank in 2013. Enhancing the IBFI regulatory environment is part of the regulator’s five-year roadmap issued in 2014, and the ‘I Love Shariah Finance’ program introduced in 2015 (IFN, 2016).

In 2016, the government, which is considering the removal of income tax on Sukuk and bonds, launched a 10-year masterplan to boost IBFI in Indonesia. This follows the Member Country Partnership Strategy for 2016-20 signed between the government and IDB (IFN, 2016).

According to the annual report of IFN (2016), there are 12 fully-fledged IBs in the country,
and 22 Islamic banking windows, with a promising plan for expansion as new entrants, make a bid to enter the space. Statistics show that Islamic banking assets account for 5% of the nation’s total banking assets - a figure regulators intend to triple by 2023 (IFN, 2016).

Although there are promising signs of growth in terms of the number of Shariah financial services providers, it is also learned that banking licenses are being revoked at a worrying rate: as in 2016, approximately 140 rural banking licenses have been revoked (reducing the number of Islamic rural banks from over 200 to about 160) (IFN, 2016).

Nonetheless, sentiments for Islamic banking in the country remain relatively optimistic especially with strengthening relations between Indonesia and Malaysia: the two countries have entered into a bilateral agreement under the Association of Southeast Asian Nations (ASEAN)\textsuperscript{18} Banking Integration Framework.

The arrangement allows Indonesian and Malaysian banks to operate in each other’s market on a level playing field with local banks, allowing banks especially smaller players to expand their footprint at a lower cost and with greater ease (IFN, 2016). See (figure A-3.6) in the appendices for a brief of Indonesian IBFI profile.

3.3.3. Malaysia

According to the annual report of IFN (2016), Malaysia has one of the most sophisticated and comprehensive IBFI regulatory framework in the world, and the country continues to enhance its legal infrastructure. In 2016, Bank Negara Malaysia (BNM) updated several

\textsuperscript{18} The Association of Southeast Asian Nations (ASEAN) is a regional intergovernmental organisation comprising ten Southeast Asian states which promotes pan-asianism, intergovernmental cooperation and facilitates economic, political, military, educational and cultural integration amongst its members and Asian states.
related regulations including the reporting template for *Tawarruq, Kafalah*, the capital adequacy framework and investment accounts among others. The Securities Commission Malaysia (SC) is also expected to release new guidelines for Islamic wealth management this year. Islamic banking and finance are governed by the Islamic Financial Services Act 2013 (IFSA 2013).

According to the annual report of IFN (2016), there are 17 fully-fledged IBs in Malaysia and 11 Islamic windows. Growing at an average of 18% year-on-year, Islamic banking assets account for approximately 23.27% of the country’s total banking sector at the end of 2016 at US$125.5 billion (22.36% in 2015), according to the latest statistics by BNM. The country intends to almost double that to 40% by 2020. See (figure A-3.7) in the appendices for a brief of Malaysian IBFI profile.

3.3.4. Philippines

Since 2011, the Filipino government has identified IBFI as a priority development area (IFN, 2016). Among the development efforts is the introduction of the *Al-Amanah* Islamic Investment Bank of the Philippines bill (AAIIBP). The bill which was approved as a law aims to strengthen a broader market service and promote more engagement of IBs side by side with CBs under the supervision and regulation of the central bank. The law allows the central bank to authorise the establishment of both domestic and foreign IBs and Islamic banking windows in the country. The law also includes tax neutrality and a *Takaful* mechanism to guarantee the deposits of IBs (IFN, 2016).

To ensure a level playing field, the Filipino government initiated three stages 21-year roadmap to enhance the industry in 2015, with the first one focusing on information drive
and increasing public awareness and capacity-building of stakeholders in Islamic financing (IFN, 2016).

According to the annual report of IFN (2016), Al-Amanah Islamic Investment Bank (AAIIBP) the only IB in the Philippines and earliest in the world. The bank has been struggling to turn a profit due to different factors including the lack of any Islamic liquidity management and investment avenues, undercapitalization and the lack of technical capabilities. Also, the nature of the bank operations that concentrated in one of the Philippines’s poorest and most underbanked regions has been contributing to its low performance (IFN, 2016). The changing economic dynamics of the (ASEAN) region has stressed Philippines to develop its Islamic financial industry to catch up with its fast-growing Muslim-majority neighbours such Indonesia Malaysia, and Brunei (IFN, 2016).

3.3.5. Thailand

Despite having experienced Islamic Finance and Banking (IFB) as early as 1987, Thailand’s Shariah finance development remains fragmented and underdeveloped at best. The root of the issue is the absence of proper regulations to support the Islamic financial community (IFN, 2016).

According to the annual report of IFN (2016), the Thai government in 2010 expressed intentions to introduce a framework addressing tax issues in the issuance of sovereign Sukuk (Trust Act). However, this has yet to materialize, and the problem of double taxation continues to be a persistent challenge. Existing regulations are not conducive for Islamic financial institutions including in the area of trade and investments; the nation’s sole IB (the Islamic Bank of Thailand - IBank) is prohibited from investing abroad. In 2002, the
government drafted the Islamic Bank of Thailand Act with the goal of promoting and developing its first single IB. However, some aspects of financial liberalisation were hampered including the fact that another fully-fledged Islamic bank cannot be launched by foreign or domestic investors (IFN, 2016).

According to the annual report of IFN (2016), the status of Islamic Banking and finance in Thailand can be explained by its sole fully-fledged Islamic bank - Bank of Thailand (iBank). The bank has not been able to turn profitable since 2005. Hence, the bank in 2016, as part of its rehabilitation plan has written off US$1.4 billion - worth of bad debts by transferring them to the newly established Islamic Asset Management.

Also, the Thai cabinet also approved the injection of US$69.88 million in capital by the government to increase the bank’s liquidity. The state-backed bank plans to improve its capital adequacy ratio from negative to 1:1 by raising US$505.18 million in registered capital through issuing new common shares. To survive, iBank has been negotiating with more than four financial institutions. It is worth to mention that Shariah banking services are also offered by other banks and cooperatives\(^\text{19}\) (IFN, 2016).

3.4. South Asia Region

3.4.1. Bangladesh

Despite not having dedicated IBFI regulations, the Bangladesh IBFI has thrived and driven mainly by the private sector and domestic IB’s players. In 1983, Bangladesh adapted its financial regulation (Banking Companies Act and Companies Act) and made

\(^{19}\) by the Islamic windows of the Government Savings Bank (1998) and the Bank for Agriculture and Agricultural Cooperatives, as well as Ibnu Affan Saving Cooperative, As-Siddiq Saving Cooperative, Saqaffah Islam Saving Cooperative and Al-Islamiah Saving Cooperative.
marginal *Shariah* adjustments to accommodate IBFI in its financial system completely.

The central bank of Bangladesh, however, has been attempting to consolidate and develop the sector by creating a more favourable environment for IBs. In this regard, the Bangladeshi government issued Islamic banking guidelines in 2009 which covers licensing and conversion requirements as well as financial reporting and investment. Capital market activities and insurance - Islamic and conventional - are governed by the securities and insurance development and regulatory authority Bangladesh (IFN, 2016).

According to the annual report of IFN (2016), out of the 64 banks in Bangladesh, eight are fully-fledged Islamic as at the end of 2016, according to official data from BB. About 16 conventional lenders are offering *Shariah* products on a window or branch basis. Accounting for approximately 20% of total banking assets nationwide, Islamic banking continues to show promising growth: over 2016, *Shariah* banking deposits were up 14.26%, BB figures show, translating into a 28.15% deposit market share.

In 2017, the South Asian nation will also experiment with a new ICD\(^\text{20}\) banking model, which incorporates *Zakat* into existing banking systems (IFN, 2016). Despite the strong growth and innovation taking place in Bangladesh, it is not without controversy. The country’s largest Islamic bank, Islami Bank Bangladesh (IBBL), underwent a major shake-up in management at the start of the year, with reports circulating that the change was politically triggered. Since the reshuffle, foreign shareholders of the bank have reportedly been offloading their shares including the Islamic Development Bank-Bangladesh (IDB), which plans to divest two-thirds of its 7.5% shareholding in IBBL and

\(^{20}\) Islamic Corporation for the Development of the Private Sector (ICD).
Bahrain Islamic Bank as well as Dubai Islamic Bank (IFN, 2016).

According to the annual report of IFN (2016), Islamic microfinance is another segment of high potential for Bangladesh, which was one of the earliest adopters of Shariah microfinance. Approximately 12.9% of its 150 million population lived below the national poverty line in 2016, according to the WB, a dramatic drop from 31.5% in 2010. The alleviation of poverty has largely been credited to the growth of micro and SME financing which falls under the purview of the Microcredit Regulatory Authority (MRA). It was also reported that the (IDB) is considering setting up a Shariah microfinance institution in Bangladesh.

### 3.4.2. Pakistan

According to the annual report of IFN (2016), Pakistan started the formal Islamization of its banking industry in early 1977. Since 1985, the CBs have been prohibited from undertaking any interest-bearing deposits except foreign currency deposits, with profit-loss mechanism is applied to all existing deposits.

The current regulations include the creation of a dedicated IBFI department, the introduction of an Islamic capital markets framework in 2015, the revision of the Mudarabah framework, amending the tax law to provide tax neutrality for Sukuk issuance and offering the option for IBs to opt out from benchmarking certain products against interest-based benchmarks in 2016 (IFN, 2016). The Securities and Exchange Commission of Pakistan (SECP) has also adopted AAOIFI’s Shariah standards to standardise and harmonise Shariah matters of Islamic financial institutions (IFN, 2016).

According to the State Bank of Pakistan (SBP), there are 22 IBs in Pakistan comprised of
6 fully-fledged IBs and 16 Islamic banking branches owned by CBs. IBs have been steadily growing their market share (and branch network) as, at the end of 2016, Islamic banking assets and deposits respectively commanded 11.4% and 13.2% of the overall banking industry. IBs, however, have not been able to match the industry average return on assets and return on equity due to the lack of quality Shariah investment avenues. See (figure A-3.8) in the appendices for a brief of Pakistani IBFI profile.

3.4.3. Sri Lanka

According to the annual report of IFN (2016), Sri Lanka has had regulations recognising Shariah-compliant banking transactions for over a decade now following the amendment of the Banking Act No 30 of 1988 in 2005 which allows commercial banks and specialised banks to offer IBFI products. It was also made mandatory by the Central Bank of Sri Lanka for these banks to maintain separate books of accounts as well as comply with the existing regulatory framework and prudential regulations imposed on the conventional banking business.

However, it can be noted that the regulatory infrastructure is not sophisticated enough to support more complex Shariah transactions (IFN, 2016). Therefore, the market participants formulated an association of alternative financial institutions to push for more regulatory developments in IBFI. Specifically, they have called for further reforms to the Banking Act to accommodate a broader range of products including Wakalah and diminishing Musharakah as well as to expand exchange control regulation to include Sukuk investment through the Securities Investment Account and to have stock exchange listing rules recognise Sukuk. Also, there is an urgent need to remove dual/concessionary
stamp duty on a second transfer. The potential clash between civil and Shariah law in adjudicating Islamic financial transactions in domestic courts have motivated market participants and the legal community to set up an arbitralional centre dedicated to hearing IBFI disputes/cases (IFN, 2016).

According to the annual report of IFN (2016), the number of IBFI providers is growing in Sri Lanka. According to figures provided by Richard Pieris Arpico Finance, there are 44 participants in the local Shariah financial space including 16 in the banking and finance sector, four in Islamic insurance, nine in consultancy and advisory, four in education, three in software and IT, two in publishing and two in microfinance. In the banking and finance segment, Islamic banking window operations dominate in terms of numbers which can be noted from its sole fully-fledged Islamic bank - Amana Bank.

The bank has been growing steadily since its inception in 2007: in 2016, the bank realized US$ 356.57 million in total assets, a 13.8% increase from the previous year on the back of a 40% surge in financing income crossing US$26.34 million and a 17.7% increase in total operating income reaching US$15.81 million.

The commitment of Sri Lanka’s government to further IBFI can be noted by its ongoing efforts to develop the right and necessary policies to facilitate the growth of the industry. For example, the country is reportedly applying for membership in the IDB and is drafting the necessary Shariah compliance regulations required for this purpose. Also, the Central Bank of Sri Lanka is seeking an infusion of US$1 billion from Saudi banks to bolster sagging foreign reserves and is considering how to structure Sukuk particularly in the context of asset-financing (IFN, 2016).
3.5. MENA Region (The Middle East & North Africa Excluding GCC)

3.5.1. Egypt

According to the annual report of IFN (2016), both IBs and CBs are subject to the supervision of Egyptian Central Bank. However, decentralised Shariah board relying on internal Shariah boards is regulated for more compliance in Islamic financial operations. The Sukuk laws were passed in 2013 with no actual implementations (IFN, 2016).

Egypt was among the first in the region to offer Islamic microfinancing products. Despite the absence of complete Islamic banking and finance framework, Shariah banking products in Egypt are available by fully-fledged IBs such as Al Baraka Bank Egypt, Faisal Islamic Bank, Abu Dhabi Islamic Bank Egypt. It is also available through Islamic windows of CBs such as NBK-Egypt and Ahli United Bank. Some other CBs such as United Bank is seeking to convert its operations to become a fully-fledged IB (IFN, 2016).

It is worth to mention that most of the IBs in Egypt have performed well in 2016 by reporting double-digit profit growth and expansion in branch network despite the devaluation of the Egyptian pound and tough macroeconomic and political environments (IFN, 2016).

3.5.2. Iran

According to the annual report of IFN (2016), Iranian Banks under the 1983 law of Usury Free Banking are prohibited from undertaking any transactions paying or receiving interest, making its entire financial system entirely Shia Shariah compliant. However, Banks are permitted to sell the debt at a discount and in theory, may permit banks to accept
Riba from non-Muslims. Banks are also permitted to accept deposits from customers as Qard al hasan (benevolent loans) and in turn provide loans by PLS system (IFN, 2016).

However, the political and economic sanctions imposed by United Nations (UN) contributed toward prolonged development and performance in its Islamic financial industry. It is worth to mention that many Iranian banks are still adopting Basel I standards while many of their foreign counterparts have switched to Basel III (IFN, 2016). However, in 2016, the Iranian securities and exchange organisation approved and adopted several regulations to develop new shariah products. Iran also set up a five-year development plan (2016-21) which includes the establishment of a Shariah compliance board under the CBI to assist with banking supervision (IFN, 2016).

According to the annual report of IFN (2016), the banking sector of Iran has been fully Shariah-compliant since 1983 (four years after the Islamic revolution). The full conversion made the Republic as the largest Islamic banking asset holder in the world, with assets of Investment Risk Reserves (IRR) 20.77 (US$639.06 billion) as at the end of 2015 as per CBI figures. The banking community, which currently comprises 45 banking institutions including 9 investment banks, 3 government-owned commercial banks, 5 government specialized banks, 20 private banks, 2 Qard al hasan banks and one bi-national bank, is expected to grow as sanctions relief has opened the doors for foreign banks to set up shop on Iranian shore (IFN, 2016).

Also, since 2016, the Republic has been actively courting foreign powers, establishing bilateral banking and finance ties all around the world including Malaysia, Oman, Pakistan, Singapore, Hong Kong and China, Japan, the Philippines and Azerbaijan, among
many others (IFN, 2016). Among interested banks include South Korea’s Woori Bank which opened doors in 2016 and state-owned Bank of China. Iranian and Russian banks toward the end of 2016 also began exploring the possibilities of setting up a joint Islamic bank. Global transaction network SWIFT in February 2016 also reconnected several Iranian banks to its system, allowing Iran to resume cross-border transactions with foreign banks (IFN, 2016).

The country is also said to be planning a financial centre on Qeshm Island as a gateway for foreign banks and institutions to enter the Republic’s main market. Several Chinese and Russian banks and one Japanese bank have expressed interest in representative offices on the island (IFN, 2016). However, while Iran has been keeping busy looking outward, and foreign nations rushing into Iran, foreign direct investment and banking activities have yet to take off in ways expected as the regulatory environment is not yet conducive. There are also concerns of potential backlash from dealing with Iran by western firms who are wary about the uncertain position was taken by most of successive US President (IFN, 2016).

Also, the steady elimination of UN sanctions starts improving the Iranian IBFI. Therefore, Iran formulated a 20-year roadmap and recently released its first stage which targets three areas. With a Gross Domestic Product (GDP) of US$397 billion in 2015 and holding a huge oil and gas reserves, the observers argue that Iranian economy will affect the China economy in 2016.

Iran is currently re-join the international arena as the second-largest MENA economy moves with a more international organisation willing to tap its potential. For example, the
‘Big Four’ accountancy and professional firms (e.g. Deloitte, EY, KPMG and PwC) are considering establishing their presence in Iran following strong demand from clients to enter the market. Also, the Fitch is moving in, with a first comprehensive rating anticipated to be available in 2017 (IFN, 2016). However, the opening of the Iranian market to world players and its entry into the international arena is expected to face a challenge due to the high inflation and a largely loss-making banking industry among other geopolitical and economic challenges (IFN, 2016).

3.5.3. Jordan

Islamic banking was formally introduced in Jordan in 1979 via Jordan Islamic Bank (Al Baraka subsidiary) under a special temporary Act (the Jordan Islamic Bank for Finance and Investment Act). Like CBs, Islamic banking activities fall under the jurisdiction of the Banking Law 2000 (IFN, 2016). In 2012, the national authorities issued the Sukuk law, paving the way for a sovereign issuance.

According to the annual report of IFN (2016), the Jordanian Islamic banking system composed of Jordanian Islamic Bank (JIB), which is one of the world’s oldest IBs as well as other three fully-fledged IBs. In general, the profitability of IBs has been growing on a year-to-year basis, with JIB in the lead in terms of total assets. The Jordanian government has been playing a more proactive role in pushing for Islamic financial instruments, particularly in 2015, when the government agreed to use Shariah compliant solutions to fund import basic goods and commodities in partnership with the International Islamic Trade Finance Corporation. Through the proposed agreement, US$3 billion will be disbursed in soft loans (IFN, 2016).
In the same year, the government also guaranteed a US$360 million Murabahah financing agreement between the national electric power company and JIB, which is intended to fund purchases of fuel derivatives (IFN, 2016). More recently, the Governorate Development Fund (GDF) - a Ministry of Finance initiative under the Jordan Enterprise Development Corporation - engaged the nation’s Hajj Fund to introduce Shariah-compliant financing options to mobilise US$ 56.25 million in reserves into development projects particularly in the industrial and service sectors (IFN, 2016).

According to the annual report of IFN (2016), the geopolitical instability (Syrian and Iraqi conflicts) and the spillover of the Arab Spring have affected the Jordanian economy significantly; however, the Kingdom is making a real recovery. According to the WB, Jordan experienced a 3.1% real GDP growth in 2014 and continued to grow in 2015 (3.5%) and 2016 (3.9%). The growth was mostly driven by higher private investments, although significant challenges including regional hostility, high unemployment and dwindling natural resources, among other things, remain. On the back of an improving economy and the government’s focus on IBFI, new avenues and growth opportunities are anticipated for the country (IFN, 2016).

3.5.4. Lebanon

Despite the ongoing national and regional crises as well as strained public finances, Lebanon benefits from sophisticated banking regulations which boomed under its long-standing secrecy and fiduciary laws. Also, the absence of controls on the movement of capital and foreign exchange has attracted foreign banks to its shores (IFN, 2016).
According to the annual report of IFN (2016), Islamic banking regulations were first introduced in 2004. Half of IBs’ assets are required by law to be invested in Lebanon. A three-member Shariah consultative body to approve and monitor Shariah compliance is also mandatory. However, industry participants have long called for more comprehensive and enabling IBFI regulations including the removal of double taxation and stamp duty and the implementation of laws that are conducive for equity-type financing as current regulations are restrictive and do not accommodate a variety of transactions. Islamic banking products can only be offered through stand-alone entities as opposed to window operations which may add further detriment to the expansion of the industry (IFN, 2016).

According to the annual report of IFN (2016), the strength of the Lebanese banking sector is reflected in the high concentration of foreign banks in the country. While figures vary in the range of 60-90 institutions, the complete list of banks provided by the Central Bank of Lebanon names 142 banks. Out of the figure, five of them are fully-fledged IBs. Lebanese Islamic bank was the country’s first Shariah-compliant banking player in 2005, following the official gazette of Law No. 575 in 2004 which allowed the creation of IBs. Overall banking activities are also subject to both the code of commerce (1942) and the code of money and credit (1963) (IFN, 2016).

Despite the economic turmoil, the central bank of Lebanon has been proactively implementing measures to support the nation’s banking and financial industry (IFN, 2016). During 2016, the banking sector showed a high liquidity and profitability ratios, although the commercial banks, which are large investors in public debt, were highly exposed to sovereign credit risk – debt exposure went up to 59.2% in 2016, according to figures from the WB.
According to the annual report of IFN (2016), most of the IBs continue to innovate and push new products to improve market share which stands at less than 1% of the total banking market share. Al Baraka Lebanon, for example, has implemented a three-year strategic modernisation plan. In 2015, it introduced new products, continuing product development in 2016 and targets to expand its branch network to 12 by 2020. Nonetheless, the IBs was hit by the poor economic conditions as its total assets shrunk by 12% to US$ 321 million in 2015 while total income from joint financings and investments fell 11%.

3.5.5. Sudan

According to the annual report of IFN (2016), the financial system of Sudan was converted to full Islamic financial system in the early 1990s. The high Shariah supervisory board was formed in 1992 to monitor the implementation of reforms and supervise the compliance of the financial industry. The board also serve as an appeal body for the Sudanese IBs as well as all other involved parties. However, the Sudanese financial system became a dual banking system in 2006 divided by geographical lines: Islamic in the north and conventional in the south (IFN, 2016).

According to the Sudanese Central Bank (SCB) - a founding member of the IFSB, there are 34 licensed banks. However, the population remains mostly unbanked. The SCB’s reports indicate that banking penetration is uneven with the 41% financial activities taking place in Khartoum while the remaining 6% relatively dismal in rural areas such as Darfur and Kurdufan. Such uneven distribution has contributed to low awareness and accordingly the development of Islamic banking (IFN, 2016).

However, the low banking penetration prompted the Bank of Sudan to create the
Microfinance Unit in 2007 to push for more microfinancing projects to increase the financial access. According to the Consultative Group to Assist the Poor (CGAP), 12 Sudanese banks have introduced dedicated Islamic microfinance windows while ten stand-alone microfinance institutions have come to market. In 2014, Shariah-compliant microcredit extension commanded 4.6% of total banking financing (IFN, 2016). Sudan has also been known as a pioneer of Takaful products and services within Islamic business and finance industry and is host to six Takaful companies (Basov & Bhatti 2016).

According to the Sudanese Central Bank, the Total banking deposits hit US$10.75 billion at the end of 2015. The Islamic Research and Training Institute (IRTI) reported in 2016 that for the 2009-14 period, Sudanese banking assets registered a 16.64% compound growth reaching US$15.11 billion while insurance contributions amounted to US$180.68 million at the end of 2013. In 2015, Bank of Khartoum became the first Sudanese bank to operate Shariah-compliant wholesale banking operations in Bahrain (IFN, 2016). The secession of South Sudan has made the resource-rich Northern African country to struggle with many with strong macroeconomic and political instability. For example, while GDP has improved by 4.9% in 2016, the inflation rate continues to increase rapidly. The low financial inclusion, inadequate infrastructure services, incomprehensive taxation policies, and an underdeveloped human capital pool are argued to weigh heavily on the African nation (IFN, 2016).

3.5.6. Yemen

The financial banking system composed of four fully-fledged IBs in Yemen21. According

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21 The banks are Saba Islamic Bank, Tadhamon International Islamic Bank, Islamic Bank of Yemen for Finance and Investment and Alkuraimi Islamic Microfinance Bank.
to the annual report of IFN (2016), at least two Yemeni CBs offer Shariah-compliant financing products (Namely; Cooperative & Agricultural Credit Bank (CAC) and Yemen Kuwait Bank for Trade & Investment (YKBTI)). According to Yemeni Central Bank, the aggregate of the consolidated balance sheet of CBs and IBs decreased by US$89.17 million by the end of January 2015. Total reserves of banks at the end of January 2015 decreased by US$113.13 million or 8.1% to reach an amount of US$1.29 billion. Total credits and loans granted by commercial and IBs to the private sector amounted to US$2.47 billion at the end of January 2015 compared with an amount of US$2.43 billion at the end of December 2014. Also, the treasury bills and Sukuk amounted to US$5.99 billion at the end of January 2015 (IFN, 2016).

The economic and political instability due to the ongoing violent war has severely affected the development Islamic banking and finance industry. Also, the continuous decline in global oil prices will continue, making it more challenging this country which is trying to push down its high levels of unemployment and improve infrastructure amid weak governance and political volatility (IFN, 2016).

3.6. Europe Region

3.6.1. Turkey

According to the annual report of IFN (2016), IBFI in Turkey is regulated by the Banking Regulation and Supervision Agency under a single Banking Law. While there is no separate legislation for IBs, the existing takes into account the exclusivity of Shariah-compliant transactions in terms of accounting methods and fund collection. Also, a draft law to harmonise taxation of Islamic financial contracts in Turkey is prepared.
In 2010, the first Sukuk regulation was introduced by the Capital Markets Board of Turkey and tax neutrality was adopted in the same year. By the end of 2012, a new Capital Markets Law was enforced to enable the private sector to issue private asset-leasing companies. In 2013, the government amended the legislation the permit for new lease certificates to be structured on the Shariah principles of Istisnah, Murabahah, Mudarabah, Musharakah and Wakalah, with other structures permitted subject to regulatory approval (IFN, 2016).

According to the annual report of IFN (2016), Turkey has a number of dedicated IBs, as well as Islamic window operations offered through CBs. Some of the listed banks provide only investment or wholesale banking, whilst others are more retail focused. Out of the 50 banks in Turkey, there are five are 5 IBs (or participation banks as Islamic finance is known in Turkey). In 2016, Bank Asya, the biggest IB in the country was shut down by the regulator due to its close links to the Gulenist movement. Overall, the Turkish IBFI has been struggling since 2016 due to the coup attempt and geopolitical uncertainties.

However, the profitability of IBFI in Turkey showed some improvement during 2017. For example, the five participation banks (Ziraat, Vakifbank, AlBaraka Turk, Kuveyt Turk and Turkiye Finans) collectively registered a 371.4% surge in earnings to US$92.04 million while assets grew 12.3% year-on-year to reach US$38.06 billion, accounting for almost 5% of the overall banking asset market share. The Republic intends to triple the number to 15% by 2025 (IFN, 2016). See (figure A-3.9) in the appendices for a brief of Turkish IBFI profile.

3.6.2. United Kingdom (UK)

According to the annual report of IFN (2016), UK started its first Islamic banking practice
in the 1990s when financial institutions from the GCC introduced Shariah mortgages (based on the murabahah principle) and offered mortgage financing (based on the ijarah principle) shortly after that. To avoid the double taxation\textsuperscript{22}, the UK national authorities introduced the taxation regime in 2004 which paved the way for increased demand for Islamic home financing.

The Bank of England and the Financial Services Authority (FSA), the two banking regulators, have been open to the development of IBFI in the UK. The IBFI sector operates under a single piece of legislation that applies to all sectors (Namely; the Financial Services and Markets Act 2000). Hence, there is a level playing field for Islamic and conventional financial products; allowing the market to cater to the needs of ethnic minority consumers.

According to the annual report of IFN (2016), the UK has one of the most sophisticated Islamic financial markets in the western countries and is rapidly becoming an important destination for foreign Shariah-compliant institutions. It is worth to mention that the UK is home to the West’s first fully-fledged Shariah-compliant retail bank and currently, has at least 20 international banks offering Shariah-compliant financial products with six fully-fledged IBs in the UK\textsuperscript{23}, which are mostly engaged in Shariah mortgage transactions.

Apart from political shifts in the UK and the wider region over the past year, 2016 was also a period of major talent reshuffling in UK’ IBs, particularly in Bank of London and

\textsuperscript{22} The double taxation arises from stamp duty applicable to (e.g. first, when a bank purchases a house, and, second, when a buyer/client purchases this house from the bank concerned).

\textsuperscript{23} The banks include Al Rayan Bank, Rosette Merchant Bank, Rasmala bank, Bank of London and The Middle East (BLME), QIB-UK and Gatehouse Bank; Abu Dhabi Islamic Bank also has an office in the UK.
The Middle East (BLME) and Al Rayan bank (IFN, 2016). As expected by the observers, a change in management also introduced new directions. The latest financial results available show a mixed bag for these financial institutions with Al Rayan and Rasmala turning a profit in 2015 with Gatehouse and (BLME) incurring losses. Also, IBs in the UK continue to face pressures in meeting the liquid asset buffer requirements as outlined by Basel III. As a result, the consultation paper issued by the Bank of England in February 2016 on establishing Islamic liquidity instruments has been welcomed. However, the instruments which were supposed to launch at the end of 2016 have yet to materialize (IFN, 2016).

3.7. Sub-Saharan Africa Region

3.7.1. South Africa

Existing conventional legislation governs the South African Islamic banking and finance. However, few regulations were introduced to accommodate Shariah-compliant financial transactions. Also, Shariah contracts such as Mudarabah, Murabahah and diminishing Musharakah are permitted following enactments to the Taxation Law Amendment Act of 2010. The government Sukuk was officially introduced in 2011, four years later, the government amended the Taxation Laws redefining Sukuk to include the government, public entities and listed companies as issuers. Listed companies are also part of the definition for Murabahah and diminishing Musharakah (IFN, 2016).

According to the annual report of IFN (2016), South Africa has very advanced and sophisticated financial systems. It composed of 17 registered banks divided into three mutual banks, two co-operative banks, 15 local branches of foreign banks and 39 foreign
banks with approved local representative offices according to the South African Reserve Bank. However, South African has only one fully-fledged Islamic bank (Al Baraka Bank, set up in 1989) with at least another three banks offering Shariah-compliant solutions on a window basis.

The entry of Standard Bank reflects the growing demand for Shariah products which has also driven conventional retail financier Lendcor to shift its entire business proposition onto a Shariah-compliant platform. It successfully became fully-fledged Islamic in 2016 offering compliant merchant finance facilities (IFN, 2016).

Nonetheless, 2016 was a challenging year for the banking industry driven by political instability, currency volatility and weak economic growth; Al Baraka South Africa took a significant hit as a result. Net income dropped 24% to US$3.25 million after growing 39% the previous year while total assets only grew by 5% to US$411.25 million driven by Musharakah financing (IFN, 2016).

The Islamic bank faces stiff competition from Islamic windows which are eating into its deposit base; nonetheless, the bank is enhancing its products and services to remain competitive (IFN, 2016). In 2016, it introduced a Shariah-compliant forward foreign exchange contract, a new corporate saver account and launched a new internet banking interface as well as opened a new office in Gauteng. Although the collapse of Islamic Bank liquidation in 1997 lack of full awareness of IBFI, steady growth of Shariah banking products has been noted in the recent years (IFN, 2016).

According to the annual report of IFN (2016), the year 2016 and 2017 are likely to

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continue to be challenging for South Africa due to the high inflation. However, there is an increasing number of foreign investors looking to South Africa as one of the world’s largest *Halal* producers and most Muslim-friendly tourist destinations. Also, with a robust infrastructure project pipeline, market players are expecting 2016 and the years after to promote for more Islamic banking and finance operation especially in the *Sukuk* and *Takaful* area (IFN, 2016).

**3.8. Summary and Conclusion**

Chapter 3 introduced a brief overview of the development of Islamic banking industry in most of the leading IBs operator countries. It also highlighted the legal, corporate and regulatory frameworks adopted by these countries to accommodate IBs within their financial system. The 23 IBs operator countries are reviewed in this chapter and grouped according to their political and geographical ties.

It can be concluded that IBs are currently operating in many Muslim and non-Muslim countries in a very diverse legal, institutional and cultural traditions environment. Different legal, corporate and regulatory frameworks of IBs approaches have been adopted by the IBs operator countries to accommodate the operations of IBs. IB has established a presence in more than 60 countries and has become systemically important in 14 jurisdictions. IBFI principles underpin IB and involve operations, balance sheet structures, and risks that differ from their conventional banking counterparts. The current framework governing IB contains many gaps that need to be closed through the development of a more comprehensive enabling environment that ensures IB financial stability and sound development.
CHAPTER 4: REVIEW OF THEORIES AND LITERATURE ON DETERMINANTS OF BANK PROFITABILITY

4.1. Introduction

Chapter 4 reviews the main banking profitability and performance theories that have been developed and used by the researchers and discuss their relevance to this study. The chapter then reviews the most notable empirical studies on determinants of CBs and IBs profitability followed by revision of the empirical studies that compare determinants of CBs and IBs profitability. Based on that, this chapter ends up with a theoretical framework and hypotheses of IBs profitability determinants and measurement.

4.2. Financial Performance and Profitability Theories in Banking Industry

4.2.1. Market Power

Market power is one of the main banking financial performance and profitability theories. It assumes that market structure of the industry is the main determinant of banking performance. There are two different approaches (Hypothesis) within the market power theory (Namely; the Structure - Conduct - Performance (SCP) hypotheses and the Efficient - Structure (ES) hypotheses).

4.2.1.1. Structure- Conduct- Performance Hypothesis

The hypothesis (SCP) assumes that market rivalry (Competition) is determined by market structure settings (e.g. number and size distribution of firms and entry conditions). Such market conditions can affect the price levels, profits and other aspects of market performance. (Stigler 1964) indicated that (SCP) is resulting from the oligopolistic
behaviour of firms implying that it may lead to a collusive arrangement as it is less costly to be maintained in concentrated markets environment. (Fraser & Rose 1972) support this explanation stating that highly concentrated markets can lower the collusion cost and accordingly all firms in the market will be able to earn monopolistic income.

While the first use of (SCP) was in the manufacturing industry, it attracted the banking researchers during the 1960s. (Rasiah 2010) reviewed 46 manufacturing industry research papers that all confirmed the positive relationship between concentration and profitability. (Hannan 1991) indicated that the first use of SCP in banking research was to identify the effect of market concentration on bank’s performance with the amount of deposit of banks in local market areas proxy as a measure of concentration. However, other proxies for performance include bank return rates, loans interest rate charges, and deposit interest rates. More banking performance literature based on (SCP) started to emerge in the 1970s. Both the concentration ratio and the Herfindahl Index25 were used, but the inconclusive findings were the theme in most studies.

(Gilbert 1984) reported that only 27 out of the 56 studies reviewed support the concentration-profitability relationship. He pointed out that such studies lack to a theoretical framework that includes other factors (e.g. bank regulation). He argues that there are strong interrelations between regulation and other variables which could significantly affect both concentration and bank performance. A similar study was also carried out by (Berger 1995).

(Whalen 1986) provided empirical evidence in support of Gilbert’s claim. The study

25 The Herfindahl-Hirschman index (HHI) is a widely used measure of market concentration. It is calculated by squaring the market share of each firm competing in a market, and then summing the resulting numbers, and can range from close to zero to 10,000.
examined the effect of entry conditions on the banking concentration-profitability relationship. He indicated that increased actual and potential competition arising from the deregulation of the banking industry could limit the non-competitive pricing even with local markets is highly concentrated.

Hence, excluding the impact of regulation on the competitive conditions can result in a weak and insignificant relationship between market concentration and bank profitability. In this context, (Bourke 1989) examined the determinants of international bank profitability and found that concentration was moderately and positively related to pre-tax return on assets. Also, other similar studies such as (Lloyd-Williams, Molyneux & Thornton 1994) on Spanish banking markets and (Molyneux & Forbes 1995) on European banking markets had also reported a significant positive concentration coefficient in bank profit equations, thus providing evidence in favour of the SCP hypothesis.

However, the cross-boundary studies of bank profitability that support SCP hypothesis are deemed to be limited. Out of these studies are (Ruthenberg 1994) who found that concentration increased the profitability from 1984-88, especially if barriers to entry are high. Also, (Molyneux & Teppet 1993) confirmed (Ruthenberg 1994) for 5 EFTA (Sweden, Norway, Finland, Austria and Switzerland) countries. (Molyneux and Teppet 1993) also found similar results for banks located in Portugal, Spain, Sweden, UK and Turkey. (Lloyd-Williams, Molyneux & Thornton 1994) also found support for the SCP hypothesis for Spanish banks for the period 1986-1988.

However, (Neuberger 1998) indicated that most structure-performance studies in the US market focus on retail banking markets as a measure of market structure, which is in
contrast to the comparable sub-market and microdata that are typically not available in European countries. The Structure-performance studies in Europe deal with the European banking market as a local market.

Hence, some studies (e.g. Goldberg & Rai 1996; Molyneux & Forbes 1995; Lloyd-Williams, Molyneux & Thornton 1994; Ruthenberg 1994; Neuberger 1998) indicated that the drawback of SCP hypothesis is the exclusion of the differences in banking services in different geographic markets. Their claims are due to that the overall Europe banking system typically comprises from large banks with nation-wide business as well as small banks.

4.2.1.2. Efficient-Structure (ES) Hypothesis

The Efficient-Structure (ES) hypothesis is another branch of market power theory. According to this hypothesis, the increase in size and market share can lead the banks to be more efficient and accordingly the ability to generate higher profits will be increased. Therefore, the positive relationship between profits and concentration in this hypothesis can be referred to the lower cost achieved through either quality management or by the improvement in the production processes.

The first use of ES hypothesis was by (Demsetz 1974) who claimed that the profits could be raised only by the “artificial scarcity” through a reduction of output or because of collusion as in SCP Theory. Higher performance or profitability can be credited to the combination of high uncertainty, luck or quality management. He argues that high competitive advantage in production can secure high market shares, and therefore, more market concentration. Thus concentration, a part of collusion, emerges from the
competitive process. Hence, (Demsetz 1974) suggested that any observed relationship between profits and concentration can merely proxied for the interrelationship between superior efficiency, high market share and concentration.

(Smirlock 1985) was the first in using ES in banking literature. He argued that market share rather than concentration can have a significant positive impact on bank profitability. Interestingly, market share was found to be positively and significantly related to profitability even after controlling concentration effect. (Evanoff & Fortier 1988) confirmed also Smirlock’s findings which are in favour of the (ES) hypothesis. It is worth to mention that such findings imply that bank regulation to reduce market concentration can result in reduced efficiency and economic welfare.

Other studies such as (Clark 1988) criticised the generality and validity of Smirlock’s results from two views of points. First, Smirlock’s data was a cross-sectional data for the 1978 year-end financial statements. Consequently, it was not clear whether the relationship between market share and profitability was on long-term or transitory in nature since both the SCP and ES hypothesis are hypotheses of long-term relationships. Second, the majority of Smirlock’s data were rural banking markets with an average three bank concentration ratio of 0.86. Therefore, Smirlock’s data can be said to be monopolised efficiently, and accordingly a bias towards the lack of relationship between the degree of monopoly power proxied by concentration and profitability.

4.3. Other Banking Financial Performance and Profitability

4.3.1. Banking Portfolio and Signalling Theory

Banking Portfolio theory implies that bank portfolio diversification and the desired
portfolio composition is a bank management decision. Therefore, the profitability depends on the assets and liabilities quality as well as their relative cost determined by the management. The pivot in this approach is mostly related to the company’s performance in the stock market and the effect of regulation on the rates of return of the firms.

The signalling theory developed by (Berger 1995) to explain the performance of banks. According to this theory, the use of equity to finance a project (which is more expensive than debt) sends a strong positive signal to the market that the bank is very confident in its projects and consequently their profitability level will increase. Accordingly, bank signals private information implies that high profitability is expected by increasing capital. This means that lower leverage can result in higher performance with the banks that can increase their equity. Thus, the equity ratio is an important indicator of banks’ performance.

While the banking literature pointed out that the signalling hypothesis and bankruptcy cost hypothesis support a positive relationship between capital and profitability, the risk-return hypothesis suggests that increasing risks (by increasing leverage of the firm) can lead to higher returns. Such actions can lead to lower equity to asset ratio (represented by capital). Therefore, the risk-return hypothesis expects a negative relationship between capital and profitability. However, both signalling hypothesis and bankruptcy cost hypothesis is centred on the equity ratios and their effect on returns and profitability. They lack to include many other factors that may affect the bank performance.

Other banking theories attempting to explain the determinants of banks’ performance is the balanced markets theory. According to this theory, the bank with good quality of
financial risk management (e.g. credit and liquidity risk) is expected to be more conservative in risk-taking and accordingly leading to lower profitability. Therefore, the most high-performing banks are those who manage to maintain reasonable low-risk levels (Garoui, Sessi & Jarboui 2014).

The theory of conventional economic efficiency implies that large banks are capable of mobilising more funds in generating high returns for its depositors and equity holders due to its diversification, which is achieved by having more resources. By these resources, larger banks can finance large numbers of profitable investment opportunities and acquire better access to investment activities.

4.3.2. The Financial Intermediation Theory

Another important strand of research which is the Financial Intermediation Theory focuses on the role of banks in an environment where market participants are asymmetrically informed. The presence of asymmetric information (adverse selection) increases transaction costs and require the existence of institutions to keep a check on the behaviour of investors. A primary rationale for the existence of financial intermediaries is their superior ability to specialise in assessing the credit risks of potential borrowers. By specialising in gathering information about loan projects, and by permitting pooling and risk sharing among depositors, banks help reduces market imperfections and improve the allocation of resources. More important, the financial intermediation theory predicts efficiency gains related to size (Bashir 1999).

4.3.3. Galbraith - Caves Risk Avoidance Hypothesis

The Galbraith- Cave or risk avoidance hypothesis as referred by (Heggestad 1977)
assumes that banks high concentrated market may prefer to sacrifice some of their potential monopoly profit by reducing risk in their portfolios. (Clark, KB et al. 1987) argued that choosing a safer portfolio of assets and liabilities with reference to risk-preference in highly concentrated and monopoly markets may improve the risk exposure at the expense of some monopoly profit.

To justify the hypothesis, (Vernon 1971) argued that managers rather than owners generally control the banks and hence the level of risk exposure. However, an adverse effect can occur if mismanaged. However, (Heggestad 1977) found that the degree of risk (measured by the coefficient of variation of large banks’ profits over time) tend to drop significantly as the level of concentration in the respective bank’s market increases which in turn provides further support for the risk avoidance hypothesis. Another possible explanation provided is due to the consequence of bank regulation that aims to limit the risk exposure of banks by restricting their portfolio choices. According to the Heggestad’s bank profitability model, failure to include risk as an independent variable to control for inter-bank differences in risk may result in a low R2-values as found in most bank market structure studies such as (Gilbert 1984). Therefore, effective portfolio regulation can limit bank’s portfolios to be always in safe mode.

4.4. Review of Literature on the Determinants of CBs Profitability

The determinants of CBs Profitability and performance have been receiving high attention from the empirical and theoretical researchers. Different explanatory variables, methodologies and data were used to explain the bank’s profitability and performance on either individual or cross-countries. For example, (Miller & Noulas 1997) explored the
factors that affected US bank profitability during the latter part of the 1980s. Using both cross-section and pooled time-series cross-section regressions, they concluded that large banks experienced poor performance because of a declining quality of the loan portfolio. Real estate loans have a negative effect on high bank profitability, although not at high levels of significance; construction and land development loans, the exception, have a strong positive effect.

(Demirgüç-Kunt, Ash & Huizinga 1999) provided international evidence about the Determinants of Commercial Bank Interest Margins and Profitability. Using bank-level data for 80 countries in the years 1988-95, they found that differences in interest margins and bank profitability reflect a variety of determinants: bank characteristics, macroeconomic conditions, explicit and implicit bank taxation, deposit insurance regulation, overall financial structure, and underlying legal and institutional indicators. A larger ratio of bank assets to gross domestic product and a lower market concentration ratio lead to lower margins and profits, controlling for differences in bank activity, leverage, and the macroeconomic environment. Foreign banks have higher margins and profits than domestic banks in developing countries, while the opposite holds in industrial countries. Also, there is evidence that the corporate tax burden is fully passed on to bank customers, while higher reserve requirements are not, especially in developing countries.

(Gizycki 2001) examined the overall variability of Australian banks’ credit risk during the 1990s. This study assesses the extent to which the overall variability can be explained by variability in the level of banks’ aggregate credit risk over time, or alternatively, by variation in the average credit risk of different banks. The ability of macroeconomic variables to explain movements in bank risk is also considered. Discussion of banks’ credit
risk is supplemented with analysis of the rate of return on assets earned by banks since the
1960s. While most of the variability in banks’ credit risk and profitability is due to
differences between banks, macroeconomic variables are found to exert a strong influence
on banks’ risk and profitability. The share of interest payments in the corporate and
household sectors’ income, real credit growth and property prices are most strongly
correlated with banks’ risk and profitability.

(Guru, Staunton & Balashanmugam 2002) attempted to identify the determinants of
successful deposit banks to provide practical guides for improved profitability
performance of these institutions. The study is based on a sample of seventeen Malaysian
commercial banks over the 1986-1995 period. The profitability determinants were divided
into two main categories; (Namely; the internal determinants including liquidity, capital
adequacy and expenses management, and the external determinants including ownership,
firm size and external economic conditions). The findings of this study revealed that
efficient expenses management was one of the most significant in explaining high bank
profitability. Among the macro indicators, the high-interest ratio was associated with low
bank profitability, and inflation was found to have a positive effect on bank performance.

(Naceur 2003) investigated the impact of bank’s characteristics, financial structure and
macroeconomic indicators on bank’s Net Interest Margin (NIM) and profitability in the
Tunisian banking industry for the 1980-2000 period.

He found that individual bank characteristics explain a substantial part of the within-
country variation in bank interest margins and net profitability. High NIM and profitability
tend to be associated with banks that hold a relatively high amount of capital, and with
large overheads. Other important internal determinants of bank’s interest margins bank loans which have a positive and significant impact. The size has mostly negative and significant coefficients on the NIM. This latter result may simply reflect scale inefficiencies. Regarding macroeconomic indicators, he found that inflation and growth rates have no impact on bank’s interest margins and profitability.

Regarding financial structure and its impact on bank’s interest margin and profitability, he found that concentration is less beneficial to the Tunisian commercial banks than the competition. Stock market development has a positive effect on bank profitability. This reflects the complementarities between bank and stock market growth. He concluded that the disintermediation of the Tunisian financial system is favourable to the banking sector profitability.

(Goddard, Molyneux & Wilson 2004) analysed the profitability of European banks during the 1990s using cross-sectional, pooled cross-sectional time-series and dynamic panel models. Models for the determinants of profitability incorporate size, diversification, risk and ownership type, as well as dynamic effects. They found that despite intensifying competition, there is a significant persistence of abnormal profit from year to year. The evidence for any consistent or systematic size-profitability relationship is relatively weak. The relationship between the importance of off-balance-sheet business in a bank's portfolio and profitability is positive for the UK, but either neutral or negative elsewhere. The relationship between the capital–assets ratio and profitability is positive.

(Kosmidou, Tanna & Pasiouras 2005) investigated the impact of bank-specific characteristics, macroeconomic conditions and financial market structure in the UK
owned commercial banks’ profits, during the period 1995-2002. Their empirical findings showed that the capital strength of these banks has a positive and dominant influence on their profitability, the other significant factors being efficiency in expenses management and bank size. These bank-specific determinants are robust to the inclusion of additional macroeconomic and financial market measures of bank performance, which add little to the explanatory power but nevertheless appear to have positively influenced profitability.

(Kosmidou & Zopounidis 2008) examined the determinants of banks’ profits in Greece during the period of EU (European Union) financial integration (1990-2002). Using unbalanced pooled time series dataset of 23 banks, they found that High Return On Average Assets (ROAA) was found to be associated with well-capitalized banks and lower cost to income ratios. The size was positive in all cases but statistically significant only when the macroeconomic and financial structure variables entered the models. Turning to macroeconomics and financial structure, the growth of gross domestic product GDP has a significant and positive impact on ROAA, while inflation has a significant negative impact. The value of this study lies in showing that money supply growth has no significant impact on profits, whereas the ratios banks’ assets to GDP, stock market capitalization to banks assets and concentration are all statistically significant and negatively related to ROAA.

(Sufian & Chong 2008) identified the determinants of Philippines banks profitability during the period 1990–2005. using a linear regression model, they found that all the bank-specific determinant variables have a statistically significant impact on bank profitability. Specifically, they reported that size, credit risk, and expense preference behaviour are negatively related to banks' profitability, while non-interest income and capitalisation
have a positive impact. During the period under study, the results suggest that inflation has an adverse impact on bank profitability, while the impact of economic growth, money supply, and stock market capitalisation have not significantly explained the variations in the profitability of the Philippines banks.

(Lepetit et al. 2008) investigated the relationship between bank risk and product diversification in the changing structure of the European banking industry. Based on a broad set of European banks for the period 1996–2002, the study first shows that banks expanding into non-interest income activities present a higher risk and higher insolvency risk than banks which mainly supply loans. However, considering size effects and splitting non-interest activities into both trading activities and commission and fee activities we show that the positive link with risk is mostly accurate for small banks and essentially driven by commission and fee activities. A higher share of trading activities is never associated with higher risk, and for small banks, it implies, in some cases, lower asset and default risks.

(Athanasoglou, Brissimis & Delis 2008) analysed the effect of bank-specific, industry-specific and macroeconomic determinants of bank profitability, using an empirical framework that incorporates the traditional structure-conduct-performance (SCP) hypothesis. They accounted for profit persistence by using a Generalized Method of Moments (GMM) technique to a panel of Greek banks that covers the period 1985–2001. Novel features of this study are the analysis of the effect of the business cycle on bank profitability and the use of an appropriate econometric methodology for the estimation of dynamic panel data models.
They found that capital is important in explaining bank profitability and that increased exposure to credit risk lowers profits. Additionally, labour productivity growth has a positive and significant impact on profitability, while operating expenses are negatively and firmly linked to it, showing that cost decisions of bank management are instrumental in influencing bank performance.

The estimated effect of size does not provide evidence of economies of scale in banking. Likewise, the ownership status of the banks is insignificant in explaining profitability, denoting that private banks do not, in general, make relatively higher profits, at least during the period under consideration. Also, the SCP hypothesis is not verified, as the effect of industry concentration on the bank, profitability was found insignificant. Therefore, this result is in line with theoretical considerations according to which concentration is not related to profitability, once the other effects are controlled for in the model.

Finally, macroeconomic control variables, such as inflation and cyclical output, clearly affect the performance of the banking sector. The effect of the business cycle is asymmetric since it is positively correlated with profitability only when output is above its trend.

Overall, these empirical results provide evidence that the profitability of Greek banks is shaped by bank-specific factors (that are affected by bank-level management) and macroeconomic, control variables that are not the direct result of a bank’s managerial decisions. Industry structure does not seem to affect profitability significantly. The approach followed in this study may well have considerable potential as a tool for
exploring bank profitability determinants with the purpose of suggesting optimal policies to bank management.

(AL-Omar & AL-Mutairi 2008) investigated the impact of bank-specific determinants on bank’s profitability in the Kuwaiti banking sector for the period 1993-2005 for a sample of 7 national commercial banks. Using regression techniques, they found that equity ratio, loan-assets ratio, operating expenses ratio, and total assets explain about 67% of the variation in return on assets (ROA). However, the results indicate that loan-assets ratio and operating expenses ratio are statistically insignificant. Accordingly, the results stress the need for improving the capital adequacy and reducing the ratio of non-interest assets as a way to improve profitability. The positive impact of the size variable indicates scale efficiency meaning that there is a potential for higher profits as the size of these banks increases.

(Sufian & Habibullah 2009) explored the determinants of the profitability of the Chinese banking sector during the post-reform period of 2000–2005. They found that all included determinants variables have a statistically significant impact on China banks profitability. However, the impacts are not uniform across bank types. Specifically, they found that that liquidity, credit risk, and capitalisation have positive impacts on the state-owned commercial banks (SOCBs) profitability, while the impact of cost is negative.

Similar to their SOCB counterparts, they found that joint stock commercial banks (JSCB) with higher credit risk tend to be more profitable, while higher cost results in lower JSCB profitability levels. During the period under study, the empirical findings suggest that size and cost results in a lower city commercial banks (CITY) profitability, while the more
diversified and relatively better-capitalised CITY tend to exhibit higher profitability levels. The impact of economic growth is positive, while growth in money supply is negatively related to the SOCB and CITY profitability levels.

(Sufian 2009) investigated the determinants of bank efficiency during unstable macroeconomic environment in Malaysia during the Asian financial crisis 1997. Using Data Envelopment Analysis (DEA) approach, he reported a high degree of inefficiency in the Malaysian-banking sector, particularly a year after the East Asian crisis. The results suggest that the decline in technical efficiency is more abrupt under the intermediation approach relative to the value-added approach and operating approach. The regression results focusing on bank efficiency and other bank-specific traits suggest that efficiency is negatively related to expense preference behaviour and economic conditions, while bank efficiency is positively related to loans intensity.

(Mathuva 2009) examined the relationship between Capital adequacy, cost income ratio and the performance of Kenyan commercial banks. Using the return on assets and the return on equity as proxies for bank profitability for the period 1998 to 2007, the study finds that bank profitability is positively related to the core capital ratio and the tier 1 risk-based capital ratio. This implies that an increase in capital may raise expected earnings by reducing the expected costs of financial distress, including bankruptcy.

The study also establishes that there exists a negative relationship between the equity capital ratio and profitability. The study also finds out that Kenyan banks are not competitive enough globally in terms of their efficiency as measured by the CIR. The study reveals that the CIR is inversely related to both bank profitability measures. The
study also shows that the CIRs of Kenyan banks are higher than those of developed countries. This means that Kenyan banks should strive to keep their CIR to a minimum level, if possible below the 50% threshold for them to be more efficient to be globally competitive.

(Hosna, Manzura & Juanjuan 2009) analysed the effect of Credit risk management on 4 Sweden commercial banks profitability during 2000-2008. Using regression model which defined ROE as profitability indicator while Non-Performing Loans Ratio (NPLR) and Capital Adequacy Ratio (CAR) as credit risk management indicators, they found that credit risk management has an effect on profitability in all four banks. Among the two credit risk management indicators, NPLR has a significant effect than CAR on profitability (ROE).

The analysis on each bank level shows that the impact of credit risk management on profitability is not the same. The credit risk management of Nordea and SEB has a relatively similar impact on their profitability. The Handelsbanken’s results indicate that NPLR and CAR are very weak or incapable of predicting ROE. In case of Swedbank NPLR and CAR explains the variances in ROE with very low probability. Basel II application has strengthened the negative impact of NPLR on ROE. Unlike the effect of Basel I, CAR has a positive and insignificant effect on ROE.

(Sufian & Habibullah 2010) examined the impact of economic freedom on banks’ performance within Malaysian banking sector during the period of 1999–2007. They found that overall economic freedom and business freedom exerts positive impacts, implying that higher (lower) freedom on the activities that banks can undertake and
entrepreneurs to start businesses increases (reduces) banks’ profitability. The empirical findings seem to suggest that corruption has a corrosive impact on Malaysian banks’ profitability. Interestingly, the impact of monetary freedom is negative, demonstrating the importance of government intervention in determining the profitability of banks operating in the Malaysian banking sector.

(Davydenko 2010) analysed the effect of bank-specific, industry-specific and macroeconomic indicators on the overall profitability of Ukrainian banks during 2005 to 2009. He found that Ukrainian banks suffer from low quality of loans and do not manage to extract considerable profits from the growing volume of deposits. Despite low profits from the core banking activities, Ukrainian banks manage to benefit from exchange rate depreciation. This study finds evidence for the difference in profitability patterns of banks with foreign capital versus exclusively domestically owned banks. The results also indicate that there is room for consolidation of Ukrainian banks to benefit from economies of scale.

(Sufian 2011) reported panel evidence on the effect of bank-Specific and macroeconomic determinants on Profitability of the Korean Banking Sector during 1992-2003. He found that Korean banks with lower liquidity levels tend to exhibit higher profitability. Furthermore, higher diversification regarding banks’ income sources towards derivative instruments and other fee-based activities shows a positive effect.

The impacts of credit risk and overhead costs are always negative whether the macroeconomic and financial conditions are controlled or not. Business cycle effects, particularly inflation, display a substantial pro-cyclical impact on bank profitability. The
industry concentration of the national banking system positively and significantly affects bank performance. The impact of the Asian financial crisis is negative, while Korean banks have been relatively more profitable during the pre-crisis compared to the post-crisis period.

(Staikouras & Wood 2011) examined the determinants of European bank Profitability during 1994-1998 using OLS and FE models. They reported that the profitability of European banks is influenced not only by factors related to their management decisions but also to changes in the external macroeconomic environment. The results are in contrast to studies that have examined the structure-performance relationship for European banking and find a positive effect of the concentration and/or market share variables on bank profitability.

(Saíd & Tumin 2011) compared the performance of commercial banks in Malaysia and China during 2001 to 2007. They reported that bank-specific factors such as liquidity, credit, capital, operating expenses and the size of commercial banks have different effects on the performance of banks in both countries, except credit and capital ratios. Operating ratios influence the performance of banks in China, but this influence is not true for Malaysian banks regardless of the measure of performance.

(Mongid & Tahir 2011) examined the impact of corruption on banking profitability in ASEAN (Association of Southeast Asian Nations) countries. They found that a higher ratio of personnel expenses to total cost (PERSTC) and equity to total assets (EQTA), increase bank profitability and are negatively associated with higher regulatory capital (CAR), net loan total asset (NLTA) and cost to income ratio (CIR). Economic growth
(EGRW) is positive but not significant. In terms of country effect, only Indonesia is significant. Surprisingly, the corruption index (CRPIX) is positive, and its significance to profitability underlines the ability of banking firms to enjoy benefits in a bad governance environment.

(Mirzaei & Mirzaei 2011) analysed the impact of bank-specific and macroeconomic factors on bank profitability in Middle Eastern Banking using both the OLS and the GMM techniques. Their empirical findings showed the persistence of profit, confirming the dynamic character of the model specification. They argued that the crucial point is that the findings from the dynamic model confirm a non-linear relationship between size and profitability. Although no evidence is found in support of the traditional SCP hypothesis in the static model, the dynamic model confirms such hypothesis strongly.

They also reported that capital strength, liquidity, and efficiency are the main determinants of profitability. Off-balance-sheet activities reduce bank profits and the Middle Eastern banks do not seem to anticipate inflation, meaning that the influence of inflation is negative for the Middle East at least for the period under consideration.

(Kargi 2011) analysed the impact of credit risk on the profitability of Nigerian banks during 2004 – 2008 using different Financial ratios as measures of bank performance and credit risk. He reported empirically that credit risk management has a significant impact on the profitability of Nigeria banks.

(Dietrich & Wanzenried 2011) examined how bank-specific characteristics, industry-specific and macroeconomic factors affect the profitability of 372 commercial banks in Switzerland over the period from 1999 to 2009. To account for the impacts of the recent
financial crisis, they separately considered the years before and during the crisis (Namely; the period up to 2006, and the crisis years 2007, 2008 and 2009).

Using dynamic model specification to allow for a profit persistence, they reported that there exist substantial differences in profitability among the banks in the sample and that a significant amount of this variation can be explained by the factors included in the analyses. In particular, bank profitability is mainly explained by operational efficiency, the growth of total loans, funding costs and the business model. Efficient banks are more profitable than banks that are less efficient. An above-average loan volume growth affects bank profitability positively; higher funding costs result in lower profitability.

The interest income share also has a significant impact on profitability. Banks that are heavily dependent on interest income are less profitable than banks whose income is more diversified. They also found some evidence that ownership is an important determinant of profitability.

Furthermore, the separate consideration of the time periods before and during the crises provides new insights with respect to the underlying mechanisms that determine bank profitability. The results outlined in this paper provide some evidence that the financial crisis did indeed have a significant impact on the Swiss banking industry and on bank profitability in particular.

(Anbar & Alper 2011) analysed the effect of bank-specific and macroeconomic determinants of the bank’s profitability in Turkey over the time from 2002 to 2010. Using a balanced panel data set, the results show that asset size and non-interest income have a positive and significant effect on bank profitability (measured by ROA and ROE).
However, size of credit portfolio and loans under follow-up have a negative and significant impact on bank profitability. Macroeconomic variables, only the real interest rate affects the performance of banks positively. These results suggest that banks can improve their profitability through increasing bank size and non-interest income, decreasing credit/asset ratio. In addition, the higher real interest rate can lead to higher bank profitability.

(Curak, Poposki & Pepur 2012) investigated the effect of bank-specific, industry-specific and macroeconomic determinants on Macedonian bank profitability during 2005 and 2010 using a Dynamic panel analysis. They found that among different internal factors of bank profitability, the most important one is operating expense management. Further, the profitability is influenced by solvency risk and liquidity risk. Regarding the external variables, economic growth, banking system reform and concentration show a significant effect on bank profitability in the Republic of Macedonia.

(Bikker & Hu 2012) argued that the proposed risk-sensitive minimum requirements of the new Basel capital accord have raised concerns about the possible acceleration of procyclical behaviour of banking, which might threaten macroeconomic stability. Therefore, they investigated the interaction between business cycles and banks over the past two decades for 26 industrial countries.

As they presumed, they reported that profits appear to move up and down with the business cycle, allowing for the accumulation of capital in boom periods. Provisioning for credit losses rise when the cycle falls, but less so when net income of banks is relatively high, which reduces procyclicality. Lending fluctuates with the business cycle too but
appears to be driven by demand rather than by supply factors such as (shortage of) capital, which contradicts the assumptions underlying capital crunch theory. All in all, over the last decades, distortion caused by the procyclical behaviour of banks has been limited, banking crises excepted.

(Trujillo-Ponce 2013) explored the profitability determinants of Spanish banks for the period of 1999–2009. He reported that the high bank profitability during these years is associated with a significant percentage of loans in total assets, a large proportion of customer deposits, good efficiency and a low doubtful assets ratio. In addition, higher capital ratios also increase the bank’s return, but only when the return on assets (ROA) is used as the profitability measure. Interestingly, he found no evidence of either economies or diseconomies of scale or scope in the Spanish banking sector. Also, this study reveals differences in the performance of commercial and savings banks.

(Taha 2013) analysed the impact of bank-specific and macroeconomics determinants on the profitability of the seven Jordanian banks. Using a panel data, he reported that bank-specific factors have more impact on the profitability of banks in Jordan as compared with the macroeconomic factors. With respect to the results, inflation rate turned out to be insignificant.

(Shahabadi & Samari 2013) examined the effect of economic freedom on bank performance by using a panel data model in some selected developed and developing countries for the period 2001-2011. They reported that countries with a higher degree of economic freedom index have better financial performance. Moreover, economic freedom indexes have positive effects on bank's profitability in both groups of countries.
(Ruziqa 2013) evaluated the impact of credit and liquidity risk on bank financial performance in the Indonesian Conventional Bank with total asset above 10 trillion Rupiah during 2007 to 2011. In this study, Bank financial performances are measured by return on assets, return on equity and NIM; credit risk is measured by non-performing loan ratio and liquidity risk are measured by liquidity ratio. He reported that credit risk has a negative significant effect on ROA and ROE. While liquidity ratio was found having a positive significant effect on ROA and ROE. The effect of bank capital is positively significant on ROA, ROE, and NIM, while bank size was only found to have a negative significant impact on NIM. Both credit risk and liquidity ratio was found to have an insignificant impact on NIM.

(Riaz & Mehar 2013) examined the impact of Bank Specific and Macroeconomic Indicators on the Profitability of 32 Pakistani Commercial banks during 2006-2010. They reported statistically that there is a significant impact of bank-specific variables (asset size, total deposits to total assets, credit risk) and macroeconomic indicator (interest rate) on ROE and credit risk and interest rate have also a significant impact on ROA.

(Ongore & Kusa 2013) explored the determinants of financial performance of commercial banks in Kenya using linear multiple regression models and Generalized Least Square on panel data. They reported that that bank-specific factors significantly affect the performance of commercial banks in Kenya, except for liquidity variable. But the overall effect of macroeconomic variables was inconclusive at 5% significance level. The moderating role of ownership identity on the financial performance of commercial banks was insignificant. Based on their findings, they concluded that the financial performance
of commercial banks in Kenya is driven mainly by board and management decisions, while macroeconomic factors have an insignificant contribution.

(Olalekan & Adeyinka 2013) examined the impact of capital adequacy on the profitability of deposit-taking banks in Nigeria (foreign and domestic) during 2006-2010 using qualitative and quantitative data. They reported that while qualitative data obtained from questionnaires distributed to the bank’s staff showed a non-significant relationship between capital adequacy and profitability, the quantitative data obtained from the published financial statement showed the positive and significant relationship. Their findings imply that for deposit-taking banks in Nigeria, capital adequacy plays a key role in the determination of profitability. Also, the capitalization and profitability are indicators of bank risk management efficiency and cushion against losses not covered by current earnings.

(Lartey, Antwi & Boadi 2013) tested the relationship between the liquidity and the profitability of 9 banks listed on the Ghana Stock Exchange. Using the longitudinal time dimension, specifically, the panel method, they reported that for the period 2005-2010, both the liquidity and the profitability of the listed banks were declining. It was also found that there was a very weak positive relationship between the liquidity and the profitability of the listed banks in Ghana.

(Kanwal & Nadeem 2013) examined the impact of macroeconomic variables on the profitability of listed commercial banks in Pakistan during 2001-2011. Using Pooled Ordinary Least Square (POLs) method, they reported a strong positive relationship between real interest rate with ROA, ROE and equity multiplier (EM) – as the measure of
profitability. Also, real GDP is found to have an insignificant positive effect on ROA, but an insignificant negative impact on ROE and EM. The inflation rate, on the other hand, has a negative link with all 3 profitability measures. Overall, their selected macroeconomic factors are found to have a negligible impact on earnings of commercial banks.

(Francis 2013) investigated the determinants of commercial bank profitability in Sub-Saharan Africa (SSA). He used unbalanced panel of 216 commercial banks drawn from 42 countries in (SSA) for the period 1999 to 2006. The researcher applied cost efficiency model and incorporated different explanatory variables such as bank assets, bank deposits, capital adequacy, operational efficiency (inefficiency), and liquidity ratio with GDP and inflation as indicator of macroeconomic variables. He found that the variation in (SSA) commercial bank profitability was referred to the change in bank-specific as well as macroeconomic factors.

(Dumičić & Rizdak 2013) examined determinants of banks’ NIM (as the main indicator of bank’s performance) in Central and Eastern Europe (CEE). They found that several main drivers of NIM in the CEE. Prior to 2008, the NIM declined primarily due to strong capital inflows and stable macroeconomic environment. In the crisis period, significant rise in government debt accompanied by the increase in macroeconomic risks and abating capital inflows were pushing margins up while other factors such as low credit demand, higher capitalization and significantly increased share of non-performing loans pressured banks’ margins down. The results also confirm the significant contribution of higher efficiency to lowering banks’ margins.
(Demirguc-Kunt, Detragiache & Merrouche 2013) used multicounty panel of banks to examine whether better-capitalized banks experienced higher stock returns during the financial crisis. Different types of capital ratios were incorporated such as the Basel risk-adjusted ratio, the leverage ratio, the Tier 1 and Tier 2 ratios, and the tangible equity ratio. They found that several results. As an example:

(i) before the crisis, differences in capital did not have much impact on stock returns;

(ii) During the crisis, a stronger capital position was associated with better stock market performance, most markedly for larger banks;

(iii) The relationship between stock returns and capital is stronger when capital is measured by the leverage ratio rather than the risk-adjusted capital ratio;

(iv) higher quality forms of capital, such as Tier 1 capital and tangible common equity, were more relevant.

(Almazari 2013) analysed the effect of capital adequacy and cost income ratio on the performance of 9 Saudi Banks during 2007-2011. Using linear regression technique, he found a strong relationship between capital adequacy, CIR and bank size with profitability (measured by ROA and ROE). He also reported that Saudi banks efficiency as measured by the CIR is negatively related to bank profitability.

(Zou & Li 2014) identified the impact of credit risk management on profitability of commercial 47 banks in Europe during 2007 to 2012. ROE and ROA are defined as proxies of profitability while NPLR and CAR are defined as proxies of credit risk management. He reported statistically that credit risk management does have positive
effects on profitability of commercial banks. Between the two proxies of credit risk management, NPLR has a significant effect on the both ROE and ROA while CAR has an insignificant effect on both ROE and ROA. However, from 2007 to 2012, the relationships between all the proxies are not stable but fluctuating.

(Turgutlu 2014) analysed the dynamics of profitability in the Turkish banking industry during 2006-2012. In this study, two competing hypotheses, persistence of profit and competitive environment hypotheses are tested using a dynamic panel data model. Variables representing bank size, credit risk, managerial efficiency, financial soundness, market competition, monetary policy and economic freedom are also incorporated in this model to investigate the determinants of bank profitability.

System Generalized Method of Moments (SGMM) is used to estimate this dynamic model. The evidence from the findings indicates the validity of the persistence of profit hypothesis. Moreover, bank profitability has been most affected by the capital ratio, which could have further implications for the Basel III period. The results also indicate positive impact of improvement in the financial soundness of banks on profitability.

(Ferrouhi 2014) tested the relationship between liquidity risk and financial performance of Moroccan banks during 2001–2012 using panel data regression. He reported that Moroccan bank’s performance is mainly determined by 7 determinants: liquidity ratio, size of banks, logarithm of the total assets squared, external funding to total liabilities, share of own bank’s capital of the bank’s total assets, foreign direct investments, unemployment rate and the realization of the financial crisis variable. Banks’ performance depends positively on size of banks, on foreign direct investments and on the realisation
of the financial crisis and negatively on external funding to total liabilities, on share of own bank’s capital of the bank’s total assets and on unemployment rate while the dependence between bank performance and liquidity ratios and bank performance and logarithm of the total assets squared depend on the model used.

(Abiola & Olausi 2014) analysed the impact of credit risk management on seven commercial banks performance in Nigeria during 2005 – 2011 using panel regression model. Return on Equity (ROE) and Return on Assets (ROA) were used as the performance indicators while NPLR and Capital Adequacy Ratio (CAR) as credit risk management indicators. He reported that that credit risk management has a significant impact on the profitability of commercial banks’ in Nigeria.

(Noman et al. 2015) identified the effect of bank-specific and macroeconomic determinants of banking profitability in Bangladesh during 2003 to 2013 using OLS FE and two-step system GMM model. He reported that credit risk, cost efficiency, GDP growth and real interest rate effects profitability negatively; and capital adequacy, liquidity, size, inflation and stock market turnover effect profitability positively. The results further find that both development banks and private commercial banks are more profitable than public commercial banks in Bangladesh. Furthermore, the study finds that ROAA is a most preferred measure of profitability.

(Gizaw, Kebede & Selvaraj 2015) analysed the impact of credit risk on profitability performance of commercial banks in Ethiopia during the period of 2003-2012 using panel data regression model. He reported that credit risk measures: non-performing loans, loan loss provisions and capital adequacy have a significant impact on the profitability of
commercial banks in Ethiopia. The study suggested a need for enhancing credit risk management to maintain the prevailing profitability of commercial banks in Ethiopia.

(Albulescu 2015) explored the Banks’ Profitability and Financial Soundness Indicators in Emerging Countries. Different from previous studies which assess the impact of the banking sector characteristics and of the macroeconomic context on the profitability, he focused only on the internal conditions of banks using the International Monetary Fund (IMF) monthly data for the period 2005-2013 and a panel data approach.

He reported that those non-performing loans have a negative impact on banks’ profitability under the FE model. While the level of liquidity has a mixed influence, the capitalization and the interest rate margins positively affect the banks’ profitability. As expected, the non-interest expenses negatively impact the profitability. The results prove robust either if the return on assets or the return on equity indicator is used to measure the level of profitability.

(Sarpong-Kumankoma 2016) identified the inferences of competition for bank stability, profitability and efficiency over the period, 2006-2012 in 139 banks in 11 Sub-Saharan African countries. He found that while more financial freedom improves bank’s profitability, it might negatively impact the cost efficiency, especially within the banks with higher market power.

4.5. Review of Literature on the Determinants of IBs Profitability

Despite having undergone considerable developments during the last two decades, empirical evidence on the performance of the Islamic banking sector is still in its infancy, especially if compared with the conventional banking literature. Also, the literature on IBs
have generally focused on theoretical issues, and empirical works have relied on the analysis of descriptive statistics rather than rigorous statistical estimation (El-Gamal & Inanoglu 2005). However, this is gradually changing as some recent studies have sought to apply various statistical methods to examine the performance of Islamic banking sectors worldwide. The rest of this section reviews the most notable Islamic banking performance studies.

Among notable pioneering studies in IBs performance and profitability are (Nienhaus 1983; Khan, MF 1983). (Nienhaus 1983) tried to link the profitability of IBs with the market structure. Based on his simplistic equilibrium model, he postulated that the profit-sharing ratio (the percentage of profit paid by the entrepreneur) of IBs was positively related to the lending rate of the CBs. (Nienhaus 1983) not only suggested that IBs use the interest rate as a basis for calculating the profit-sharing ratio but also recommended that the profit-sharing ratio be equivalent to the interest rate offered by the CBs. He also believed that in the long run, interest-based banking would be more successful than Islamic banking. Unfortunately, Nienhaus’s hypotheses were not supported by any empirical evidence.

(Khan, MF 1983) expanded Nienhaus’ model and postulated that the average return of an Islamic bank, in the long run, would be higher than the interest rate. Khan believed that Nienhaus’s argument was valid in the case where CBs provided profit-sharing products. Interestingly, Khan acknowledged that the profit-sharing ratio would have a positive relationship with the interest rate. Like (Nienhaus 1983), Khan’s framework was not empirically verified. Using ‘adaptive expectation model’, (Haron & Ahmad 2000) verified
(Nienhaus 1983) and (Khan, MF 1983) hypothesized and found that conventional interest rates had a strong positive relationship with deposits of IBs.

(Bashir 1999) examined the effects of scale (or Total Assets) on the performance of Sudanese IBs. The analysis is performed in the context of agency and financial intermediation theories. While the empirical investigation provides limited support to the theoretical predictions, the relationships between size and profitability measures are statistically significant, indicating that IBs become more profitable as they grow in size.

However, the negative relationship between size and the ratio of equity to capital implies that the larger bank is systematically highly levered. Moreover, the negative and statistically significant relationship between size and the risk index indicates that large size is economically efficient. The negative and slightly significant relationship between size and market valuation contradicts the predictions of the theory.

The study of (Hassan & Bashir 2003) and (Bashir 2003) analysed how bank characteristics and the overall financial environment affect the performance of IBs by utilising worldwide bank-level data during 1994-2001. In both studies, the variables of macroeconomic environment, financial market structure, and taxation are controlled. The results indicate that high capital and loan-to-asset ratios lead to higher profitability. Everything is remaining equal; the regression results show that implicit and explicit taxes affect the bank performance measures negatively while favourable macroeconomic conditions impact performance measures positively. Surprisingly, the results indicate a strong positive correlation between profitability and overhead. Their findings confirmed previous findings.
(Haron 2004) examined the effects of different factors that contribute towards the profitability of IBs with a sample of 14 banks. He found that internal factors such as liquidity, total expenditures, funds invested in Islamic securities, and the percentage of the profit-sharing ratio between the bank and the borrower of funds are highly correlated with the level of total income received by the IBs. Similar effects are found for external factors such as interest rates, market share and size of the bank. Other determinants such as funds deposited into current accounts, total capital and reserves, the percentage of profit-sharing between bank and depositors, and money supply also play a major role in influencing the profitability of IBs.

(Saleh & Zeitun 2006) examined the Jordanian Islamic banking performance. The authors used the performance evaluation methodology by conducting the profit maximisation, capital structure, and liquidity tests. They found that the efficiency and ability of selected banks have increased, and both have expanded their investment and activities and had played a major role in financing projects in Jordan.

(Ghazali 2008) provided international evidence about the bank-specific and macroeconomic determinants of IBs’ profitability. He used 60 IBs’ data from 18 countries across the world from 2002 to 2007. His study employed regression models that relate bank profitability ratios to various explanatory variables. IBs’ profitability measured by three proxies (Namely; return on assets (ROA), return on equity (ROE) and net non-interest margin (NIM)). Seven variables are drawn from the conventional banking literature as proxies for bank-specific and macroeconomic factors.
He found that the main determinants of IBs’ profits are capital strength and efficiency factors, although the latter is negatively correlated to profitability. Also, the author found a significant positive relationship between profitability measures of IBs and macroeconomic variables such as GDP growth and inflation. The findings revealed that the determinants of IBs’ profitability are similar to those of the CBs. The similarity of determinants is a strong indicator that many of the tools and techniques used in conventional banking are potentially suitable for an Islamic banking environment.

(Wasiuzzaman & Tarmizi 2010) focused on the financial performance of 16 Malaysian IBs over the period 2005-2008. The ROAA represents the profitability ratio, and OLS was used to find the determinants of ROAA. The empirical results of the study show that the positive determinants were found to be liquidity, operational efficiency, GDP and inflation, while asset quality and capitalisation affected the banking earnings inversely.

(Asma’Rashidah Idris et al. 2011) identified the determinant of listed IBs profitability in Malaysia during 2007-2009. They focused on the bank-specific determinants (internal factors) such as capital adequacy, credit risk, liquidity, bank size and management of expenses. Using the Generalized Least Square (GLS) panel data analysis and quarterly data from nine IBs, which consist of foreign and local IBs incorporated in Malaysia for the period 2007-2009, they found that only the bank size is significant in determining the profitability with a positive relationship.

(Masood, Masood & Ashraf 2012) investigated the bank-specific and macroeconomic profitability determinants of IBs in 12 different countries during 2006-2010. Using a balanced panel data regression model. They found that that assets size has a positive and
significant impact on the profitability of IBs. The positive impact report that banks of larger assets obtain the higher profitability. The capital adequacy, loans to assets and asset management results leads to a positive and significant relationship with return on assets (ROA) and return on equity (ROE) which plays a vital role in the profitability of banks. The IBs loan losses provision is lower than CBs. The non-performing loans impact negatively banks profitability because of credit volume and assets quality effect banks financial matters. The gearing ratio shows a positive impact on return on assets and negative relationship with profitability measure of return on equity.

Their indicates that the gearing ratio leads to more return on assets and inversely affect the return on equity. The financial risks positive and significant relationship with the return on assets leads the higher profitability of banks and for equity side, financial risk impact negatively. The IBs are assumed to take more risk than of CBs. For achievement of higher profitability, IBs use deposits as leverage type and shared risk with depositors. The real GDP contribute negatively to banks profitability from assets side and impact positively on return on equity. For banks profitably, inflations contribution is not significant. Liquidity, deposits and operating efficiency shows not important or less effect on the profitability of banks.

(Smaoui & Salah 2012) examined how bank-specific characteristics and the overall macroeconomic environment affect the profitability of IBs in the GCC. Utilizing a large panel data of 44 IBs over the period 1995-2009, they found that higher capital, better asset quality, and larger size lead to higher profitability, while higher Cost Income Ratio (CIR) leads to lower profitability. They also reported that good macroeconomic conditions have a positive impact on the profitability of IBs.
(Abusharba et al. 2013) identified the determinants of Capital Adequacy Ratio (CAR) in Indonesian Islamic Commercial Banks during 2009-2011 using multiple linear regression analysis and pair-wise correlation matrix. They found that profitability and liquidity are positively related to the capital adequacy requirements. Meanwhile, uncollectable funds measured by non-performing financing (NPF) is significant but negatively related to the capital adequacy ratio.

On the other hand, depositor's funds and operational efficiency have no significant effect on the capital adequacy of Indonesian IBs. Moreover, this study revealed that all selected Islamic commercial banks in Indonesia are committed over than 8% the minimum of capital requirements during the period of global financial crises. Finally, it was found that Indonesian IBs have an excessive fund to meet their obligations and protect the owners of capital.

(Abusharbeh 2014) analysed the impact of credit risks on the profitability of 11 Indonesian IBs during 2008–2013 using partial least square model. He reported that equity financing has a significant positive relationship with nonperforming financing. Accordingly, this indicates that Indonesian IBs have a conservative policy towards participation in equity financing, to ensure a low degree of risk and make a high level of liquidity. Moreover, debt financing (Murabahah) is found to have a significant positive relationship with future earnings.

This implies that Indonesian IBs are preferred funding their investment projects using debt financing instruments and refused taking risks. Based on his results, he claimed that IBs
could effectively manage their risks in sharing financing to make a positive and profitable implication for the banks and that might improve the efficiency of their assets.

(Ariffin & Tafri 2014) examined the impact of financial risks on 65 worldwide IBs’ profitability during 2004-2011 using Generalized Least Square (GLS) and panel data analysis. He reported that credit risk and interaction between credit risk and rate of interest risk have a significant negative impact on the return on assets (ROA) which is the proxy for IBs’ profitability. However, the other financial risks such as liquidity risk and rate of interest risk found to be insignificant in affecting the profitability of the banks.

(Sufian & Zulkhibri 2015) evaluated the impact of economic freedom on IBs’ profitability in the MENA banking sectors during the period 2000–2010 using dynamic panel model. He reported that greater financial freedom positively influences the profitability of IBs in the MENA banking sectors, implying that lower intervention in the system increases IBs’ profitability. Furthermore, the larger, more diversified and better-capitalized IBs are relatively more profitable, while credit risk and expenses preference behaviour negatively impact on Islamic bank profitability as expected.

(Rahaman & Akhter 2016) explored the bank-Specific Factors Influencing Profitability of IBs in Bangladesh during 2009-2013 using linear multiple regression analysis. He reported that bank-size and deposit have a significant negative impact on the return on assets (ROA) which is the proxy for IBs’ profitability, while equity is found to have a significant positive impact. However, loan and expense management is found to be insignificant in affecting the profitability of the banks.

(Misman et al. 2015) investigated the determinants of credit risk in Malaysian IBs by using
annual level data from 1995 to 2013. The authors utilised the FE model to provide empirical evidence on the effect of credit risk on Malaysian IBs. The empirical findings demonstrate that some bank-specific variables do significantly influence credit risk of Malaysian IBs. The findings also show that financing quality and capital ratio demonstrate steady results regardless of specification and estimation models. Also, their inclusion of ownership status also suggests that there is a significant difference between the local and foreign ownership IBs in this regard. Their findings added important evidence to the existing literature on credit risk specifically IBs credit risk.

(Chowdhury 2015) distinguished between the importance of bank-specific and macroeconomic factors for the profitability of 11 Malaysian IBs using the pooled ordinary least square method for the period 2007 to 2013. He reported that bank-specific factors such as the efficiency ratios (overhead costs) are negatively and statistically significant to the profitability of the Islamic bank’s performance, while equity financing is positive and statistically significant to the profitability of IBs. The Credit risks and Liquidity risks factors are insignificant on the performance of the IBs. On the other hand, macroeconomic factors such as inflation have a positive and statistically significant impact on the return on assets whereas savings on gross national income has a statistically significant and adverse impact on the performance of IBs.

(Ghosh 2016) utilised the natural experiment of the Arab Spring to examine its impact on the risk and returns of MENA banks. Using data for 2000–2012, he found that the Arab Spring lowered bank profitability by roughly 0.2% and raised bank risk by 0.4% points. As well, the evidence appears to suggest that there was no differential effect of the political conflict on the performance and stability of IBs.
(Chowdhury et al. 2016) explored the socioeconomic development and its effect on the performance of 55 IBs in 24 countries using dynamic GMM and QR. They found that Return on Assets (ROA) is significantly positive to bank-specific factors such as credit risk has and statistically negative to CIR. It is also suggested that the relationship between risk and return is heterogeneous or dissimilar across different quantiles. Findings of the study tend to unravel that the socioeconomic factors especially political stability and investment freedom have positive and significant relation to the Islamic bank performance.

4.6. Previous Empirical Literature Comparing both CBs and IBs Profitability

Another strand of literature has emerged with a purpose of comparing the IBs and CBs profitability, despite the theoretical and practical differences between them as discussed in chapter two. Among most notable studies is (Metwally 1997) who was mainly focusing on finding out if the application of the PLS principle results in any structural difference between interest-free banks and CBs in terms of five financial dimensions which are; liquidity, leverage, credit risk, profitability and efficiency. By using the financial ratios technique, he discovered that there is almost no difference between the Islamic and CBs in what concerns efficiency and profitability while there is a remarkable difference in the ability to attract deposits and granting loans in favour of the CBs.

(Metwally 1997) concluded that the two groups of banks might be differentiated in terms of liquidity, leverage and credit risk. He argued that interest-free banks rely more heavily on their equity in loan financing and face more difficulties in attracting deposits than interest-based banks. The interest-free bank holds a higher cash/deposit ratio because they
tend to be relatively more conservative in using their deposits funds and lack lending opportunities.

The PLS principle has made it difficult for IBs to finance personal loans and pushed interest-free banks to channel a greater proportion of their funds to direct investment (using *Musharakah* and *Mudarabah* tools of finance). He added that both banks offer their depositors similar returns and direct the largest proportion of their funds towards the financing of durables. Interest-free banks rely heavily on the *Murabahah* mode of finance, which is same as charging interest and is based on the use of markup.

(Iqbal 2001) evaluated the performance of IBs using both trend and ratio analysis in comparison to a group of CBs of equivalent size during the period from 1990-1998. He studied deployment efficiency in addition to profitability, liquidity, risk and capital adequacy. Based on his empirical data, he concluded several results. First, the trend analysis points to a general and gradual slowdown in the growth of Islamic banking industry as compared to the 1980s. Second, the evaluation of the performance of IBs through a number of the main ratios yields reasonably acceptable results. Generally, IBs are well capitalised, profitable and stable. They also seem to be making efficient use of the resources at their disposal. However, they do not appear to be cost-effective in their operations.

The author also pointed out that while IBs’ profitability ratios compare favourably with international standards, it should be noted that CBs’ depositors are guaranteed their principal amounts, and hence bear less risk than IBs’ depositors. Therefore, the depositors of IBs would genuinely expect a higher rate of return to compensate for the extra risk. The
current rates of profits on assets of the IBs may not be enough to meet that expectation. Finally, the study does not lend any support to the general belief that IBs are suffering from excess liquidity.

(Samad 2004) examined the comparative performance of Bahrain’s interest-free IBs and the interest-based conventional commercial banks during the post-Gulf War period with respect to profitability, liquidity risk, and credit risk. Nine financial ratios are used in measuring these performances. Using Student’s t-test to financial ratios for Islamic and conventional commercial banks in Bahrain for the period 1991-2001, he found that there is no major difference in performance between IBs and CBs with respect to profitability and liquidity. However, the study concludes that there exists a significant difference in credit performance.

The study of (Hassan and Bashir 2003) was among the very few attempts to delve into the factors that determine the profitability of IBs and in turn, comment on the commercial viability of IBs. This study demonstrates a positive relationship between capital and profitability as well as between loan to asset ratio and profitability. Also, their study indicated a positive relationship between overhead and profitability. Notwithstanding these findings, there were no follow-up studies undertaken to further examine the causes for the positive relationship between capital and profitability amongst IBs. Such positive relationship appears to be counter-intuitive to conventional wisdom.

(Alkassim 2005) compared the profitability of IBs and CBs in the GCC countries. His empirical findings show that the included variables reacted differently to profitability indicators for Islamic and conventional banking. For example, First, total assets, which
measures size, indicate a negative relationship with profitability for CBs and a positive relationship for IBs. This means that bigger CBs are less profitable. Second, total equity, which measures capitalisation, has a negative relation with profitability for CBs and a positive relation for IBs. This indicates that higher capital ratios support IBs profitability.

Third, Total Loans for both types of banking have a positive relationship with profitability indicating that lending improves profitability. Fourth, deposits have a positive relationship with profitability for Conventional and a negative relation for Islamic banking. This indicates that deposits affect IBs profitability negatively whereas it contributes to CBs profitability. Fifth, Total Expenses for CBs impact profitability negatively whereas Total Expenses for IBs help profitability. Finally, Non-Interest (overhead) Expense assists both Islamic and conventional banking profitability.

(Kader, Asarpota & Al-Maghaireh 2007) examined the performance of UAE IBs from the period of 2000 to 2004. To test the performance of IBs in comparison with the CBs, 11 financial ratios were used to measure banks’ performance, which concentrated on the profitability, liquidity, risk and solvency, and efficiency of the banks. The study found that IBs in the UAE are different from CBs from the perspective of the financial performance. The UAE IBs are relatively more profitable, less liquid, less risky and more efficient compared to the UAE CBs.

(Ariss 2010) analysed the competitive conditions prevailing in Islamic and conventional global banking markets, and investigated the possible differences in profitability between these markets, using a sample of banks across 13 countries during 2000–2006 and Panzar and Rosse method. The results suggest that IBs allocate a greater share of their assets to
financing activities compared to CBs, and they are also better capitalised. Different computed measures of competition indicate that Islamic banking is less competitive compared to conventional banking. A second-stage analysis shows that profitability significantly increases with market power, but this does not warrant higher profitability levels for IBs.

(Jaffar & Manarvi 2011) examined and compared the performance of 5 Islamic and 5 CBs operating inside Pakistan during 2005 to 2009 by analysing CAMEL test standard factors such as capital adequacy, asset quality, management quality, earning ability and liquidity position. They reported that IBs performed better in possessing adequate capital and better liquidity position while CBs pioneered in management quality and earning ability. Asset quality for both modes of banking was almost the same; CBs recorded slightly smaller loan loss ratio showing improved loan recovery policy whereas, UNCOL ratio analysis showed a nominal better performance for IBs.

(Ansari & Rehman 2011) compared the financial performance of Islamic and CBs in Pakistan during 2006 to 2009. 18 financial ratios were estimated to measure these performances in terms of profitability, liquidity, risk and solvency, capital adequacy, deployment and operational efficiency. Independent sample t-test and Analysis of variance (ANOVA) were used to determine the significance of mean differences of these ratios between and among banks. They found that IBs proved to be more liquid, less risky and operationally efficient than CBs.

(Akhtar, Ali & Sadaqat 2011) compared the effect of liquidity risk management between Conventional and IBs of Pakistan during 2006-2009. They found the positive but
insignificant relationship between the size of the bank and net-working capital to net assets with liquidity risk in two regression models. Also, Capital adequacy ratio in CBs and return on assets in IBs is found to be positive and significant at 10% significance level.

(Olson & Zoubi 2011) analysed the performance of 83 IBs and CBs in the MENA region covering ten countries. The period is from 2000 to 2008 using ROA and ROE as dependent variables. The statistical relationship between the profitability and its determinants has been found after running RE regression. The results of the study show that loan intensity, capital ratio, credit risk and inflation impact the ROA positively and significantly. On the other side, the inefficiency ratio calculated as operating expenses to gross income was found to be affecting the ROA negatively. This study concluded that loan intensity and inflation raise the ROE, whereas inefficiency ratio, capital ratio and credit risk are reducing the ROE during the period in the examined MENA banks. Furthermore, foreign banks were found to be achieving more profits than government banks.

(Zeitun 2012) investigated the determinants of 13 Islamic and 38 CBs performance in GCC countries using panel data analysis during 2002-2009. He found that bank’s equity is important in explaining and increasing CBs profitability only. The cost-to-income had a negative and significant impact on Islamic and CBs performance. Additionally, the estimated effect of size provides evidence of economies of scale in Islamic banking using the ROE, while it is not significant for CBs. Foreign ownership, however, does not improve Islamic and CBs performance. Furthermore, bank’s age and banking development have no effect on bank performance. Finally, GDP is positively correlated to bank’s profitability, while inflation is negatively correlated to bank’s profitability.
(Siraj & Pillai 2012) compared the Performance of 12 IBs and CBs in GCC region during 2005-2010. Different performance indicators were used such as OER, NPR, ROA, ROE, EOA, operating expense, profit, assets, operating income, deposits and total equity. They noted that better performance of Islamic banking during the study period due to the fact that IBs are more equity financed than CBs. Also, the ANOVA analysis techniques showed the presence of significant relationship in the movement of selected financial indicators. CBs registered growth in revenue during the period, but could not achieve improved profitability on account of higher provisions towards credit losses and impairment losses. The performance indicators were affected by financial crises as may be noted from the recessionary trends since 2007.

(Hanif, Tariq & Tahir 2011) analysed and compared the performance of Islamic and conventional banking in Pakistan to find out which of the banking stream is performing better than other. Their study targeted sample of 22 CBs and 5 IBs. For in-depth understanding and sound comparison, the key performance indicators were divided into external and internal bank factors.

The external factor analysis includes studying the customer behaviour and perception about both Islamic and conventional banking. Internal factor analysis includes a measure of differences in performance of Islamic and CBs in terms of profitability, liquidity, credit risk and solvency. Nine financial ratios were used to gauge profitability, liquidity and credit risk; and a model known as “Bank-o-meter” is used to gauge solvency.

Findings suggest in terms of profitability and liquidity conventional banking leads, while in credit risk management and solvency maintenance Islamic banking dominates.
Motivating factors for customers of Islamic banking are the location and Shariah compliance, while in case of conventional banking it is a wide range of products and services.

(Jordan 2013) explored the profitability of Indonesian IBs during 2006-2012 and whether there are any significant differences with commercial banks using the system-GMM estimator to the panel of 54 banks. He reported that the high bank profitability (measured only by ROA) during these years were determined mainly by the size of the banks, the market share as measured by the industry concentration index and the interest rate levels. Also, he found that the financial structure as measured by the customer deposits to the total liabilities ratio and the annual customer deposits growth rate do not affect banks’ profitability.

On the other hand, the macroeconomic determinants such as GDP and inflation, with the exception of interest rate, have no influence on bank profitability. The researcher also did not find any significant differences in the profitability of Islamic and commercial banks.

(Beck, Demirgüç-Kunt & Merrouche 2013) explained how different IBs are from CBs within the context of the recent crisis. By controlling for the time-variant country-fixed effects, they found few significant differences in business orientation. However, there was evidence that IBs are less cost-effective, but have a higher intermediation ratio, higher asset quality and are better capitalized. They also found that large cross-country variation in the differences between conventional and IBs as well as across IBs of different sizes. Furthermore, they found that IBs are better capitalized, have higher asset quality and are less likely to disintermediate during crises. The better stock performance of listed IBs
during the recent crisis is also due to their higher capitalization and better asset quality. (Wasiuzzaman & Nair Gunasegavan 2013) analysed the differences that exist in bank characteristics of Islamic and CBs in Malaysia. The characteristics used to compare the two types of banks are profitability, capital adequacy, liquidity, operational efficiency and asset quality. They also included the corporate governance and economic conditions to test for their effect.

Their sample consisted of a total of nine CBs and five IBs over the period of 2005-2009. Firstly, they conducted descriptive statistics to understand the differences that exist in the characteristics of both types of banks. Afterwards, a t-test was performed to assess the significance of those differences. In the end, they performed a regression analysis to analyse the determinants of profitability of the Islamic and CBs. The results showed the supremacy of CBs in ROA, bank size and board size, while IBs outperformed CBs in operational efficiency, asset quality, liquidity, capital adequacy and board independence. The results were significant for all the variables included in the analysis except for profitability and board independence. The regression analysis results showed that all the variables except for liquidity, board characteristics and type of bank were found to be highly significant in affecting the profitability of both banks.

(Karim et al. 2014) examined the capital adequacy, lending and deposit behaviours of conventional, and IBs in 14 Organization of Islamic Conference (OIC) countries from 1999 to 2009. They reported that capital requirements have a significant impact on the deposit and lending behaviours of the 52 IBs and 186 CBs in the sample. There is a strong positive relationship between capital requirements and deposit and loan growth for both
IBs and CBs.

(Waemustafa & Sukri 2015) analysed the effect of macroeconomic and bank-specific determinants of credit risk in 13 Islamic and 15 CBs using Multivariate Regression analysis. They found that the bank's specific determinants of credit risk are uniquely influenced the credit risk formation of Islamic and CBs. The study found that risky sector financing; regulatory capital and Islamic Contract are significant to the credit risk of IBs. For CBs, loan loss provision, debt-to-total asset ratio, regulatory capital, size, earning management and Liquidity are significant factors influencing credit risk. As for macroeconomic factors only, Inflation and M3 are significant to credit risk for both Islamic and CBs.

(Milhem & Istaiteyeh 2015) compared the performance of 16 IBs and CBs in Jordan during (2009-2013) using 13 financial ratios that measure profitability, liquidity, risk and solvency, and efficiency. They reported that there are differences in performance between Islamic and CBs in Jordan during the study period in terms IBs are less profitable, more liquid, less risky, and less efficient compared to CBs. However, there was no significant difference in profitability ratios, but there was a significant difference in liquidity ratios and risk and solvency ratios between conventional and IBs.

(Alharthi 2016) explored the determinants of efficiency, profitability and stability in 323 Islamic, Conventional and Socially Responsible Banks (SRBs) in 37 countries using different measurements and analysis techniques. Different bank-specific, industry and macroeconomic Determinants was used (e.g. capital ratios, interest expenses, bank’s size, market capitalisation, bank’s ownership and age, GDP, inflation, global financial crisis).
He reported that ROA and ROE were attained by CBs. This is because the main aim for CBs is to achieve returns, and charging interest maximises their earnings. On the other hand, SRBs scored the lowest ROA and ROE as those banks are primarily concerned with providing social and environmental services over profits. According to NIM, IBs do not have interest expenses, which can allow them to score the highest NIM measures in this study; while CBs have the minimum NIM ratios due to higher interest expenses.

Based on the IBs’ results, Islamic banking was affected positively by total assets of banks. Also, the stable IBs achieved higher profits based on the strong associations between z-score and earnings. This contradicts the relationship between profitability ratios and capital ratios, which indicate negative and significant correlations. Depending on country-specific factor, IBs in higher productivity countries could not exploit the growth to gain higher profits. This results in a weakness for IBs in terms of being resistant to higher inflation rates. For the CBs, size of bank and capital are highly important for profits.

The CBs can concentrate on providing more loans to maximise their returns. The stability of CBs also has positive and significant associations with profitability ratios. Concerning the SRBs, profitability ratios are affected significantly and positively by stability (z-score) and market capitalisation growth. On the other hand, foreign, domestic and public ownerships negatively impacted the profits. According to industry-specific variables, GDP growth reduces profits significantly.

4.7. Theoretical Framework and Hypotheses Development of IBs Profitability Determinants and Measurement

After completing the banking performance literature survey and defining the research
problem, a theoretical framework of IBs Profitability determinants is developed to theorise the relationships among the several factors. The theoretical framework is important to identify the interrelationships among the variables that are presumed to be integral to the dynamics of the IBs profitability. The theoretical framework also helps in postulating and test the presumed interrelationships which in turn improve the understanding of the dynamics of IBs profitability (Saunders 2011). The figure (4.1) below exhibits the theoretical framework for this research.

Figure (4.1): Theoretical model of Islamic bank-specific & macroeconomic profitability determinants.

As it can be noted, six independent variables are presumed. The first one is termed as Islamic bank-specific variables which composed of Capital and Size (CZ), Financial Risk
Management (FRM), Expenses Management Efficiency (EME).

The second group is termed as the macroeconomic profitability variables which composed of the Annual Inflation Rate (AIR), Economic Growth (EG), and Country Governance (CG). IBs’ profitability is the dependent variable and is measured by ROAA, ROAE (See the table (A-4.1) in the appendices for a brief description of the variables used in the econometric and estimation methods). According to this theoretical model, the study attempts to test six hypotheses statistically. A hypothesis is an assumption about the value of a population parameter. Therefore, it implies a suggested explanation of a phenomenon or possible correlation between multiple phenomena. According to (Saunders 2011), hypothesis testing is the process of examination to identify if the presumed hypothesis is valid or not.

4.7.1. Islamic Bank’s Profitability Measures - Dependent Variables

As in CBs, IBs’ profitability can be measured by ROA and ROE. Generally, ROA ratio is an indicator of bank’s capacity to generate profits from its assets despite the off-balance sheet activities that may affect neutrality. The ROE ratio reflects the bank’s ability to generate shareholders’ return on equity. ROE equals ROA times the total assets-to-equity ratio. The latter forms as an equity multiplier and measures financial leverage. Therefore, Banks with higher equity (lower leverage) is expected to generate higher ROA, but lower ROE.

Since an analysis of ROE ignores the risks related to the high leverage which is usually defined by regulation, ROA emerges as the optimal ratio for the evaluation of bank profitability. In contrast to the previous studies, this study uses the average value of assets
and equity of two consecutive years (ROAA and ROAE), since profits are a flow variable generated during the year.

4.7.2. Islamic Bank-Specific Profitability Determinants

4.6.2.1. Islamic Bank’ Capital and Size (CZ)

Bank’s capital and size have generally been introduced in the banking profitability literature as independent variables (controlled by bank management) to account for any economic of scale in the market. Pioneering researchers (e.g. Smirlock 1985; Demirgüç-Kunt, Asli & Huizinga 2000; Short 1979; Bikker & Hu 2001; Goddard et al. 2004) examined the size effect on banking profitability and performance. For example, while (Smirlock 1985) found that bank’ size is positively and significantly related to bank profitability, (Demirgüç-Kunt, Asli & Huizinga 2000) found that operating environment (e.g. financial, legal and corruption) is closely linked to bank’ size.

(Short 1979) also argued the relationship between size and capital adequacy of a bank stating that relatively large banks can raise less expensive capital which can lead to more profitability. The study of (Bikker & Hu 2001) and (Goddard et al. 2004) also confirmed the same effect of bank’s size. However, some researchers such as (Berger, Hanweck & Humphrey 1987) argue that cost saving resulting from increasing bank size is expected to be little.

The banks with higher equity to assets ratio (well-capitalised) are expected to increase bank’s profitability according to (Berger 1995) who found that ROE and the capital asset ratio are positively related to a sample of US banks for the 1983–1989 periods.
(Demirgüç-Kunt, Ash & Huizinga 1999) found a positive relationship between capital, net interest income and profitability of banks. The reason for this relationship between size and profitability is because the banks with higher equity to assets ratio will have higher interest margins on assets (Abreu & Mendes 2001). Also, well-capitalised banks can charge more on loans while paying less on deposits to manage the liquidity and credit risk and reduce the need for external funding is lower (Demirgüç-Kunt, Asli, Laeven & Levine 2004).

Accordingly, the first hypothesis is formulated as follows:

**Hypothesis 1: Islamic Bank’ profitability has a positive and significant relationship with Capital and Size (CZ) measured by Equity to Asset (EA) ratio.**

To capture the effect of CZ on IBs’ profitability, the study incorporated the ratio of Equity to Total Assets (ETA) to measures the bank’s capacity to withstand losses. The assumption here is that more risk exposure and capital adequacy²⁶ problem is highly expected when ETA ratio starts falling down. Most of the previous empirical studies (e.g. Berger 1995; Athanasoglou, Brissimis & Delis 2008) incorporated a model that relaxes the assumptions of one-period perfect capital markets with asymmetric information. Such model implies a negative relationship between capital and profitability.

They argue that relaxation of the perfect capital markets assumption permits the capital increase with the expectation of more earnings as the capital refers to a number of funds available to support a bank’s operation and. Accordingly, the bank’ capital acts as a safety

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²⁶ Capital adequacy (Period End) can be also measured by Tier 1 Capital as a percentage of Risk-Weighted Assets (RWA); Total Capital as a percentage of (RWA); Tangible Common Equity as a percentage of (RWA) and Shareholders’ Equity as percentage of Total Assets.
net in the case of the adverse business environment.

The expected positive relationship between capital and earnings could be further supported by more banks mergers and acquisitions and by any significant fund-raising. Also, the relaxation of the one-period assumption may lead to opposite causation, because it allows an increase in earnings to improve the capital ratio. Finally, the relaxation of the symmetric information assumption allows banks expecting higher performance to convey the information through the higher capital credibly. Therefore, capital should be modelled as an endogenous variable (controlled by bank management).

**4.6.2.2. Islamic Banks’ Financial Risk Management (FRM)**

The various risks face the banking business make the risk management critical and inherent for its survival. While both Islamic and conventional banking industry faces common inherent risks, the Islamic banking and finance industry is subject to a unique risk due to the specification of its financing model (see Table A-2.2 in the appendices for more details).

Among the various risks that challenge the banking operation is the financial risks which can be divided into credit and liquidity risk. The overall credit risk in Islamic banking and finance is higher than CBs. For example, *Murabahah* contracts which form a high proportion of IBs’ assets are subject not be sold or repackaged to resell them as securities to take the risk off their balance sheets and accordingly keeping them until maturity.

The liquidity risk is also higher in IBs due to several factors. Among other, IBs rely on short-term retail funding while operating environments with underdeveloped *Shariah*-compliant interbank, money markets and government securities. Also, IBs have limited
capacity to hedge some risks due to prohibitions use of conventional derivatives. Finally, IBs have limited access to a lender of last resort facilities.

The findings of previous literature have demonstrated that poor asset quality (credit risk) and low levels of liquidity (liquidity risk) has been the two major causes of bank low profitability and failures. Therefore, bank’s management uses a portfolios diversification strategy and/or raise their liquid holdings to reduce such risk especially during periods of increased uncertainty.

The credit risk arising from the relaxation of credit standards, low-quality portfolio, or from the nonperforming loans. It can be defined as the potential failure of the borrower in meeting the obligations in accordance with agreed terms. The liquidity risk is defined as the bank capacity to fund any increases in the assets while meeting the due obligations without incurring unacceptable losses.

The close link between credit and liquidity risk and their trigger relationship has been noted in the literature (Matz & Neu 2006). Liquidity risk is usually a “consequential risk” or second-order risk as it comes after a sharp rise in other financial risks. Unlike the other major financial risks, liquidity risk can exist on both sides of the balance sheet with different exogenous or endogenous events can trigger it (e.g. bank-specific operational-risk issue, damage to the bank’s reputation, or a market-wide liquidity problem. Such trigger events can lead to low confidence for the bank. This, in turn, contributes to the quick erosion of its liquidity position. Liquidity risk can, in turn, interact with market risk and credit risk in complex and unanticipated ways.

A mix results of the relationship between the level of liquidity and credit with profitability
were noted in the literature. Among pioneering studies that find a negative and significant relationship between the level of liquidity and profitability is (Molyneux, Philip & Thornton 1992). In contrast, (Bourke, 1989) reports an opposite result. However, while the effect of credit risk on profitability appears negative (Miller & Noulas 1997), inconclusive findings is the theme regarding liquidity and profitability relationship.

Accordingly, the second hypothesis is formulated as follows:

Hypothesis 2: Islamic Bank’ profitability has a positive and significant relationship with Financial Risk Management (FRM).

To capture the effect of FRM on IBs’ profitability, the study incorporated two ratios; the Loan Loss Reserve to Gross Loans ratio (LLRGL) and the Liquid Assets to Deposits & Short-term Funding ratio (LADSF). The two ratios have been used extensively in the literature to the capture the credit\textsuperscript{27} and liquidity risk management.

The ratio of LLRGL is the most used measurement of credit risk. Theory suggests that increased exposure to credit risk is typically associated with decreased firm profitability. Hence, most previous empirical findings assumed a negative relationship between ROA and/or ROE and loan-loss provisions to loans ratio claiming that banks can improve profitability by improving screening and monitoring of credit risk policies and measurements, so that bank’’s management is able to adjust provisions held for loan losses in advance.

On the other hand, the LADSF variable is included in the regression as a proxy of liquidity.

\textsuperscript{27} Credit risk can be also measured by: loan loss provisions / gross loans; loan loss provisions / pre-provision income; allowance for loan losses / gross loans; problem loans & leases / gross loans; problem loans & leases / (shareholders’ equity + loan loss reserves).
It measures the relationship between liquidity management and performance. As mentioned before, low level of liquidity and funding to meet short-term obligations, the bank is highly subject to failure and insolvency.

Therefore, all banks usually hold easily converted to cash liquid assets. The LADSF ratio shows the relationship between comparatively illiquid assets (e.g. loans) and comparatively stable funding sources (e.g. deposits and other short-term funding). The higher ratio means more liquid the bank is and therefore less exposure to insolvency risk. As liquid assets are associated with lower rates of return, higher liquidity would be associated with lower profitability. Accordingly, a positive relationship is expected between this ratio and bank’s profitability (Kosmidou & Zopounidis 2008).

4.6.2.3. Islamic Banks’ Expenses Management Efficiency (EME)

Bank’s expense has been reported extensively in the banking profitability literature as a crucial determinant of profitability as an indicator of efficient bank’s management. A positive relationship between banks’ expenses management and profitability is reported in most of the banking performance literature (e.g. Bourke 1989; (Molyneux, Philip & Thornton 1992). Logically, mismanagement of the bank’s expense can reduce the profitability. However, some operating expenses (e.g. salary and administration expenses) could be positively associated with profitability which is in line with the efficiency wage theory (Gibson 2005).

In the IBFI context, most IBs have not been consistently profitable though growing constantly. While most of the Islamic banking literature blame the specification of Islamic financial instruments which are typically more complicated and less known than
conventional ones, the mismanagement of the operational expense which falls under Islamic bank management also reported in the literature to be a profitability determinant.

The financial technology revolution since the early 1990s has been highly utilised by the international banking industry to perform more efficiently than before. As a result, the CIR (a proxy for operational efficiency) has been declining in most of the countries (Albertazzi & Gambacorta 2009). This means that banks start to operate at lower expenses for a given level of output. Previous studies suggest a positive and highly significant effect of expense management on profitability (e.g. Pasiouras & Kosmidou 2007; Athanasoglou, Brissimis & Delis 2008; Alexiou & Sofoklis 2009; García-Herrero, Gavilá & Santabárbara 2009; Dietrich & Wanzenried 2011). This relation would imply that operational efficiency is a prerequisite for improving the profitability of the banking system, with the most profitable banks having the lowest efficiency ratios.

**Accordingly, the third hypothesis is formulated as follows:**

**Hypothesis 3: Islamic Bank profitability has a positive and significant relationship with Expenses Management Efficiency (EME).**

To capture the effect of EME on IBs’ profitability, the study incorporated CIR and the NIM. The cost to income ratio (also known as efficiency ratio) is defined by operating expenses divided by operating income. It can be used for benchmarking by the bank when reviewing its operational efficiency and productivity.

Lower ratios generally indicate higher efficiency and in turn higher profitability, but a number of factors can affect the ratio, including a bank's business model and size. On the
other hand, the NIM\(^{28}\) can be used to gauge the cost of financial intermediation which accounts for major part of bank’s revenue and therefore can reflect the pure expense operational efficiencies profit and the competitive nature of the banking market (Demirgüç-Kunt, Asli, Laeven & Levine 2004; Brock & Suarez 2000).

The NIM variable is defined and expressed as interest income minus interest expenses over total assets. It is included in the regression as a proxy for operating efficiency. The higher this ratio, the cheaper the funding or, the higher the margin the bank is commanding. Higher margins and profitability are desirable as long as the asset quality is being maintained (Angbazo 1997).

### 4.7.3. Islamic Bank’s Macroeconomic Profitability Determinants

#### 4.7.3.1. Economic Growth and Inflation Rate

Along with bank-specific profitability determinant discussed in the previous sections, another strand of banking literature starts to emerge assuming a significant relationship between the macroeconomic condition of the country and its banking system performance. To avoid and reduce the risk associated with the macroeconomic condition, the banks usually adopt geographic diversification strategy and use more extensive financial engineering techniques.

Among notable pioneering researchers examined the effect of the macroeconomic condition is (Revell 1979) who reported a significant relationship between bank’s profitability and inflation rate. He argued that profitability can affect the operating costs

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\(^{28}\) A distinction must be made between NIM and the average banking spread—the difference between ex-ante contracted lending and deposit interest rates. It is possible for NIM to be low and ex ante spreads to be high, for instance if there is widespread default among borrowers
of the bank (e.g. salaries). Also, (Perry 1992) claimed that the ability of the bank to generate more profit depends on how effective the bank can expect the inflation rate and accordingly adjust its operational strategies (e.g. interest rate) to increase revenues faster than costs. Recent studies such as (Pasiouras & Kosmidou 2007; Athanasoglou, Brissimis & Delis 2008; Claeys & Vander Vennet 2008; Alexiou & Sofoklis 2009; García-Herrero, Gavilá & Santabárbara 2009; Kasman et al. 2010) confirm the significant relationship between inflation and profitability.

The significant relationship between economic growth also reported in most of the Islamic and banking literature. Declining trends the economic growth of any country can negatively impact the quality of the loan portfolio and expose the bank to more financial risks which in turn reduce the capacity of the bank to generate more profits. (Kosmidou & Zopounidis 2008) reported that macroeconomics and financial structure, the growth of gross domestic product GDP has a significant and positive impact on ROAA, while inflation has a significant negative impact.

They also reported that the ratios of banks’ assets to GDP, stock market capitalisation to banks assets and concentration are all statistically significant and negatively related to ROAA. (Kanwal & Nadeem 2013) examined the impact of macroeconomic variables on the profitability of listed commercial banks in Pakistan during 2001-2011. They reported a strong positive relationship between real interest rate with ROA, ROE and equity multiplier as the measure of profitability. Also, real GDP is found to have an insignificant positive effect on ROA, but an insignificant negative impact on ROE and EM. The inflation rate, on the other hand, has a negative link with all three profitability measures. Overall, their selected macroeconomic factors are found to have a negligible impact on
earnings of commercial banks.

(Ghazali, 2008) provided international evidence about the bank-specific and macroeconomic determinants of IBs’ profitability. The author found a significant positive relationship between profitability measures of IBs and macroeconomic variables such as GDP growth and inflation. The findings revealed that the determinants of IBs’ profitability are similar to those of the CBs. The similarity of determinants is a strong indicator that many of the tools and techniques used in conventional banking are potentially suitable for an Islamic banking environment. Same findings were reported by (Wasiuzzaman & Tarmizi 2010; Zeitun 2012; Jordan 2013; Francis 2013; Alharthi 2016).

Accordingly, the fourth and fifth hypothesis is formulated as follows:

**Hypothesis 4:** Islamic Bank Profitability has a significant relationship with economic growth.

**Hypothesis 5:** Islamic Bank Profitability has a significant relationship with inflation.

To capture the effect of macroeconomic conditions on IBs profitability, the EGR and AIR have been incorporated in this study. These two variables are the most notable explanatory variables that have been proposed and tested in the banking profitability literature.

GDP growth is defined as an increase in the production levels of goods and services and is used as a measure of total economic activity within an economy. This variable reflects the state of the economic cycle of a country, and it affects the demand for bank loans as well. Hence, an increase in GDP growth would improve bank profitability. Inflation is the rate at which the general level of prices for goods and services is rising.
The bank that can anticipate the inflation rate usually adjust their interest rates to improve its profitability and performance capacity. Inflation, as measured by the consumer price index, reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.

**4.7.3.2. Country Governance (CG)**

The international banking industry is highly regulated due to its critical role in establishing a healthy and robust financial system that improve the economic condition of the countries. According to (Mishkin 2001), the banking regulations is critical to cover many aspects of banking operation (e.g. disclosure requirements, supervision, competition, financial risks exposures). The positive effect of high-quality banking regulations was reported in most of the conventional and Islamic banking literature. For example, (Beltratti & Stulz 2009) reported that the lax of regulation might lead to excessive risk-taking by banks. (Giannone, Lenza & Reichlin 2011) argue that competition regulation is essential to improve banking performance especially in developing countries where the openness of financial markets can impose more costs on the banks.

However, low quality of extensive banking regulations may limit the banks’ ability to perform efficiently (Barth, Brumbaugh & Wilcox 2000; Claessens, Demirgüç-Kunt & Huizinga 2001; Barth et al. 2013). Also, due to the interrelation between banking regulations and the other regulations of the country (e.g. legal framework, institutional environment), the corporate governance of the country can be assumed as another expletory indicator of banking profitability and performance behaviour.
Accordingly, the sixth hypothesis is formulated as follows:

**Hypothesis 6: Islamic Bank Profitability has a positive and significant relationship with a country’s corporate governance.**

To capture the effect of the legal framework and institutional environment of the country on IBs’ profitability, the study incorporated the CG variable. It is measured by WGI based on the average of six indicators (Namely; the rule of law, government effectiveness, control of corruption, regulatory quality, voice and accountability, and political stability). The WGI is a long-standing research project initiated by WB to develop cross-country indicators of governance. The indicators are based on several hundred variables obtained from 31 different data sources, capturing governance perceptions as reported by survey respondents, nongovernmental organisations, commercial business information providers, and public-sector organisations worldwide (WGI, 2017).

According to WB, governance is the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are elected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies, and the respect of citizens and the state for the institutions that govern economic and social interactions among them.

The index for the rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society (e.g. the quality of contract enforcement, property rights). Therefore, A high index indicates higher confidence in the business environment and accordingly higher banking performance.

The political stability index measures the perceptions of the likelihood of political
instability and politically motivated violence in the country. As the political instability promotes for efficient resource allocation, the higher the index is expected to lead to more bank efficiency and profitability level.

The government effectiveness reflects the quality of policy formulation and enactment. Therefore, a high index indicates that the government is effective and committed in its implementation of public policy. Accordingly, it is expected to improve the economic condition of the country and in turn the banking performance (Demirgüç-Kunt, Asli, Laeven & Levine 2004). Moreover, (Lensink, Meesters & Naaborg 2008) noted that higher government effectiveness lowers the cost of banking operations.

Similarly, a high index of regulatory quality means an effective formulation of high-quality policies that enable the country to sustain growth in case of adverse economic conditions. Hence, the positive effect of high index of regulatory quality is expected to improve the banking performance. (Lensink, Meesters & Naaborg 2008) argue that regulatory quality also reduces the cost of banking operations by increasing predictability of the judiciary system.

Control of corruption index measures the ability of the government and public officials to control corruption in public services. (Miller, T, Kim & Holmes 2015) argued that a high index indicate low corruption in public services and hence high bank efficiency. He argued that the corruption can increase the cost of banking operations. Also, greater freedom from corruption contributes to more equitable treatment and improves regulatory efficiency and consequently promotes better allocation of resources in the economy (Miller, T, Kim & Holmes 2015).
The index for voice and accountability captures perceptions of the extent to which the citizens are able to choose their government and express their opinions in a free environment. Therefore, a high index indicates higher confidence in the business environment and accordingly higher banking performance. Finally, to control for religion and MP effects, the percentage of Muslims within a region is included in the regression in the models. Also, World Region Group (WRG) will control for each impact a region has on performance and profitability of the IBs.
CHAPTER 5: RESEARCH METHODOLOGY

5.1. Introduction

Chapter five aims at clarifying the theoretical methodology framework of the study including the methods used to answer the research questions. After identifying the research philosophy and approach, it then explains the research design including research purpose, strategy and methods, a period of the study, population and sampling as well data collection and sources. The last part of this chapter explains and justifies the methods of data analysis.

5.2. Research Methodology

Preparing a rigorous research methodology involves systematic and theoretical analysis of the methods applied to a field of study. It includes concepts such as paradigm, theoretical model, phases and quantitative or qualitative techniques. The philosophical assumptions underlying the nature of the research is also an important aspect of research methodology which could have many implications on research methods used. (Saunders 2011) state that within the scope of social science including business research, there are four main research philosophies (Pragmatism, Positivism, Realism, Interpretivism).

However, the latest developments in the practice of social science research showed increasing popularity of pragmatism and realism philosophies (Saunders 2011). The table below shows a brief comparison of four research philosophies in business and management research. The existing of theory at the beginning of the research raises a critical question concerning the design of the research project (Saunders 2011). For example, in deductive approach, the researcher aims at developing a theory and hypothesis
(or hypotheses), and then design a research strategy to test the hypothesis. Whereas in the inductive approach, the researcher collects data and develop a theory as a result of data analysis (Saunders 2011).

<table>
<thead>
<tr>
<th>Popular data collection method(s)</th>
<th>Pragmatism</th>
<th>Positivism</th>
<th>Realism</th>
<th>Interpretivism</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Mixed or multiple method designs, quantitative and qualitative</td>
<td>Highly structured, large samples, measurement, quantitative, but can use qualitative</td>
<td>Methods chosen must fit the subject matter, quantitative or qualitative</td>
<td>Small samples, in-depth investigations, qualitative</td>
</tr>
</tbody>
</table>

Source: Developed from (Saunders, 2011), pp 119.

The sequence of deductive and inductive can be depicted in the outlined figures below.

Figure (5.1): The steps of deductive research.

Source: Developed from (Saunders 2011), pp. 124.
In the inductive approach, a small sample of subjects can be enough to explain how events are taking place, which is in contrast to the deductive approach where a large sample is needed. Therefore, choosing the right approach can have implications on nature of the needed data as well as its collection methods in order to establish different views of phenomena (Easterby-Smith et al. 2008). The table below shows the major differences between deductive and inductive approaches to research.

<table>
<thead>
<tr>
<th></th>
<th>Deductive approach preferred</th>
<th>Inductive approach preferred</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wealth of literature</strong></td>
<td>Abundance of sources</td>
<td>Scarcity of sources</td>
</tr>
<tr>
<td><strong>Time availability</strong></td>
<td>Short time available to complete the study</td>
<td>There is no shortage of time to complete the study</td>
</tr>
<tr>
<td><strong>Risk</strong></td>
<td>To avoid risk</td>
<td>Risk is accepted, no theory may emerge at all</td>
</tr>
</tbody>
</table>

According to (Easterby-Smith et al. 2008), there are three reasons behind deciding research strategy approach. First, it helps the researcher to be more informed about research design, which is an overall strategy to integrate a different aspect of the research (data collection technique, data analysis and interpretation) a coherent and logical way,
thereby, ensuring the research problem will be addressed efficiently. Second, it helps the researcher to be more informed about the applicability of the research strategies. Finally, (Easterby-Smith et al. 2008) argue that researcher’s knowledge of the different research practices can help in avoiding the limitations of the research design.

Due to the nature and type of this research study, the deduction approach is employed for some reasons. First, there is a wealth of literature from which the researcher can define a theoretical framework, and a hypothesis lends itself more readily to deduction; Secondly, deductive research can be quicker to complete, albeit that time must be devoted to setting up the study prior to data collection and analysis. Data collection is often based on ‘one take’. It is usually possible to predict the time schedules accurately. Finally, the deduction can be a lower-risk strategy, albeit that there are risks, such as the non-return of questionnaires.

5.3. Research Design

As mentioned before, the research design constitutes a blueprint for the data collection, measurement, and analysis including any limitations (Saunders 2011). The function of a research design is to ensure that the collected evidence can address the research problem logically and explicitly.

In social sciences research, obtaining information relevant to the research problem entails specifying the type of evidence needed to test a theory, to evaluate a program, or to accurately describe and assess meaning related to an observable phenomenon (Saunders 2011). The following sections devoted to uncovering six important aspects of the study research design as well as their implications.
5.3.1. Research Purpose

The classification of the research purpose that often used in the literature of business research methods can be referred to three types of investigations; exploratory, descriptive and explanatory (Robson 2002). As the research purpose of this study is to explore the determinants of IBs’ performance, and then to examine and explain their precise effects on the IBs’ performance, the research purpose of this study can, therefore, be classified as explanatory and explanatory (Robson 2002). Different research techniques are adopted in this study to stay within the framework of research purpose. For example, the study used a comprehensive literature review survey to identify the determinants of IBs’ profitability and performance including the most accepted financial performance theories. The study also used various econometric models to establishes possible causal relationships between the presumed variables.

5.3.2. Research Strategy

Choosing the right research strategy depends on the nature research question(s) and objectives, the extent of existing knowledge, the availability of time and resources, as well as the research philosophical underpinnings. According to (Saunders 2011), different research strategies (e.g. experiment; survey; case study; action research; grounded theory; ethnography; archival research) can be used for different research purposes (e.g. exploratory, descriptive and explanatory).

As the primary aim of this study is to identify and explore the profitability determinants and explain their effect on the performance of IBs during the time, the study is, therefore, the study adopted archival data strategy.
The archival research makes use of administrative records and documents as the principal source of data. Although the term archival has historical connotations, it can refer to recent as well as historical records (Saunders 2011). The adopted archival data strategy in this study required the needed data to be collected from different primary and secondary sources.

The benefit of choosing the archival research strategy in this study is because of the study aims to explain the behaviour of Islamic banking profitability over the time so that the effect of the profitability determinants can be identified (Saunders 2011).

5.3.3. Research Methods

Research methods are categorised into two distinct types: quantitative and qualitative. Some authors referred to a third approach, the mixed methods, which is a combination of the quantitative and qualitative approaches. All these approaches refer to the method of data collection and analysis adopted in the study. The former approach grows out of a strong academic tradition that places considerable trust in numbers that represent facts, opinions and concepts, while the latter concentrates on words and observations to express reality and attempts to describe people in natural situations.

According to (Saunders 2011), the researcher using quantitative methods is looking for assertion, prediction and generalisation of findings. He stated that quantitative methods cover the unbiased and random choice of participants from among the population under study. He argued that in the quantitative research, the researcher is considered external to the actual research and the results are believed to be replicable no matter who conducts the investigator. One more strength of quantitative concepts is apparent as its methods
yield quantifiable and reliable data that is usually generalised to larger populations.

He also stated that the quantitative research strategy uses scientific methods of identifying the research questions and sampling techniques with a robust theoretical framework. Questions of the research are expressed in terms of hypotheses that are tested through estimation models. The estimation models are analysed using mathematical equations, statistical analysis and econometric measurements, with which the researcher will be able to answer the research questions.

Considering the primary aim of this study is to identify and explore the profitability determinants and explain their effect on the performance of IBs. The study is therefore framed with a quantitative research method to permits the establishment of causal relationships between variables of the study, it enhances the ability to make inferences and forecasts, it affords generalisation and replication of results, and it leads to improvement of research validity and originality. Also, the data are collected using primary and secondary sources that are publicly available which in turn reduce the time and finance resources. Moreover, limitation of gathering appropriate qualitative from banking industry practitioners and financial policy maker since they are involved in strategic decision-making and the information they have is considered to a large extent sensitive and classified.

5.3.4. Period of the Study

An essential aspect of research design is the identification of the research period which is usually either a “snapshot” taken at a particular time (e.g. cross-sectional research), or a diary or a series of snapshots and be a representation of events over a given period (e.g.
Longitudinal research). Choosing between these two types of time horizon is again depends on the research questions. It is worth mention that choosing any of these two-time horizons to research design are independent of research strategy or choice of method (Saunders 2011).

Cross-sectional research often employs the survey strategy (Saunders 2011). They may be seeking to describe the incidence of a phenomenon. Qualitative methods can be employed such as case studies that based on interviews conducted over a short period of time. Cross-sectional data differs from time series data, in which the same small-scale or aggregate entity is observed at various points in time. Another type of data, panel data (or longitudinal data), combines both cross-sectional and time series data ideas and looks at how the subjects (firms, individuals) change over time.

Panel data differs from pooled cross-section data across time because it deals with the observations on the same subjects at different times whereas the latter observes different subjects in different time periods. Panel analysis uses panel data to examine changes in variables over time and differences in variables between the subjects (Saunders 2011).

To capture the effects of IBs’ profitability determinants over the time, a large panel dataset is built and processed. The final panel dataset covers 25 years of IBs’ operation in 23 operating countries that spanning over six regional political groups with different Shariah jurisdiction. An advantage of using panel data is that more observations on the explanatory variables are available which in turn can reduce the inherent multicollinearity that probably exists between the independent variables.
(Saunders 2011) point out that in observing people or events over time, the researcher can exercise a measure of control over variables, provided that they not be affected by the research process itself. Also, even with time constraints, it is possible to introduce a longitudinal element to the research.

There is a massive amount of published data collected over time just waiting to be re-analysed. Also, during this period, the Islamic banking sector has experienced major worldwide transformations in its operating environment. Both external and domestic factors have affected its structure and performance. Most of the countries have substantially metamorphosed under the comprehensive financial reform programme agreed upon by the countries government and the International Monetary Fund (IMF). This period has also witnessed the different level of IBs development and sophistication, in terms of product development, competition, and regulation.

5.3.5. Population and Sampling

The type of research question(s) and objectives can specify the need for sampling. Occasionally, it may be possible to collect and analyse data from every possible case or group member; this is termed a census (Saunders 2011). However, for many research questions and objectives, it will be impossible for a researcher either to collect or to analyse all the data available owing to restrictions on time, money and often access. Sampling techniques provide a range of methods that enable the researcher to reduce the amount of data needed to collect by considering only data from a sub-group rather than all possible cases or elements.

Some research questions will require sample data to generalise about all the cases from
which a sample has been selected. The full set of cases from which a sample is taken is called the population. In sampling, the term ‘population’ is not used in its normal sense, as the full set of cases need not necessarily be people (Saunders 2011). The figure below exhibit the process of choosing the right sample technique and size.

**Figure (5.3): The process of choosing the right sample technique and size.**

Due to the nature of the study and research questions, the self-selection sampling technique is used to generate the sample of the study. Self-selection sampling is a type of non-probability sampling technique. Non-probability sampling focuses on sampling techniques that are based on the judgement of the researcher. Therefore, for the non-probability samples, the probability of each case is selected from the total population is
not known, and it is impossible to answer research questions or to address objectives that require a researcher to make statistical inferences about the characteristics of the population (Saunders 2011).

The researcher may still be able to generalise from non-probability samples about the population, but not on statistical grounds. However, with both types of the sample, the researcher can answer other forms of research questions (Saunders 2011).

Among all IBs operating globally, it is necessary to restrict the analysis to a sample of IBs. By using non-probability sampling techniques and self-selection sample type, the study targeted the full-flagged IBs, which are considered most important and have long-running operation according to Bankscope database. Also, the sampled IBs are also considered among the top Islamic Financial Institutions by a country that appeared in the November 2015 issue of The Banker.

Also, the study aimed at choosing IBs that operating in countries with different economic and legal environment that affects the operation and performance of financial institutions²⁹.

The initial sample consists of 186 banks of the 31 countries with information on standard ratios calculated based on global summary format. The banks are inspected for missing values and outliers. After deleting missing data and outliers, the final balanced panel was 162 banks from 23 countries in six regions over a period of 19 years between 1996 and 2015. The analysis of data yielded 3240 bank-year observations. See the table (A-5.1) in

²⁹ contrary to the study original intentions to include all countries where IBs operates, some countries such as Afghanistan, Iraq, Kenya, Kyrgyzstan, Palestine, Senegal, Syria, Tanzania, Tunisia and US, are excluded from this study due to missing data, unavailability of annual report in English or Arabic language.
the appendices for a description of the selected countries and IBs sample.

### 5.3.6. Data Collection and Sources

Data collection can be divided into two main categories – secondary and primary and comes after this study has defined its research problem and design as discussed throughout the previous sections. The primary data are original as they collected afresh and for the first time. The secondary data, on the other hand, are those already been collected by other else and which have already been passed through the statistical process (Saunders 2011).

It is very important to identify which data are needed to answer the research question of this study and (thus collecting). The methods of collecting primary and secondary data differ since primary data are to be collected initially, while in case of secondary data, the nature of data collection work is simply that of compilation (Saunders 2011).

Primary data collection methods can be divided into two groups: quantitative and qualitative. Quantitative data collection methods are based on mathematical calculations in various formats (Saunders 2011). Methods of quantitative data collection and analysis include questionnaires with closed-ended questions, methods of correlation and regression, mean, mode and median and others. Qualitative research methods, on the contrary, do not involve numbers or mathematical calculations. Qualitative research is closely associated with words, sounds, feeling, emotions, colours and other elements that are non-quantifiable (Saunders 2011).

Due to the nature of this research and the nature of research aims and objectives, this study incorporated both primary and secondary methods of data collection. Bank specific data are obtained from the Bankscope Database of Bureau van Dijk’s company. Bankscope is
the most comprehensive, global database of banks’ financial statements, ratings and intelligence. It combines comprehensive financial statements with a wide range of other banking intelligence including ratings, an analysis model, bank structures, news, and other bank’s documentation and banking research. Its coverage of banks is unique. Bankscope has information on 32,000 banks and is the definitive tool for bank research and analysis. It is used by over 90% of the world’s top 1,000 banks is compiled by International Bank Credit Analysis Limited (IBCA).

Using BankScope has two advantages. Firstly, it has information for 11,000 banks, accounting for about 90% of total assets in each country. Secondly, the accounting information at the bank level is presented in standardised formats, after adjustments for differences in accounting and reporting standards. The data from Bankscope Database have been matched with the annual report of the sampled IBs. The annual reports provide a considerable amount of information on which the researcher can project the activities of the organisations included in the study. Statutory requirements for organisations to provide certain information make it easier for researchers to access reliable data to use in research. Secondary data, especially those that are legally required such as the annual reports, have societal and statutory legitimacy and enjoy very high neutrality. These features make them less error-prone and more reliable (Saunders 2011).

The external explanatory variables are obtained from different resources. The macroeconomic data such as EG and AIR are obtained from the WB open data. Other external explanatory variables such as CG indicators are obtained from WGI by WB database. The database of WGI reports aggregate and individual governance indicators for over 200 countries and territories. For six dimensions of governance are selected to
measure the CG. They are voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, the rule of law, control of corruption. These aggregate indicators combine the views of a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. They have based on over 30 individual data sources produced by a variety of survey institutes, think tanks, non-governmental organisations, international organisations, and private sector firms.

The data of size and distribution of the world's MP extracted from a report published by Pew Research Centre. The report offers the most up-to-date and fully sourced estimates of the size and distribution of the worldwide MP, including sectarian identity. Previously published estimates of the size of the global MP have ranged widely, from 1 billion to 1.8 billion. However, these commonly quoted estimates often have appeared without citations to specific sources or explanations of how the figures were generated. The Pew Forum report is based on the best available data for 232 countries and territories. Pew Forum researchers, in consultation with nearly 50 demographers and social scientists at universities and research centres around the world, acquired and analysed about 1,500 sources, including census reports, demographic studies and general population surveys, to arrive at these figures – the largest project of its kind to date.

5.4. Methods of Data Analysis

The method of data analysis adopted in this study is quantitative. The quantitative analysis can be referred to any economic, business or financial analysis that aims to explain or predict behaviour or events through the use of mathematical measurements and
calculations, statistical modelling and research. Quantitative analysis can be employed for a number of reasons, including measurement, performance evaluation or valuation of a financial instrument (Saunders 2011).

To examine the effects of IBs’ profitability determinants, four econometric models are used (Namely; fixed effects, random effects, ordinary least squares, and quantile regression). The analysis of data is conducted by data analysis and statistical software (STATA). It is a general-purpose statistical software package widely by the researchers, especially in the fields of economics, sociology, political science. Stata's capabilities include data management, statistical analysis, graphics, simulations, regression, and custom programming.
CHAPTER 6: DATA ANALYSIS

6.1. Introduction

The present study aims to identify the determinants of IBs’ profitability and their precise effect on IBs’ overall performance. Various bank-specific and macroeconomic determinants were identified and presumed based on a thorough revision of existing conventional and Islamic financial literature (Chapter 4).

To test the relationships between IBs’ profitability as proxied by ROAA and ROAE with the presumed internal and external explanatory variables, four econometric models are used based on panel dataset that covers 23 IB’s operating countries spanning over six regional political groups with different Shariah jurisdiction covering the period from 1996 to 2015. The panel dataset was constructed and analysed by STATA Statistical Software. The analysis of data yielded 3240 bank-year observations. The following chapter is dedicated to the descriptive and empirical data analysis.

6.2. Descriptive and Empirical

6.2.1. Descriptive Findings

Before moving forward, it is important to define the main descriptive indicators that are used in this study. A mean is the sum of the observations divided by the number of observations. It is often quoted along with the standard deviation, where mean describes the central location of the data, and the standard deviation describes the spread. Mean is also described as a measure of the central location defined by the arithmetic average, which is the sum of the values in a data set divided by the number of values (Becker 1996).
The standard deviation, on the other hand, is a measure of the dispersion or variability of the data. This is the average distance of any data point in the distribution from the arithmetic average. In other words, the standard deviation is the amount of variation from the mean (average) within a single data set. The greater the standard deviation, the greater is the range (the difference between the highest and lowest values) of values within the sample.

The preliminary descriptive analysis is figured out table (A-6.1) in the appendices. It presents summary statistics for IBs’ profitability as measured by the dependent variables (ROAA and ROAE) as well as all other independent explanatory variables (Bank-Specific and Macroeconomic).

The descriptive analysis shows that the overall mean ROAA across all banks is 1.33% ± 7.83%, whereas the overall mean of ROAE is 9.25% ± 21.69%. Between banks, the ROAA deviates around 4.92% and the ROAE 17.27%; for within, the ROAA has a standard deviation of 6.44% and ROAE has 17.22%.

With respect to the bank-specific variables, the mean of ETA is 22.86%, deviating 34.75% overall, 26.68% between units, and 23.88% within units. The mean ratio of LLRGL is 6.99%, which deviates 13.01% overall, 8.76% between banks, and 9.90% within them.

The mean of NIM is 5.49%, deviating 20.83% overall while deviating 13.13% between and 13.83% within bank groups. In contrast to the other variables, the CIR and LADSF have higher means: 73.81% and 53.95% respectively. The former factor deviates 80.54% overall, 59.04% between units, and 62.99% within units. The latter factor deviates 93.57% overall, 83.87% between countries, and 64.29% within countries.
For macroeconomic variables, the mean of EGR across all regions is 4.57% ± 3.84% overall, and between IBs, the standard deviation is 1.57%; within groups with 3.57% standard deviation. The AIR exceeds the rate of economic growth at a mean of 9.05% ± 14.81% overall, deviating 8.47% between and 12.08% within units. The CG measured by governance and political system index of all units has a small negative mean of -0.30. The overall standard deviation is 0.75, while the standard deviation between banks is 0.74 and the standard deviation within the groups is 0.14. There is a high percentage MP in each of the regions in the data. The mean percentage is 80.94%, deviating 24.28% overall, 24.34% between, and 1.41% within units.

6.2.1.1. Pearson Correlations of Returns and Bank-Specific Variables

The table (6.1) below shows the Pearson correlation coefficients between the dependent variables, ROAA and ROAE and bank-specific variables.

Table (6.1): Pearson Correlations of Returns and Bank-Specific Variables.

<table>
<thead>
<tr>
<th></th>
<th>ROAA</th>
<th>ROAE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity / Total Assets ratio (ETA)</td>
<td>0.42***</td>
<td>-0.10***</td>
</tr>
<tr>
<td>Loan Loss Reserve / Gross Loans ratio (LLRGL)</td>
<td>-0.38***</td>
<td>-0.25***</td>
</tr>
<tr>
<td>Net Interest Margin ratio (NIM)</td>
<td>0.25***</td>
<td>0.06*</td>
</tr>
<tr>
<td>Cost Income Ratio (CIR)</td>
<td>-0.43***</td>
<td>-0.41***</td>
</tr>
<tr>
<td>Liquid Assets / Deposits &amp; Short-term Funding ratio (LADSF)</td>
<td>-0.07**</td>
<td>-0.10***</td>
</tr>
</tbody>
</table>

* p<0.05, ** p<0.01, *** p<0.001

For associations with the former, ETA is positively correlated with a coefficient of 0.42 (p < 0.001), while LLRGL is negatively correlated with a -0.38 coefficient (p < 0.001).
The NIM variable possesses a positive association with ROAA at 0.25 (p < 0.001) and CIR is negatively associated with ROAA with a coefficient of -0.43 (p < 0.001). The LADSF variable is inversely related to ROAA (-0.07) at a weaker statistical significance level (p < 0.01).

With respect to correlations with ROAE, ETA is negatively correlated at -0.10 - in contrast to the positive correlation with ROAA - and strongly significant (p < 0.001), while LLRGL possesses a negative association at -0.25 (p < 0.001). The variable NIM is weaker in its statistical significance than the other factors (p < 0.05), being positively related to ROAE at 0.06. Both CIR and LADSF are strongly statistically significant at p < 0.001 and negatively correlated with ROAE (-0.41 and -0.10 respectively).

**6.2.1.2. Pearson Correlations of Returns and Macroeconomic Variables**

The Pearson correlation coefficients between the dependent variables, ROAA and ROAE and the macroeconomic variables are shown in the table (6.2). The EGR has a strong, positive relationship with ROAA (0.09, p < 0.01) and ROAE (0.12, p < 0.001). The AIR across the nations is not correlated with ROAA (p > 0.05), but it is positively correlated with ROAE at 0.19 (p < 0.001). The percentage of the MP in each region is positively associated only with ROAA at 0.08 (p < 0.01).

The variable of CG is measured by governance, and political system index within nations is negatively correlated with ROAE (-0.15, p < 0.001).
Table (6.2): Pearson Correlations of Returns and Macroeconomic Variables

<table>
<thead>
<tr>
<th></th>
<th>Return on Average Assets (ROAA), %</th>
<th>Return on Average Equity (ROAE), %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Growth Rate (EGR)</td>
<td>0.09**</td>
<td>0.12***</td>
</tr>
<tr>
<td>Annual Inflation Rate (AIR)</td>
<td>0.03</td>
<td>0.19***</td>
</tr>
<tr>
<td>Muslim Population (MP)</td>
<td>0.08**</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Country Governance (CG)</td>
<td>0.01</td>
<td>-0.15***</td>
</tr>
</tbody>
</table>

* p<0.05, ** p<0.01, *** p<0.001

6.2.1.3. Pearson Correlations between Bank-Specific and Macroeconomic Variables

The Pearson correlation coefficients between the bank-Specific and macroeconomic variables are shown in the table (6.3).

Table (6.3): Pearson Correlations between Bank-Specific and Macroeconomic Variables.

<table>
<thead>
<tr>
<th></th>
<th>Economic Growth Rate (EGR)</th>
<th>Annual Inflation Rate (AIR)</th>
<th>Muslim Population (MP)</th>
<th>Country Governance (CG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity / Total Assets, %</td>
<td>0.02</td>
<td>-0.15***</td>
<td>0.07*</td>
<td>0.18***</td>
</tr>
<tr>
<td>Loan Loss Reserve / Gross Loans, %</td>
<td>-0.09**</td>
<td>-0.09**</td>
<td>-0.11**</td>
<td>0.03</td>
</tr>
<tr>
<td>Net Interest Margin, %</td>
<td>0.04</td>
<td>0.03</td>
<td>0.08**</td>
<td>-0.10***</td>
</tr>
<tr>
<td>Cost Income Ratio, %</td>
<td>-0.14***</td>
<td>-0.06</td>
<td>-0.23***</td>
<td>0.11***</td>
</tr>
<tr>
<td>Liquid Assets / Deposit &amp; Short-term Funding, %</td>
<td>-0.01</td>
<td>-0.06*</td>
<td>-0.17***</td>
<td>0.06</td>
</tr>
</tbody>
</table>

* p<0.05, ** p<0.01, *** p<0.001

The ETA has a negative relationship with inflation (-0.15, p < 0.001), positive with the percentage of MP (0.07, p < 0.05), and positive with CG (0.18, p < 0.001). LLRGL
possesses a negative relationship with aggregate economic growth (-0.09, p < 0.01), inflation (-0.09, p < 0.01), and the percentage of MP (-0.11, p < 0.01).

Also, the NIM is positively related to percentage of MP (0.08, p < 0.05) and negative with the CG factor (-0.10, p < 0.001). CIR is negatively associated with EGR (-0.14, p < 0.001) and the MP percentage (-0.23, p < 0.001), while being strongly positively related to CG (0.11, p < 0.001). LADSTF is negatively correlated to inflation (-0.06, p < 0.05) and the percentage MP in the region (-0.17, p < 0.001).

6.2.1.4. Pearson Correlations within the Variables

The table (6.4) displays the Pearson correlation coefficients within the factor groups.

For the bank-Specific variables, The ETA possesses a statistically significant relationship with all the bank-specific variables at (p < 0.001), but the relationships are weak with LLRGL (-0.13), NIM (0.30), CIR (0.18), and LADSTF (0.35).

Also, the NIM is weakly negatively related to LLRGL at -0.24 (p < 0.001). CIR is weakly positively correlated with LLRGL (p < 0.001). LADSF is weakly positively associated with LLRGL and CIR (both 0.14, p < 0.001).

With respect to the macroeconomic variables, EGR is weakly negatively related to inflation (-0.11, p < 0.001), weakly positive with CG 0.07, p < 0.05) and MP (0.04, p < 0.01). The CG and inflation are inversely related at -0.45 (p < 0.001). The percentage MP in the regions is weakly positively associated with inflation (0.08, p < 0.001) and negatively with CG (-0.30, p < 0.001).
Table (6.4): Pearson Correlations Within Variables

<table>
<thead>
<tr>
<th>Bank-Specific variables</th>
<th>Equity / Total Assets, %</th>
<th>Loan Loss Reserve / Gross Loans, %</th>
<th>Net Interest Margin, %</th>
<th>Cost Income Ratio, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan Loss Reserve / Gross Loans, %</td>
<td>-0.13***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Interest Margin, %</td>
<td>0.30***</td>
<td>-0.24***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost Income Ratio, %</td>
<td>0.18***</td>
<td>0.22***</td>
<td>-0.04</td>
<td></td>
</tr>
<tr>
<td>Liquid Assets / Deposit &amp; Short-term Funding, %</td>
<td>0.35***</td>
<td>0.14***</td>
<td>0.02</td>
<td>0.14***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Macroeconomic variables</th>
<th>Economic Growth Rate (EGR)</th>
<th>Annual Inflation Rate (AIR)</th>
<th>Country Governance (CG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Inflation Rate (AIR)</td>
<td>-0.11***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country Governance (CG)</td>
<td>0.07*</td>
<td>-0.45***</td>
<td></td>
</tr>
<tr>
<td>Muslim Population (MP)</td>
<td>0.04**</td>
<td>0.08***</td>
<td>-0.30***</td>
</tr>
</tbody>
</table>

* p<0.05, ** p<0.01, *** p<0.001

6.3. Econometric Models and Estimation Methods

To test the relationships between IBs’ profitability as proxied by ROAA and ROAE with the presumed internal and external explanatory variables, four econometric models are used (Namely; OLS, Panel including FE and RE, and Quantile model). The FE model allows the intercepts to vary over the panel units, which in this case are banking institutions. The model assumes an independently and identically distributed error term with mean zero and constant variance, as well as independence between the covariates.
and error term. The advantage is that it allows the correlation between the intercept and the covariates to be non-zero (Imbens & Wooldridge 2007).

Furthermore, the omitted variables bias is controlled for time-invariant variables. While this model estimates the effects of covariates that vary over time, time-invariant variables will not be estimable (Imbens and Wooldridge, 2007). In contrast, the RE model can estimate time-invariant explanatory variables. Additionally, it allows the error term and independent variables to be correlated (Imbens & Wooldridge 2007). However, the model assumes that any omitted variable must be uncorrelated with the covariates. Therefore, to minimise bias, all the major covariates will need to be included in the models.

The generalised panel model is as follows:

\[
y_{ijt} = A + \sum_{i=1}^{K} \beta_k x_{ijt} + E , \quad \ldots \ldots \ldots \ldots \ldots \ldots \ldots (6.1)
\]

Where \( k \) is the index for each associated independent variable, \( i \) is the observation, \( j \) is the panel unit (e.g. bank), \( t \) is the year index, \( A \) is the intercept, and \( E \) is the error term. The error for FE is the unobservable error, \( u_{it} \), whereas the RE error term is the idiosyncratic error and the unobservable error, \( e_i + u_{it} \). The FE estimation coefficient is defined as follows:

\[
\beta_{FE} = \left( \sum_{i=1}^{N} \sum_{j=1}^{d} \sum_{t=1}^{T} (x_{ijt} - \bar{x}_j) \right) \left( \sum_{i=1}^{N} \sum_{j=1}^{d} \sum_{t=1}^{T} (x_{ijt} - \bar{x}_j)(y_{ijt} - \bar{y}_j) \right), \quad \ldots (6.2)
\]

RE can capture within-group variations. Also, because RE model is a sub-model under FE, the estimation of the coefficient is similar, while the variance is the sum of the
variances for the idiosyncratic and unobservable errors (Schmidheiny & Basel 2011).

The specific panel models are the following equations:

\[(FE1) \quad \text{ROAA}_{ijt} = \alpha + \beta_1(\text{Equity / Total Assets}_{ijt}) + \beta_2(\text{Loan Loss Reserve} / \text{Gross Loans}_{ijt}) + \beta_3(\text{Net Interest Margin}_{ijt}) + \beta_4(\text{Cost Income Ratio}_{ijt}) + \beta_5(\text{Liquid Assets} / \text{Deposit} & \text{Short-term Funding}_{ijt}) + \beta_6(\text{Economic Growth}_{ijt}) + \beta_7(\text{Inflation}_{ijt}) + \beta_8(\text{Muslim Population (MP)}_{ijt}) + \beta_9(\text{Country Governance (CG)}_{ijt}) + \beta_{10}(\text{World Region 2}_{ijt}) + \beta_{11}(\text{World Region 3}_{ijt}) + \beta_{12}(\text{World Region 4}_{ijt}) + \beta_{13}(\text{World Region 5}_{ijt}) + \beta_{14}(\text{World Region 6}_{ijt})
\]
\[= \mathbf{X}\beta,\]

\[(RE1) \quad \text{ROAA}_{ijt} = \mathbf{X}\beta,\]

\[(FE2) \quad \text{ROAE}_{ijt} = \mathbf{X}\beta, \text{ and}\]

\[(RE2) \quad \text{ROAE}_{ijt} = \mathbf{X}\beta,\]

Where \(i\) is the observation, \(j\) is the panel unit (e.g. bank), \(t\) is the year index, \(\mathbf{X}\) is a matrix of the independent variables, and \(\beta\) is a matrix of the coefficients (presumed to be different across the regressions). The independent Islamic bank-specific profitability determinants are:

1) The CZ measured by ETA as an indicator of capital adequacy;

2) The FRM measured by LLRGL as an indicator of credit risk or asset quality, and LADSF as an indicator of bank’s liquidity;

3) EME measured by NIM ratio, and CIR as an indicator of cost or management efficiency.

The independent IBs’ macroeconomic profitability determinants are AIR, EGR, CG, MP, and WRG. A Hausman test will be performed to compare the estimates of the fixed and RE parameters. The Hausman test is based on the following hypotheses:
\( H_0: \beta_{FE} = \beta_{RE}; \) FE is consistent, RE is efficient

\( H_1: \beta_{FE} \neq \beta_{RE}; \) FE is consistent; RE is inconsistent,

Where \( \beta_{FE} \) is the coefficients for the FE models and \( \beta_{RE} \) is the coefficients for the RE models. The FE estimator is consistent under both the null and alternative hypothesis, but typically inefficient under the null hypothesis. The RE estimator is consistent, and typically efficient, under the null hypothesis only. A significant difference between the two estimators indicates that the null hypothesis is unlikely to hold. The Hausman test statistic is

\[
H = (\beta_{FE} - \beta_{RE})'[\mathbb{V}({\beta_{FE}}) - \mathbb{V}({\beta_{RE}})]^{-1}(\beta_{FE} - \beta_{RE}). \quad \text{................. (6.4)}
\]

Under the null hypothesis the \( H \) statistic has an asymptotic chi-squared distribution with \( K \) degrees of freedom, where \( K \) is the number of elements in \( \beta \). A finding that \( p < 0.05 \) is taken as evidence that, at conventional levels of significance, the two models are different enough to reject the null hypothesis, and hence to reject the RE model in favour of the FE model. Essentially, if \( p > 0.05 \), the null hypothesis is accepted and the RE model is considered to be preferable, as it is efficient. If \( p < 0.05 \), the null hypothesis is rejected, and the FE model is preferable, as the RE model will be inconsistent.

The generalised OLS and quantile models are as follows:

\[
\text{(OLS)} \quad y_i = a + \sum_{k=1, i=1}^{K} b_k x_i + e_i \quad \text{................. (6.5)}
\]

\[
\text{(Q)} \quad (y_i \mid \text{Quantile}\%) = a + \sum_{k=1, i=1}^{K} b_k x_i + e_i \quad \text{................. (6.6)}
\]
Where \( i \) is the observation, \( k \) is the index for the associated independent variable, and \( e_i \) is the error term. By definition, the QR will minimise the sum of the absolute residuals (Koenker 2005) as opposed to the squared residuals as in OLS.

The next set of equations are the specific OLS and quantile models:

\[
(\text{OLS1}) \quad \text{ROAA}_i = a + b_1(\text{Equity / Total Assets}) + b_2(\text{Loan Loss Reserve / Gross Loans}) + b_3(\text{Net Interest Margin}) + b_4(\text{Cost Income Ratio}) + b_5(\text{Liquid Assets / Deposit & Short-term Funding}) + b_6(\text{Economic Growth}) + b_7(\text{Inflation}) + b_8(\text{Muslims in Region}) + b_9(\text{Country Governance (CG)}) + b_{10}(\text{World Region 2}) + b_{11}(\text{World Region 3}) + b_{12}(\text{World Region 4}) + b_{13}(\text{World Region 5}) + b_{14}(\text{World Region 6}) \quad \ldots \ldots \ldots \quad (6.7)
\]

\[
(\text{OLS2}) \quad \text{ROAE}_i = f(X), \quad \text{and}
\]

\[
(\text{Qq}) \quad (\text{ROAA}_i \mid q\% \text{ Quantile}) = f (X \mid q\% \text{ Quantile}),
\]

Where \( i \) is the observation, \( X \) is the set of independent variables, and \( q \) is a number to indicate the percentile.

The quantiles used are the 25%, median, and 75% levels. Because of the presumed differences in variation across the nations, the OLS is predicted to have less explanatory power than the panel models. The quantile models will estimate the impact of the independent factors on the dependent variables for each specified quantile, capturing the effects on low-performing, median performing, and high-performing banks with respect to the return on their average assets and equity. The residuals of the OLS and quantile models will be diagnosed to determine the existence of bias.

The variables were chosen based on minimizing multicollinearity, maximising the number
of observations for a full rank matrix, and maximising the explanations of the variations in the dependent variables.

Missing values should not pose a problem as long as the parameters are estimated to be efficient and unbiased on the basis of the central limit theorem. Because the data set is in a panel format, equations FE1 to RE2 are presumed to achieve the more accurate results compared to the other estimation methods. Furthermore, the OLS and quantile methods, which are based on the Gauss-Markov assumptions, may provide inaccurate and biased estimates because they assume that the errors are constant throughout the time periods, which is not practical for panel data.

6.4. Empirical Findings


As shown in the table (A-6.2) in the appendices, the model estimations for the panel models indicate that for FE1, ETA increases ROAA by 0.083% for every 1% increase at \( p < 0.001 \). In contrast, every 1% increase in LLRGL and CIR decreases ROAA by 0.040% (\( p = 0.001 \)) and 0.024% (\( p < 0.001 \)) respectively. For RE1, the model estimates and statistical significance are similar with the exception of NIM, which is statistically significant (\( p = 0.005 \)) and possessing a coefficient of 0.098.

For FE2, every 1% increase in ETA increases ROAE by 0.267% (\( p = 0.002 \)). The sign of the coefficient in for LLRGL in FE2 is consistent with the previous models at -0.296 (\( p < 0.001 \)). Additionally, CIR decreases ROAE by -0.096% (\( p < 0.001 \)) and inflation increases ROAE by 0.192% (\( p = 0.014 \)) for every 1% increase. In RE2, the bank-Specific variables have similar coefficients and significance levels as the previous models. With respect to
the Macroeconomic variables, a 1% increase in EGR increases ROAE by 0.379% (p = 0.010) in RE2, while inflation increases ROAE by 0.189% (p = 0.013) and percentage MP decreases ROAE by 0.265% (p = 0.002). The RE2 intercept is 35.63% and statistically significant at p < 0.001.

Overall, the sample size has been consistent across the models with the missing values force the sample size to decrease to 687. The panel models moderately explain the variations in the dependent variables: the models for ROAA (FE1 and RE1) possess an $R^2$ close to 40%, while the $R^2$ for the FE2 and RE2 models is below 30%. The robustness of all estimates of all models will be explained in the following section “Robustness Checks”.

### 6.4.2. The Regression Estimates for the OLS and Quantile Models for the Dependent Variable ROAA

The table (A-6.3) in the appendices displays the regression estimates for the OLS and quantile models for the dependent variable ROAA. As shown in the table, for OLS1, a 1% increase in LLRGL results in a 0.029% decrease in ROAA (p = 0.006), while the same increase in NIM will increase ROAA by 0.140% (p < 0.001). CIR has a negative effect on ROAA, decreasing it by 0.022% (p < 0.001) for every 1% increase. With respect to the macroeconomic variables of OLS1, EGR positively impacts ROAA by 0.111% (p < 0.001) for each 1% increase, as does inflation by 0.034% (p = 0.021). In contrast, CG is negatively associated with ROAA, decreasing it by 0.672% (p = 0.011) for every 1-point increase in its rating. With respect to the world regions and relative to region 1, region 2

---

30 $R^2$, also known as R-squared or coefficient of determination, is the percentage of variation in the dependent variable that is explained by all independent variable (this includes both internal and external variables).
has decreased ROAA by 1.462% (p < 0.001); region 3 reduces it by 2.154% (p < 0.001); and Region 5 has lowered ROAA by 1.133% (p = 0.008). The intercept is 2.979% (p < 0.001), indicating positive excess returns.

For Q1(25%), ETA increases the ROAA by 0.019% (p < 0.001) for every 1% increase, while LLRGL inversely affects it by 0.037% (p < 0.001). Similarly, NIM positively impacts ROAA by 0.134% (p < 0.001), while CIR negatively influences it by 0.031% (p < 0.001). For the Macroeconomic variables, EGR is positively associated with ROAA, possessing a coefficient of 0.061 (p < 0.001). CG has a negative impact of 0.335% (p = 0.002) on ROAA. Its intercept, as in the previous model, is positive at 1.721% and statistically significant (p < 0.001).

For Q1 (median), the estimates and their statistical significance are similar previous of the Q1(25%) model. The exceptions are LLRGL, which is not statistically significant (p = 0.389), and CG, whose p-value is significant at a different level (p = 0.014). Otherwise, Q1 (25%) and Q1 (median) are nearly identical.

For Q1 (75%), the coefficients are similar or larger than the previous models. The coefficient of ETA is estimated at 0.065 (p < 0.001), NIM at 0.225 (p < 0.001), CIR at -0.016 (p < 0.001), and LADSTF at -0.004 (p = 0.014). With respect to the external determinants, EGR and AIR are approximated to affect ROAA by 0.100% (p = 0.001) and 0.053% (p < 0.001). Unlike the previous models, the intercept is not statistically significant at any level (p = 0.844).

Overall, the sample size has been consistent across the models - missing values reduced the full sample size to 687. The models moderately explain the variations in the dependent
variables: the OLS1 model $R^2$ is below 40%, while the $R^2$ for the quantile models is below 30%. Thus, the $R^2$ estimates are similar to the panel models.

6.4.3. The Regression Estimates for OLS and Quantile Models for the Dependent Variable ROAE.

Table (A-6.4) in the appendices presents the regression estimates for OLS and quantile models with ROAE as the dependent variable. As shown in the table, for OLS2, ETA decreases ROAE by 0.141% ($p = 0.004$) for every 1% increase. LLRGL also decreases ROAE by 0.300% ($p < 0.001$), whereas NIM increases ROAE by 0.505% ($p = 0.008$).

With respect to the macroeconomic variables, EGR and AIR have a projected positive impact of 0.459% ($p = 0.008$) and 0.178% ($p = 0.045$) respectively on ROAE. The percentage MP affects ROAE by -0.161% ($p < 0.001$) for every 1% increase in their population. The 1-point increase in CG decreases ROAE by 5.338% ($p = 0.001$). With respect to the geographic regions, only region 4 is statistically insignificant. The other regions all negatively impact ROAE: region 2 by 6.508% ($p = 0.002$); region 3 by 11.74% ($p = 0.001$); region 5 by 7.167% ($p = 0.005$); and region 6 by 17.75% ($p = 0.005$). Similar to the OLS1, the OLS2 intercept at 32.56% is positive ($p < 0.001$).

For Q2 (25%), ETA and LLRGL negatively impact ROAE by 0.167% ($p < 0.001$) and 0.195% ($p < 0.001$) respectively for every 1% increase. CIR also inversely influences ROAE, having a coefficient of -0.170 ($p < 0.001$), while NIM positively affects ROAE with a coefficient of 0.494 ($p < 0.001$). EGR and AIR increases ROAE by 0.302% ($p = 0.002$) and 0.140% ($p = 0.004$) respectively. The percentage MP has a relatively small negative impact on ROAE, possessing a coefficient of -0.039 ($p = 0.024$). The intercept is
also positive as in OLS2; however, it is nearly half its size at 18.21% (p < 0.001).

For Q2 (median), the estimates are similar to the 25% percentile with exceptions. NIM has a noticeably larger impact of 0.837% (p < 0.001) for every 1% increase. Additionally, the effects of EGR and AIR are larger, with coefficients of 0.544 (p < 0.001) and 0.348 (p < 0.001) respectively. For Q2 (75%), the coefficients are similar to Q2 (median), with the only notable exception being CG, which has a coefficient of -2.355 (p = 0.010). Both intercepts for Q2 (median) and Q2 (75%) are also similar: 10.56% (p < 0.001) and 13.53% (p < 0.001) respectively for their models.

Overall, the independent variables moderately explain variation in the dependent variable; although, the explanation is noticeably lower than in the previous set of models. For example, the R² for OLS2 and Q2 (25%) are above 30%, while the R² for Q2 (median) and Q2 (75%) are 25.90% and 22.20% respectively. In sum, the models do not explain the variations in the outcome as well as the previous set of models.

6.5. Robustness Checks

To determine the reliability of the models, their VIFs are examined for the strength of multicollinearity. Also, the Hausman test will be performed for the panel models to ascertain efficiency and consistency. To do so, the panel is plotted against the fitted values to examine for biased panel estimates and diagnose the OLS and quantile residuals to detect estimation bias. Table (6.5) and Table (6.6) present the VIFs for the panel models, OLS-quantile ROAA models, and OLS-quantile ROAE models respectively.
Table (6.5): Variance Inflation Factors - Panel Models

<table>
<thead>
<tr>
<th>Model</th>
<th>FE</th>
<th>RE</th>
<th>FE</th>
<th>RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable</td>
<td>ROAA</td>
<td>ROAA</td>
<td>ROAE</td>
<td>ROAE</td>
</tr>
<tr>
<td><strong>Bank-Specific variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity / Total Assets, %</td>
<td>3.18</td>
<td>3.29</td>
<td>3.18</td>
<td>3.29</td>
</tr>
<tr>
<td>Loan Loss Reserve / Gross Loans, %</td>
<td>1.42</td>
<td>1.43</td>
<td>1.42</td>
<td>1.43</td>
</tr>
<tr>
<td>Net Interest Margin, %</td>
<td>2.20</td>
<td>2.44</td>
<td>2.20</td>
<td>2.44</td>
</tr>
<tr>
<td>Cost Income Ratio, %</td>
<td>1.80</td>
<td>2.05</td>
<td>1.80</td>
<td>2.05</td>
</tr>
<tr>
<td>Liquid Assets / Deposit &amp; Short-term Funding, %</td>
<td>2.01</td>
<td>2.02</td>
<td>2.01</td>
<td>2.02</td>
</tr>
<tr>
<td><strong>Macroeconomic variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic Growth Rate (EGR)</td>
<td>2.47</td>
<td>2.58</td>
<td>2.47</td>
<td>2.58</td>
</tr>
<tr>
<td>Annual Inflation Rate (AIR)</td>
<td>2.86</td>
<td>3.27</td>
<td>2.86</td>
<td>3.27</td>
</tr>
<tr>
<td>Muslim Population (MP)</td>
<td>2.00</td>
<td>5.42</td>
<td>2.00</td>
<td>5.42</td>
</tr>
<tr>
<td>Country Governance (CG)</td>
<td>4.89</td>
<td>3.95</td>
<td>4.89</td>
<td>3.95</td>
</tr>
<tr>
<td>World Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1.43</td>
<td>1.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1.51</td>
<td>1.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.40</td>
<td>1.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.55</td>
<td>4.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1.07</td>
<td>1.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AVERAGE</strong></td>
<td>2.54</td>
<td>2.60</td>
<td>2.54</td>
<td>2.60</td>
</tr>
</tbody>
</table>

The VIF is an indicator of the strength of multicollinearity in a regression. Specifically, it measures the impact of extent of the collinearity on the variance of the parameter (Allison 1999). The formula is defined as follows where \( i \) refers to the independent variable:
\[ VIF_i = \frac{1}{1 - R^2_i}, \]

For table (6.6), the FE VIFs are similar to each other, and the same is true between the RE VIFs. The average VIF for the FE models is 2.54, indicating weak multicollinearity and thus maximising the efficiency of the estimates overall. Similarly, the average VIF for the RE models is 2.60—the same previous logic applies. Certain variables are noticeably higher than others. For instance, the VIF for the percentage of the MP for the RE models is 5.42. Additionally, the CG VIF for all the models is approximately around 4.00, and the Region 5 VIF is 4.55. While not exceptionally high, the implication is that the coefficients of these variables are relatively inflated in comparison to the other determinants. However, on an overall basis, the model estimates are affected minimally by multicollinearity.

<table>
<thead>
<tr>
<th>Model</th>
<th>OLS</th>
<th>Q (25%)</th>
<th>Q(median)</th>
<th>Q (75%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank-Specific variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity / Total Assets, %</td>
<td>1.71</td>
<td>3.18</td>
<td>3.18</td>
<td>3.18</td>
</tr>
<tr>
<td>Loan Loss Reserve / Gross Loans, %</td>
<td>1.09</td>
<td>1.42</td>
<td>1.42</td>
<td>1.42</td>
</tr>
<tr>
<td>Net Interest Margin, %</td>
<td>1.20</td>
<td>2.20</td>
<td>2.20</td>
<td>2.20</td>
</tr>
<tr>
<td>Cost Income Ratio, %</td>
<td>1.34</td>
<td>1.80</td>
<td>1.80</td>
<td>1.80</td>
</tr>
<tr>
<td>Liquid Assets / Deposit &amp; Short-term Funding, %</td>
<td>1.52</td>
<td>2.01</td>
<td>2.01</td>
<td>2.01</td>
</tr>
<tr>
<td>Macroeconomic variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic Growth Rate (EGR)</td>
<td>1.20</td>
<td>2.47</td>
<td>2.47</td>
<td>2.47</td>
</tr>
</tbody>
</table>

Table (6.6): Variance Inflation Factors - OLS & Quantile Models.
<table>
<thead>
<tr>
<th>Annual Inflation Rate (AIR)</th>
<th>1.95</th>
<th>2.86</th>
<th>2.86</th>
<th>2.86</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muslim Population (MP)</td>
<td>1.92</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Country Governance (CG)</td>
<td>3.77</td>
<td>4.89</td>
<td>4.89</td>
<td>4.89</td>
</tr>
<tr>
<td>World Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3.82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1.49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVERAGE</td>
<td>1.84</td>
<td>2.54</td>
<td>2.54</td>
<td>2.28</td>
</tr>
</tbody>
</table>

The OLS-quantile VIFs for both dependent variables are the same, and thus only one table is listed for them in Table 5b. In the table, all VIFs are averaged below 3.00. The OLS VIF have an average of 1.84; Q (25%) and Q (median) both at 2.54; and Q (75%) averages at 2.28. Similar to the panel models, CG has a noticeably higher VIF than others. The VIF for the CG in the OLS model is 3.77, while it is 4.89 across the quantile models. Additionally, the VIF for Region 5 in the OLS model is 3.82. As with the previous models, the effect is that the coefficients of these variables are comparatively inflated. On an overall basis, however, multicollinearity is minimised across the models.

6.5.1. The Hausman Test for the Models with ROAA and ROAE as the Dependent Variable.

Table (6.7) below displays the Hausman test for the models with ROAA as the dependent variable. The average difference between the FE1 and RE1 coefficients is 0.040 with an average standard error of 0.103. The smallest difference in the coefficients and standard
error are the ones for EGR at \(-0.017 \pm 0.009\), while the largest pair of values belongs to CG at \(0.279 \pm 0.763\). The test-statistic \(\chi^2\) is 21.64, being associated with a \(p\)-value of 0.010. Therefore, the null hypothesis is rejected, and the RE1 model is inconsistent. In effect, the FE1 model is preferred.

<table>
<thead>
<tr>
<th>Table (6.7): Hausman Test - ROAA</th>
<th>Coefficients</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FE1</td>
<td>RE1</td>
<td>Difference</td>
<td>S.E.</td>
</tr>
<tr>
<td>Equity / Total Assets, %</td>
<td>0.083</td>
<td>0.039</td>
<td>0.044</td>
<td>0.010</td>
</tr>
<tr>
<td>Loan Loss Reserve / Gross Loans, %</td>
<td>-0.040</td>
<td>-0.040</td>
<td>0.000</td>
<td>0.004</td>
</tr>
<tr>
<td>Net Interest Margin, %</td>
<td>0.078</td>
<td>0.098</td>
<td>-0.020</td>
<td>0.020</td>
</tr>
<tr>
<td>Cost-to-Income Ratio, %</td>
<td>-0.024</td>
<td>-0.024</td>
<td>0.000</td>
<td>0.001</td>
</tr>
<tr>
<td>Liquid Assets / Deposit &amp; Short-term Funding, %</td>
<td>-0.002</td>
<td>0.000</td>
<td>-0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>Economic Growth, %</td>
<td>0.077</td>
<td>0.094</td>
<td>-0.017</td>
<td>0.009</td>
</tr>
<tr>
<td>Inflation, %</td>
<td>0.042</td>
<td>0.041</td>
<td>0.001</td>
<td>0.004</td>
</tr>
<tr>
<td>Muslims in Region, %</td>
<td>0.071</td>
<td>-0.007</td>
<td>0.079</td>
<td>0.113</td>
</tr>
<tr>
<td>Governance and Political System</td>
<td>0.069</td>
<td>-0.209</td>
<td>0.279</td>
<td>0.763</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td></td>
<td><strong>0.040</strong></td>
<td><strong>0.103</strong></td>
</tr>
</tbody>
</table>

\(\chi^2 = 21.64\)

\(p = 0.010\)

Table (6.8) displays the Hausman test for the models with ROAE as the dependent variable. The average difference between the FE2 and RE2 coefficients is 0.520 with an average standard error of 0.556.

The smallest difference in the coefficients and standard error are the ones for EGR at \(-0.098 \pm 0.041\), while the largest pair of values belongs to CG at \(3.011 \pm 4.134\). The test-statistic \(\chi^2\) is 29.69, being associated with a \(p\)-value of 0.001. Thus, similarly to the previous test, the null hypothesis is rejected. In effect, both FE models are preferred, while both RE models are inconsistent.
Table (6.8): Hausman Test - ROAE

<table>
<thead>
<tr>
<th>Dependent Variable: ROAE</th>
<th>Coefficients</th>
<th></th>
<th>Difference</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FE2</td>
<td>RE2</td>
<td></td>
<td>S.E.</td>
</tr>
<tr>
<td>Equity / Total Assets, %</td>
<td>0.267</td>
<td>0.039</td>
<td>0.228</td>
<td>0.054</td>
</tr>
<tr>
<td>Loan Loss Reserve / Gross Loans, %</td>
<td>0.296</td>
<td>-0.306</td>
<td>0.602</td>
<td>0.020</td>
</tr>
<tr>
<td>Net Interest Margin, %</td>
<td>0.602</td>
<td>0.584</td>
<td>0.018</td>
<td>0.104</td>
</tr>
<tr>
<td>Cost Income Ratio, %</td>
<td>-0.096</td>
<td>-0.099</td>
<td>0.003</td>
<td>0.003</td>
</tr>
<tr>
<td>Liquid Assets / Deposit &amp; Short-term Funding, %</td>
<td>0.000</td>
<td>0.004</td>
<td>-0.004</td>
<td>0.003</td>
</tr>
<tr>
<td>Economic Growth Rate (EGR)</td>
<td>0.280</td>
<td>0.378</td>
<td>-0.098</td>
<td>0.041</td>
</tr>
<tr>
<td>Annual Inflation Rate (AIR)</td>
<td>0.192</td>
<td>0.189</td>
<td>0.003</td>
<td>0.015</td>
</tr>
<tr>
<td>Muslim Population (MP)</td>
<td>0.722</td>
<td>-0.265</td>
<td>0.987</td>
<td>0.627</td>
</tr>
<tr>
<td>Governance and Political System</td>
<td>-2.059</td>
<td>-5.070</td>
<td>3.011</td>
<td>4.134</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td>0.528</td>
<td>0.556</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 29.69 \]
\[ p = 0.001 \]

6.5.2. Panel Models – Error vs Fitted Values

Figure (6.1) presents scatter plots between the errors and fitted values of the panel models.

Figure (6.1): The scatter plots between the errors and fitted values of the panel models.
For FE1 and RE1, the models have estimated the parameters with near-zero bias and low standard deviation (1.937 and 2.011 respectively). Similarly, FE and RE2 have an approximately zero mean in their errors; however, their standard deviations are noticeably larger at 10.785 and 11.194 respectively.

Regardless, the errors are zero on average and thus exhibit minimal bias, while the low standard deviations demonstrate efficiency. As such, the implication is that the sample size in the regressions (687) produces estimates equal the population values on average based on the Central Limit Theorem (Allison 1999).

6.5.3. The OLS Residuals vs Fitted Values

Figure (6.2) displays the OLS residuals against their fitted values for the dependent variables.

Figure (6.2): The OLS residuals against their fitted values for the dependent variables.
Both of the residuals possess averages approximately near zero. However, the distribution of the ROAA residuals is left-tailed (e.g. negative tail), whereas the ROAE distribution lies close to the middle of the residuals. In other words, the ROAA residuals are not as nearly normally distributed as the ROAE residuals.

As such, the implication is that the ROAE estimation more closely fulfils the assumption of normally distributed residuals than the ROAA approximations, thereby producing less biased and more efficient results.

6.5.4. The Residuals vs - Fitted Values - Quantile Models

Figure (6.3) displays the residuals for the quantile models against their fitted values for the outcome variables.

The both of the 25% quantile residuals and the ROAA median residuals experience downward bias, and thus their model estimates should not be considered as representative.
and accurate. The median and 75% quantile ROAE residuals demonstrate a slight negative bias, while the 75% ROAA residuals exhibit near-zero bias. The effect is that the latter closely fulfils the assumption of normally distributed residuals than the former and thus is less biased and more efficient.
CHAPTER 7: DISCUSSION OF MAJOR FINDINGS

7.1. Introduction

The present study employed an empirical framework to investigate the impact of bank-specific characteristics and macroeconomic conditions on IBs’ profitability as measured by ROAA and ROAE. After the identification of IBs’ profitability determinants based on a thorough survey of conventional and Islamic financial literature, different econometric and estimation methods are used to examine the effect of the presumed explanatory variables on IB’s profitability. The final dataset is constructed in a panel mode (also known as longitudinal or cross-sectional time-series data) and covers 162 IBs from 23 countries over a period spanning from 1996 to 2015. The data is analysed by a statistical software called STATA.

7.2. Islamic Bank’s Profitability Measures - Dependent Variables

Overall, the sample size has been consistent across the models with missing values force the sample size to decrease to 687. The panel models moderately explain the variations in the dependent variables: the models for ROAA (FE1 and RE1) possess an $R^2$ close to 40%, while the $R^2$ for the FE2 and RE2 models is below 30%.

The regression estimates of the OLS and Quantile models for the dependent variable ROAA moderately explain the variations in the dependent variables: the OLS1 model $R^2$ is below 40%, while the $R^2$ for the quantile models is below 30%. Hence, the $R^2$ estimates are similar to the panel models. In the regression estimates for OLS and Quantile models

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31 $R^2$, also known as R-squared or coefficient of determination, is the percentage of variation in the dependent variable that is explained by all independent variable (this includes BOTH internal and external variables).
with ROAE as the dependent variable, the independent variables moderately explain variation in the dependent variable although the explanation is noticeably lower than in the previous set of models. For example, the R² for OLS2 and Q2 (25%) are above 30%, while the R² for Q2 (median) and Q2 (75%) are 25.90% and 22.20% respectively. In sum, the models do not explain the variations in the outcome as well as the previous set of models.

7.3. The Effect of Bank-Specific Determinants on the Islamic Banks Profitability

The bank-specific explanatory variables that are used in the econometric modelling are CZ as measured by ETA ratio, FRM as measured by LLRGL and LADSFR ratio, and EME as measured by CIR and the NIM. The result of data analysis revealed that all included variables have a significant effect on IB’s profitability in all econometric estimation models. For example, the panel models moderately explain the variations in the dependent variables: the models for ROAA (FE1 and RE1) possess an R² close to 40%, while the R² for the FE2 and RE2 models is below 30%.

Also, the regression estimates for the OLS and Quantile Models for the dependent variable ROAA moderately explain the variations in the dependent variables: the OLS1 model R² is below 40%, while the R² for the quantile models is below 30%. Thus, the R² estimates are similar to the panel models.

However, the independent variables in the regression estimates for OLS and Quantile models for the dependent variable ROAE moderately explain variation in the dependent variable although the explanation is noticeably lower than in the previous set of models. For example, the R² for OLS2 and Q2 (25%) are above 30%, while the R² for Q2 (median)
and Q2 (75%) are 25.90% and 22.20% respectively. In sum, the models do not explain the variations in the outcome as well as the previous set of models.

Accordingly, the findings supported all of the presumed hypotheses and deemed to be in line with previous studies conclusions. For example, most of the empirical studies that include bank’s capital and size as independent bank-specific variables found a significant positive relationship with profitability. While (Smirlock 1985) found that bank’s size is positively and significantly related to bank profitability, (Demirgüç-Kunt, Asli & Huizinga 2000) found that operating environment (e.g. financial, legal and corruption) is closely linked to bank’s size. (Short 1979) also argued the relationship between size and capital adequacy of a bank stating that relatively large banks can raise less expensive capital which can lead to more profitability.

Also, (Bikker & Hu 2001) and (Goddard, Molyneux & Wilson 2004) also confirmed the same effect of bank’s size. However, some researchers such as (Berger, Hanweck & Humphrey 1987) argue that cost saving resulting from increasing bank size is expected to be little. The findings of the effect of bank’s capital and size support that many IBs are considered smaller than their CBs counterpart affecting their operational performance.

The well-capitalised banks (banks with higher equity to assets ratio) is expected to increase bank’s profitability. (Berger 1995) found the ROE and the capital asset ratio are positively related to a sample of US banks for the 1983–1989 periods. (Demirgüç-Kunt, Ash & Huizinga 1999), found a positive relationship between capital, net interest income and profitability of banks. The reason for this relationship between size and profitability is because the banks with higher equity to assets ratio will have higher interest margins on
assets (Abreu & Mendes 2001). Also, well-capitalised banks can charge more on loans while paying less on deposits to manage the liquidity and credit risk and reduce the need for external funding is lower (Demirgüç-Kunt, Asli, Laeven & Levine 2004).

The result of data shows support also the effect of IBs Financial risk management on their profitability capacity as presumed in hypothesis two. All econometric estimation models support the significant relationships between IBs Financial risk management and ROAA and ROAE as a measure of profitability. For example, the panel models moderately explain the variations in the dependent variables: the models for ROAA (FE1 and RE1) possess an $R^2$ close to 40%, while the $R^2$ for the FE2 and RE2 models is below 30%.

Also, The Regression Estimates for the OLS and Quantile Models for the Dependent Variable ROAA moderately explain the variations in the dependent variables: the OLS1 model $R^2$ is below 40%, while the $R^2$ for the quantile models is below 30%. Hence, the $R^2$ estimates are similar to the panel models. However, the independent variables in the regression estimates for OLS and Quantile models for the dependent variable ROAE moderately explain variation in the dependent variable; although, the explanation is noticeably lower than in the previous set of models. For example, the $R^2$ for OLS2 and Q2 (25%) are above 30%, while the $R^2$ for Q2 (median) and Q2 (75%) are 25.90% and 22.20% respectively. In sum, the models do not explain the variations in the outcome as well as the previous set of models.

However, a mix results of the relationship between the level of liquidity and credit with profitability noted in the findings of the previous studies. For example, (Molyneux, Philip & Thornton 1992) finds a negative and significant relationship between the level of
liquidity and profitability while (Bourke 1989) reports an opposite result. However, while the effect of credit risk on profitability appears mostly negative, inconclusive findings is the theme regarding liquidity and profitability relationship.

The result of data also shows support for the effect of EME on IBs’ profitability performance. All econometric model estimations support the significant relationships between ROAA and ROAE as a measure of IBs’ profitability. For example, the panel models moderately explain the variations in the dependent variables: the models for ROAA (FE1 and RE1) possess an $R^2$ close to 40%, while the $R^2$ for the FE2 and RE2 models is below 30%.

Also, The Regression Estimates for the OLS and Quantile Models for the Dependent Variable ROAA moderately explain the variations in the dependent variables: the OLS1 model $R^2$ is below 40%, while the $R^2$ for the quantile models is below 30%. Thus, the $R^2$ estimates are similar to the panel models. However, the independent variables in the regression estimates for OLS and Quantile Models for the dependent variable ROAE moderately explain variation in the dependent variable; although, the explanation is noticeably lower than in the previous set of models. For example, the $R^2$ for OLS2 and Q2 (25%) are above 30%, while the $R^2$ for Q2 (median) and Q2 (75%) are 25.90% and 22.20% respectively. In sum, the models do not explain the variations in the outcome as well as the previous set of models.

A Bank’ expense has been reported extensively in the banking profitability literature as a crucial determinant of profitability as an indicator of efficient bank’s management. A positive relationship between banks’ expenses management and profitability is reported
in most of the banking performance literature (e.g. Bourke 1989; Molyneux, Philip & Thornton 1992). Logically, mismanagement of the bank’s expense can reduce the profitability.

In the Islamic banking and finance context, most IBs have not been consistently profitable though growing constantly. While most of the Islamic banking literature blame the specification of Islamic financial instruments which are typically more complicated and less known than conventional ones, the mismanagement of the operational expense which falls under Islamic bank management also reported in the literature to be a profitability determinant.

The financial technology revolution since the early 1990s has been highly utilised by the international banking industry to perform more efficiently than before. As a result, the CIR (as a proxy for operational efficiency) has been declining in most of the countries (Albertazzi & Gambacorta 2009).

This means that banks start to operate at lower expenses for a given level of output. Previous studies suggest a positive and highly significant effect of expense management on profitability (Pasiouras & Kosmidou 2007; Athanasoglou, Brissimis & Delis 2008; Claeys & Vander Vennet 2008; Alexiou & Sofoklis 2009; García-Herrero, Gavilá & Santabábara 2009; Kasman et al. 2010). This relation would imply that operational efficiency is a prerequisite for improving the profitability of the banking system, with the most profitable banks having the lowest efficiency ratios.
7.4. The Effect of Macroeconomic Determinants on Islamic Banks Profitability

The Macroeconomic explanatory variables in this study are economic growth and inflation. The result of data analysis revealed that all of these macroeconomic explanatory variables have a significant effect on IB’s profitability in all econometric estimation models. For example, the panel models moderately explain the variations in the dependent variables: the models for ROAA (FE1 and RE1) possess an $R^2$ close to 40%, while the $R^2$ for the FE2 and RE2 models is below 30%. Also, the regression estimates for the OLS and Quantile models for the dependent variable ROAA moderately explain the variations in the dependent variables: the OLS1 model $R^2$ is below 40%, while the $R^2$ for the quantile models is below 30%. Thus, the $R^2$ estimates are similar to the panel models.

However, the independent variables in the Regression Estimates for OLS and Quantile Models for the Dependent Variable ROAE moderately explain variation in the dependent variable; although, the explanation is noticeably lower than in the previous set of models. For example, the $R^2$ for OLS2 and Q2 (25%) are above 30%, while the $R^2$ for Q2 (median) and Q2 (75%) are 25.90% and 22.20% respectively. In sum, the models do not explain the variations in the outcome as well as the previous set of models.

Accordingly, the findings supported all presumed hypotheses and deemed to be in line with hypothesis four and five as well as with previous studies conclusions. For example, among notable pioneering researchers examined the effect of the macroeconomic condition is (Revell 1979) who report a significant relationship between bank’s profitability and inflation rate. He argued that profitability can affect the operating costs of the bank (e.g. salaries).
Also, (Perry 1992) claims that the ability of the bank to generate more profit depends on how effective the bank can expect the inflation rate and accordingly adjust its operational strategies (e.g. interest rate) to increase revenues faster than costs. Recent studies such as (Pasiouras & Kosmidou 2007; Athanasoglou, Brissimis & Delis 2008; Claeys & Vander Vennet 2008; Alexiou & Sofoklis 2009; García-Herrero, Gavilá & Santabárbara 2009; Kasman et al. 2010) confirm the significant relationship between inflation and profitability.

The significant relationship between economic growth also reported in most of the Islamic and banking literature. Declining trends the economic growth of any country can negatively impact the quality of the loan portfolio and expose the bank to more financial risks which in turn reduce the capacity of the bank to generate more profits. (Kosmidou & Zopounidis 2008) finds that macroeconomics and financial structure, the growth of gross domestic product GDP has a significant and positive impact on ROAA, while inflation has a significant adverse impact, the ratios banks’ assets to GDP, stock market capitalisation to banks assets and concentration are all statistically significant and negatively related to ROAA.

(Kanwal & Nadeem 2013) examined the impact of macroeconomic variables on the profitability of listed commercial banks in Pakistan during 2001-2011. They reported a strong positive relationship between real interest rate with ROA, ROE and equity multiplier – as the measure of profitability. Also, real GDP is found to have an insignificant positive effect on ROA, but an insignificant negative impact on ROE and EM. The inflation rate, on the other hand, has a negative link with all three profitability measures. Overall, their selected macroeconomic factors are found to have a negligible
impact on earnings of commercial banks. (Ghazali 2008) provided international evidence about the bank-specific and macroeconomic determinants of IBs’ profitability. The author found a significant positive relationship between profitability measures of IBs and macroeconomic variables such as GDP growth and inflation. The findings revealed that the determinants of IBs’ profitability are similar to those of the CBs. The similarity of determinants is a strong indicator that many of the tools and techniques used in conventional banking are potentially suitable for an Islamic banking environment. Same findings were reported by (Wasiuzzaman & Tarmizi 2010; Zeitun 2012; Jordan 2013; Francis 2013; Alharthi 2016).

The result of data analysis revealed that CG has a significant relationship with ROAA and ROAE (as a measure of IBs’ profitability). For example, the panel models moderately explain the variations in the dependent variables: the models for ROAA (FE1 and RE1) possess an R2 close to 40%, while the R2 for the FE2 and RE2 models is below 30%. Also, the regression estimates for the OLS and Quantile models for the dependent Variable ROAA moderately explain the variations in the dependent variables: the OLS1 model R2 is below 40%, while the R2 for the quantile models is below 30%. Thus, the R2 estimates are similar to the panel models.

However, the independent variables in the Regression Estimates for OLS and Quantile Models for the Dependent Variable ROAE moderately explain variation in the dependent variable although the explanation is noticeably lower than in the previous set of models. For example, the R2 for OLS2 and Q2 (25%) are above 30%, while the R2 for Q2 (median) and Q2(75%) are 25.90% and 22.20% respectively. In sum, the models do not explain the
variations in the outcome as well as the previous set of models.

Accordingly, the findings supported all presumed hypotheses and deemed to be in line with hypothesis six as well as with previous studies conclusions. The international banking industry is highly regulated due to its critical role in establishing a healthy and robust financial system that improve the economic condition of the countries.

According to (Mishkin 2001), the banking regulations is critical to cover many aspects of banking operation (e.g. disclosure requirements, supervision, competition, financial risks exposures). The positive effect of high-quality banking regulations was reported in most of the conventional and Islamic banking literature. For example, (Beltratti & Stulz 2009) reported that the lax of regulation might lead to excessive risk-taking by banks. (Giannone, Lenza & Reichlin 2011) argue that competition regulation is essential to improve banking performance especially in developing countries where the openness of financial markets can impose more costs on the banks.

However, low quality of extensive banking regulations may limit the banks’ ability to perform efficiently (Barth, Brumbaugh & Wilcox 2000; Claessens, Demirgüç-Kunt & Huizinga 2001; Barth et al. 2013). Also, due to the interrelation between banking regulations and the other regulations of the country (e.g. legal framework and institutional environment), the corporate governance of the country can be assumed as another explanatory indicator of banking profitability and performance behaviour.

Finally, the percentage of the MP in each region is positively associated only with ROAA at 0.08 (p < 0.01). The relatively rapid MP growth worldwide and rising living standards have been one of the major drivers of IBs development and growth. There are 1.57 billion
Muslims worldwide, representing approximately 23% of an estimated global population of 6.8 billion in 2009.

However, IBFI represents just 1% of global financial assets. There is ample room for growth as Islamic banking rarely exceeds a third of total market share, even in the GCC countries and Malaysia. Several potential markets with large MP remain largely untapped, such as India and the Commonwealth of Independent States countries, made up of the former Soviet republics.

Also, overall banking penetration in many of the industry's core markets is still low. For example, GCC countries have not yet achieved the banking penetration levels of countries such as France or the United Kingdom. At the same time, several new markets have opened up for Islamic banking, with even more on the horizon. This reflects two factors; first, Muslim countries, on average, have a lower GDP per capita than the OECD countries, whose populations are the main owners of financial assets. However, in recent years significant economic growth has been occurring in some Muslim countries such as Indonesia, and this trend towards better economic performance is expected to continue; second, Muslims have been relatively willing to use conventional finance.
CHAPTER 8: CONCLUSION SUMMARY

8.1. Research Summary

The present study employed an empirical framework to investigate the impact of bank-specific characteristics and macroeconomic conditions on IBs’ profitability as measured by ROAA and ROAE. After a thorough survey of conventional and Islamic financial literature, the research identified different bank-specific and macroeconomic explanatory variables that are presumed to be influential in determining the IBs’ profitability behaviour. To test their relationships with IBs’ profitability, different econometric and estimation methods are used to examine the effect of the presumed explanatory variables on IB’s profitability. The final dataset is constructed in a panel mode (also known as longitudinal or cross-sectional time-series data) and covers 162 IBs from 23 countries over a period spanning from 1996 to 2015. The data is analysed by a statistical software called STATA.

8.2. Research Conclusion

The international banking industry including Islamic one has experienced major worldwide revolutions in its operational environment due to various internal and external factors that have been affecting its operation and performance. Despite the growing trends toward reducing bank’s intermediary role in many countries, the banks remain vital in financing most of the economic activity. A healthy and profitable banking sector is a priority for national authorities due to its contribution to the stability of the financial system and economic growth. Apart from the structural factors of IBFI products that could
reduce its profitability, this study assumed different bank-specific and macroeconomic factors based on a thorough survey of financial performance literature.

The study concludes that all bank-specific and macroeconomic determinants affected the profitability of IBs during the period of study. However, some of the determinants found to have a significant effect on IBs’ profitability. For example, it is revealed that capital strength, measured by the equity to assets ratio, have a positive relationship with to ROAA and is one of the main determinants of IBs’ profit. This finding provides support to the argument that well-capitalised banks face lower costs of external financing, which reduces their costs and enhances profits. Studies for other countries also support this finding (Demirgüç-Kunt, Ash & Huizinga 1999; Kosmidou, Tanna & Pasiouras 2005; Pasiouras & Kosmidou 2007; Kosmidou & Zopounidis 2008; Athanasoglou, Brissimis & Delis 2008).

Also, IBs’ financial risk management as measured by LLRGL and LADSF found to be important in explaining the IBs’ profitability behaviour. Theory suggests that increased exposure to credit risk is normally associated with decreased firm profitability. Hence, most the previous empirical findings assumed a negative relationship between ROA and/or ROE. The previous empirical studies argue that banks can improve their profitability by improving screening and monitoring the credit risk policies and measurements. Also, the effect of LADSF ratio as an indicator of bank’s liquidity found to be significant in improving bank’s capacity meet short-term obligations and avoid insolvency issues.

The study also revealed that IBs’ EME could have a positive and significant effect on IBs’
profitability. The findings support the third hypothesis demonstrated by the negative relationship between CIR and ROAA and ROAE in all models. This means that efficiency in expenses management is a robust determinant of Islamic bank profits. The CIR is the financial ratio that does best in all estimations. The CIR is negatively signed and significant for all types of performance except for NIM suggesting that more efficient banks perform better (Heffernan and Fu, 2008). Hence, this finding supports Hypothesis 3. The opposite effect of CIR coefficients on the profitability measures suggests that the lower the CIR ratio, the better is the profitability performance of a bank. Besides that, the results also suggest that higher expenses mean lower profits and vice versa. This is one of the reasons why CIR has a negative effect on bank profits and margins. Previous empirical studies that reported a negative effect of mismanagement of bank’s expenses on banking profitability are (Demirgüç-Kunt, Ash & Huizinga 1999; Kosmidou, Tanna & Pasiouras 2005; Pasiouras & Kosmidou 2007; Kosmidou & Zopounidis 2008; Athanasoglou, Brissimis & Delis 2008).

For the macroeconomic determinants, the study revealed that favourable macroeconomic environment could stimulate higher Islamic Banking profitability. Specifically, the macroeconomic environment (measured by EG and AIR) is found to have a positive impact on bank performance. The higher growth rate of EG seems to have a strong positive impact on the performance measures. This is similar to CBs, where EG and inflation were found in prior literature as being significant and positively related to performance as well. The similarity of the study findings with those in the conventional literature suggests that the banking profitability determinants are same and can be used and utilised within Islamic banking profitability context.
8.3. Contributions of the Research

The study attempts to fill the gap in the literature especially in the light of successive reports which claim that profitability and performance of global Islamic banking industry have witnessed a negative trend during the last two decades.

With the continuous intermediary role of the banks, a healthy and profitable Islamic banking sector is a priority for national authorities due to its contribution to the stability of the financial system and economic growth.

The conclusions drawn from this study are beneficial and valuable for IBs in formulating the right operational policies that enable them to generate sustainable profitability, which is essential for them to maintain ongoing activity. The conclusions are also important for the investors by improving their understanding of how to take the right investment decision that enables them to obtain fair returns. Most importantly, the conclusions drawn from this study are beneficial for national policymakers as well as the international financial regulatory organisations that are in charge to formulate the right banking policies and regulations that would enhance the overall performance of their banks and eventually contribute to the economic growth and financial stability. Finally, it is also useful for the academic researchers who are interested in the findings to take the research further up.

8.4. Research Limitations

First of all, the weakness of the present study is that due to data constraints, it focuses only on two areas of performance measurement: bank characteristic and macroeconomic condition. This study is limited to the only sample of IBs that are available in BankScope database, from the year 1996 to 2015, and furthermore, cases with missing data are
eliminated from the analysis. Secondly, the study was conducted within a limited period. This study did not include other performance explanatory variables such as industry-specific variables (e.g. financial structure, taxation variables, competition, regulations).

Also, there are a number of limitations that reduce the strength of the results. First, while the effect is minimal, the independent variables are correlated with a weak degree and therefore weakly multicollinear, which can decrease the accuracy of the estimates and in turn more inefficient results than covariates that are orthogonal to each other. Second, the VIFs for a few of the variables are noticeably higher than others, indicating that the coefficients for these variables are comparatively inflated although the average VIFs across the models are low.

Third, there exists bias in the first OLS model and in most of the quantile models, and the RE models are inconsistent according to the Hausman test. Fourth, and finally, there is a lot of missing values across the variables in the dataset, reducing the full sample size of 3,240 to 687. While the final sample size in the regression has led to unbiased FE estimates, a larger size may have minimised the standard errors for variables with a copious amount of missing values and therefore maximise their statistical significance (e.g. maximise the efficiency of the parameters).

**8.5. Future Research**

Further research covering a longer time with a wider range of economic conditions could reveal some new insights. Also, the combination of variables drawn from the CBs’ profitability literature with those of IBs performance literature into a single model could capture the factors affecting the profits of IBs more accurately.
This study can be extended to include more IBs of other countries. The study may also be extended to cover other fields of performance measures such as the level of education, human resources and training. This study can be extended to investigate the magnitude of the strength of internal and external variables on IBs profitability, compared to CBs’ on either a monthly or yearly comparative analysis. Given the globalisation of the markets and the reformed financial environment that has been created, a study of the IBs efficiency system based on financial, stock market and strategic criteria is worth conducting. While this study examined the IBs profitability behaviour using conventional and Islamic financial performance literature, further research is still required to establish the relevance of such variables in the context of IBFI as discussed in chapter two.
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APPENDICES

Table (A-1.1): The list of key Arabic terms and instruments of IBFI.

<table>
<thead>
<tr>
<th>Arabic Term</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Gharar</em></td>
<td>An element of a contract which is unknown, uncertain or ambiguous.</td>
</tr>
<tr>
<td><em>Quran</em></td>
<td>The holy book of Islam, which is used as the primary source of law.</td>
</tr>
<tr>
<td><em>Ijarah</em></td>
<td>A contract whereby the lessor transfers to the lessee in return for a payment or series of payments the <em>usufruct</em> of an <em>Ijarah</em> item for an agreed <em>Ijarah</em> period, with terms mutually agreed by the contracting parties.</td>
</tr>
<tr>
<td><em>Istisna</em></td>
<td>A sale in which the subject is an item that has yet to be fabricated, manufactured, or constructed. Delivery of the item takes place at a future predetermined date. The consideration may be paid before, at or after delivery, or based on the stage of completion.</td>
</tr>
<tr>
<td><em>Ju’ala</em></td>
<td>is essentially an <em>istisna</em>’ contract that is applicable for rendering a specified service as opposed to the manufacturing of a product</td>
</tr>
</tbody>
</table>
| *Kafalah*   | is a financial guarantee whereby the bank gives a pledge to a creditor on behalf of the debtor to cover fines or any other personal liability. It is widely used in conjunction with other financing modes or documentary credits.
| *Maisir*    | In general, *maisir* is broader in scope than gambling. *Maisir* includes all kinds of gambling, that is, it is more than a particular game of chance. The term *“maisir”* was originally used as a reference to a pre-Islamic game of arrows in which seven persons gambled for shares (portions) of an allotted prize. *Maisir* is prohibited by *shariah* on the grounds that the agreement between participants is based on immoral inducement provided by entirely wishful hopes in the participants' minds that they will gain by mere chance, with no consideration for the possibility of loss. |
| *Mudarabah* | A form of partnership between a party which contributes capital (*rabb al-mal*, i.e. capital provider) and another which contributes effort, managerial and/or entrepreneurial skills (*mudarib*, i.e. manager/entrepreneur). Profit from the outcome of the venture is shared between the capital provider and manager / entrepreneur according to a mutually agreed profit sharing ratio, while losses are borne solely by the capital provider, provided such loss is not due to the manager’s/entrepreneur’s negligence or violation of specified conditions. |
| *Mudarib*   | An entrepreneur in a profit sharing arrangement who contributes effort and time. |
| *Murabahah* | A sale based on trust, in which the seller must disclose to the purchaser the mark-up on the item sold. The consideration may be paid either in cash or deferred. |
Table (A-1.1): The list of key Arabic terms and instruments of IBFI.

<table>
<thead>
<tr>
<th>Arabic Term</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musharakah</td>
<td>A form of partnership where partners contribute capital in cash or in kind, and share profits according to an agreed profit-sharing ratio, while losses are shared according to the capital contribution ratio.</td>
</tr>
<tr>
<td>Qard al hasan</td>
<td>Is a benevolent loan where a borrower is obligated to repay only the principal amount of a loan and the lender is not entitled to demand any return over and above the principal.</td>
</tr>
<tr>
<td>Riba</td>
<td>A prohibited gain in lending or trade. In lending, the majority of Islamic scholars have ruled that any interest above a principal is prohibited.</td>
</tr>
<tr>
<td>Salam</td>
<td>A sale in which payment is made at the time of contracting but the delivery of the goods is deferred to a specified time in future.</td>
</tr>
<tr>
<td>Shariah</td>
<td>Islamic laws derived from Al-Quran and As-Sunnah</td>
</tr>
<tr>
<td>Sukuk</td>
<td>A financial certificate representing ownership in an asset or its usufruct.</td>
</tr>
<tr>
<td>Sunna</td>
<td>It relates the practice or code of conduct of the Prophet Mohammad.</td>
</tr>
<tr>
<td>Takaful</td>
<td>An arrangement under which participants agree to contribute to a fund, where sums from the fund would be disbursed to participants or their beneficiaries on the occurrence of pre-agreed events.</td>
</tr>
<tr>
<td>Tawarruq</td>
<td>means in Arabic the acquisition of minted silver, or al wariq, against another asset</td>
</tr>
<tr>
<td>Wakalah</td>
<td>A contract between an agent and principal. In most circumstances, the agent would be entitled to be paid ujrah (fee) for his services rendered.</td>
</tr>
<tr>
<td>Wadiah (deposit)</td>
<td>is a contract between the depositor and the IB (custodian) for safekeeping. The depositor grants the IB permission to utilize the funds for whatever purpose permitted by Shariah. The bank in return guarantees the value of the deposit and allows the depositor easy access for withdrawals whenever needed.</td>
</tr>
<tr>
<td>Zakat</td>
<td>Obligatory contribution assessed based on certain assets owned by a Muslim that satisfy certain conditions and is to be distributed to specified categories of beneficiaries.</td>
</tr>
</tbody>
</table>
Table (A-2.1): Stylized balance sheet of IBs and CBs.

<table>
<thead>
<tr>
<th>Balance Sheet of an Islamic Banks (IBs)</th>
<th>Balance Sheet of a Conventional Banks (CBs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td><strong>Assets</strong></td>
</tr>
<tr>
<td>- Cash and liquid securities</td>
<td>- Cash and cash equivalents</td>
</tr>
<tr>
<td>- Interbank murabahah</td>
<td>- Investment in securities Loans and advances</td>
</tr>
<tr>
<td>- Inventory (real estate, automobiles,</td>
<td>- Investment in Subsidiaries</td>
</tr>
<tr>
<td>commodities, etc.)</td>
<td>Fixed assets</td>
</tr>
<tr>
<td>- Asset-backed transactions</td>
<td>Other assets</td>
</tr>
<tr>
<td>(murabahah, ijarah, salam, and</td>
<td></td>
</tr>
<tr>
<td>istisna')</td>
<td></td>
</tr>
<tr>
<td>- PLS transactions (mudarabah,</td>
<td></td>
</tr>
<tr>
<td>musharakah)</td>
<td></td>
</tr>
<tr>
<td>- Fee-based services (wakalah,</td>
<td></td>
</tr>
<tr>
<td>kofidah) 2/</td>
<td></td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td><strong>Liabilities</strong></td>
</tr>
<tr>
<td>- Demand deposits (gard al</td>
<td>- Current accounts</td>
</tr>
<tr>
<td>hasan, wakalah)</td>
<td>- Saving and time deposits</td>
</tr>
<tr>
<td>Interbank murabahah</td>
<td>- Other liabilities</td>
</tr>
<tr>
<td>- Unrestricted profit sharing</td>
<td></td>
</tr>
<tr>
<td>investment accounts (mudarabah)</td>
<td></td>
</tr>
<tr>
<td>- Restricted profit-sharing</td>
<td></td>
</tr>
<tr>
<td>investment accounts (mudarabah) 1/</td>
<td></td>
</tr>
<tr>
<td>- Reserves (PER, IRR)</td>
<td></td>
</tr>
<tr>
<td><strong>Equity of PSIA</strong></td>
<td></td>
</tr>
<tr>
<td>- PSIA (unrestricted)</td>
<td></td>
</tr>
<tr>
<td>- Profit Equalization Reserve (PER)</td>
<td></td>
</tr>
<tr>
<td>- Investment risk reserve</td>
<td></td>
</tr>
<tr>
<td><strong>Owner's Equity</strong></td>
<td><strong>Owner's Equity</strong></td>
</tr>
<tr>
<td>- PSIA (restricted)</td>
<td>- Off-balance sheet</td>
</tr>
<tr>
<td>- Off-balance sheet</td>
<td>- Letters of credit, guarantees,</td>
</tr>
<tr>
<td>- Letters of credit, guarantees</td>
<td>derivatives</td>
</tr>
<tr>
<td>Source: developed from (Mejia et al., 2014)</td>
<td></td>
</tr>
</tbody>
</table>
Table (A-2.2): The unique risks inherent to IBs with those that are common to IBs and CBs.

<table>
<thead>
<tr>
<th>Specific unique risks to IBs</th>
<th>Common risks in IBs and CBs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shariah compliance risk</strong></td>
<td><strong>Credit risk:</strong> Given the unique characteristics of some of the IBs’ financial instruments, the overall credit risk faced by IBs can be greater than in CBs. For example, in the case of receivables which represent a high percentage of IBs’ assets, IBs may have no option to sell at a discount or to repackage and sell these financial assets as securities to take the risk off their balance sheets.</td>
</tr>
<tr>
<td><strong>Equity investment risk</strong></td>
<td><strong>Operational risk</strong> Is the risk of losses as a result of failed internal processes, people and systems. It is likely to be more relevant for IBs than for CBs. For example, risks may include improper documentation or mistakes in the acquisition of real assets ordered by and disposed by the client.</td>
</tr>
<tr>
<td><strong>Rate of return risk</strong></td>
<td><strong>Liquidity risk:</strong> This risk is higher in IBFI due to several factors such as the reliance on short-term retail funding, tendency to operate in environments with underdeveloped Shariah-compliant interbank and money markets and government securities, have limited ability to hedge certain risks due to prohibitions against the use of conventional derivatives, and have limited access to lender of last resort facilities.</td>
</tr>
<tr>
<td><strong>Displaced commercial risk</strong></td>
<td><strong>Transparency risk</strong> Arises from bad decisions based on incomplete or inaccurate information (e.g., the opacity of balance sheets and complex asset structures) which in turn may lead to losses. This risk is important in IBs given the use of nonstandard conventions for reporting Islamic financial contracts and the lack of uniform standards of reporting among banks.</td>
</tr>
<tr>
<td><strong>Legal risk:</strong></td>
<td>The ongoing lack of a global consensus among Islamic scholars regarding Shariah- compliant transactions as well as poor enforceability of contractual agreements has been creating significant legal uncertainty and in turn, increased IBs exposure to counter-party risks of default and delinquency.</td>
</tr>
<tr>
<td><strong>Fiduciary risk</strong></td>
<td>It has specific nature in the case of IBs given the PLS feature of (IF). It is defined as the legal liability arising from a breach of the investment contract for mismanagement of investors’ funds. This legal liability</td>
</tr>
<tr>
<td>Specific unique risks to IBs</td>
<td>Common risks in IBs and CBs</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td></td>
<td>exposes the bank to the direct losses associated with the breach of its fiduciary responsibility toward unrestricted account holders and to indirect losses associated with a decline in the market price of its listed shares.</td>
</tr>
</tbody>
</table>
Figure (A-3.1): A brief of Bahrain’s IBFI profile.
Figure (A-3.2): A brief of Kuwait’s IBFI profile.

Source: The Ernst and Young (EY)’s World Islamic Banking Competitiveness Report (2016) PP. 54
Figure (A-3.3): A brief of Qatar’s IBFI profile.

Source: The Ernst and Young (EY)’s World Islamic Banking Competitiveness Report (2016). PP. 56.
Figure (A-3.4): A brief of Saudi Arabia’s IBFI profile.

Figure (A-3.5): A brief of United Arab of Emirate IBFI profile.

Source: The Ernst and Young (EY)’s World Islamic Banking Competitiveness Report (2016) PP. 52.
Figure (A-3.6): A brief of Indonesian IBFI profile.

Source: The Ernst and Young (EY)'s World Islamic Banking Competitiveness Report (2016). PP. 60.
Figure (A-3.7): A brief of Malaysian IBFI profile.

Source: The Ernst and Young (EY)’s World Islamic Banking Competitiveness Report (2016). PP. 50.
Figure (A-3.8): A brief of Pakistan IBFI profile.

Figure (A-3.9): A brief of Turkish IBFI profile.

Source: The Ernst and Young (EY)’s World Islamic Banking Competitiveness Report (2016). PP. 58.
Table (A-4.1): A brief description of the variables used in the econometric and estimation methods.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Hypothesized Relationship with (ROAA) &amp; (ROAE)</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Profitability Measure</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return on Average Assets (ROAA)</td>
<td>The return on average total assets of bank j in year t.</td>
<td>N/A</td>
<td>BankScope database.</td>
</tr>
<tr>
<td>Return on Average Equity (ROAE)</td>
<td>The return on average total shareholders’ equity of bank j in year t.</td>
<td>N/A</td>
<td>BankScope database.</td>
</tr>
<tr>
<td><strong>Independent Islamic Bank-Specific Profitability Determinants</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank’s Capital and Size (CZ)</td>
<td>Measured by Equity / Total Assets ratio (ETA) as an indicator of capital adequacy;</td>
<td>positive and significant</td>
<td>BankScope database.</td>
</tr>
<tr>
<td>Bank’s Financial Risk Management (FRM)</td>
<td>Measured by two proxies: 1) Loan Loss Reserve / Gross Loans ratio (LLRGL) as an indicator of credit risk (asset quality); and 2) Liquid Assets / Deposits &amp; Short-term Funding ratio (LADSF) as an indicator of liquidity risk.</td>
<td>positive and significant</td>
<td>BankScope database.</td>
</tr>
<tr>
<td>Expenses Management Efficiency (EME)</td>
<td>Measured by NIM ratio, and CIR as an indicator of cost or management efficiency;</td>
<td>positive and significant</td>
<td>BankScope database.</td>
</tr>
<tr>
<td><strong>Independent Islamic Bank Macroeconomic Profitability Determinants</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Inflation Rate (AIR)</td>
<td>Measured by the consumer price index to reflect the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.</td>
<td>significant</td>
<td>World Bank Open Data - World Bank Group</td>
</tr>
<tr>
<td>Economic Growth Rate (EGR)</td>
<td>Measured by the annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars.</td>
<td>significant</td>
<td>World Bank Open Data - World Bank Group</td>
</tr>
<tr>
<td>Variable</td>
<td>Description</td>
<td>Hypothesized Relationship with (ROAA) &amp; (ROAE)</td>
<td>Data Source</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Country Governance (CG)</td>
<td>Governance consists of the traditions and institutions by which authority in a country is exercised. It measured by six dimensions: Voice and Accountability; Political Stability and Absence of Violence; Government Effectiveness; Regulatory Quality; Rule of Law; Control of corruption</td>
<td>significant</td>
<td>The Worldwide Governance Indicators - World Bank Group</td>
</tr>
<tr>
<td>Muslim Population (MP)</td>
<td>To control for religion and MP effects, the percentage of Muslims within a region is included in the regression in the models.</td>
<td>Control variable</td>
<td>Pew Research Center</td>
</tr>
<tr>
<td>World Region Group (WRG)</td>
<td>World Region Group will control for each impact a region has on performance and profitability of the IBs</td>
<td>Control variable</td>
<td>Pew Research Center</td>
</tr>
</tbody>
</table>
Table (A-5.1): Description of the selected countries and IBs sample.

<table>
<thead>
<tr>
<th>Num of Countries and IBs per Region</th>
<th>Country</th>
<th>Num. of IBs</th>
<th>Name of the IBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region (2): Southeast Asia region</td>
<td>Brunei</td>
<td>1</td>
<td>Bank Islam Brunei Darussalam Berhad</td>
</tr>
<tr>
<td>5 countries</td>
<td>Indonesia</td>
<td>10</td>
<td>Bank Syariah Mandiri; PT Bank Muamalat Indonesia Tbk; PT Bank BRI Syariah; PT Bank BNI Syariah; PT Bank Mega Syariah; PT Bank Panin Dubai Syariah Tbk; PT Bank Jawa Barat Banten Syariah; PT Bank BCA Syariah; PT Bank Maybank Syariah Indonesia; PT Bank Victoria Syariah;</td>
</tr>
<tr>
<td>32 IBs</td>
<td>Malaysia</td>
<td>18</td>
<td>Maybank Islamic Berhad; Bank Kerjasama Rakyat Malaysia Berhad; CIMB Islamic Bank Berhad; Bank Islam Malaysia Berhad; Public Islamic Bank Berhad; RHBI Islamic Bank Berhad; AmIslamic Bank Berhad; Hong Leong Islamic Bank Berhad; Bank Muamalat Malaysia Berhad; HSBC Amanah Malaysia Berhad; OCBC Al-Amin Bank Berhad; Affin Islamic Bank Berhad; Standard Chartered Saadiq Berhad; Alliance Islamic Bank Berhad; Kuwait Finance House (Malaysia) Berhad; Al Rajhi Banking &amp; Investment Corporation (Malaysia) Berhad; Asian Finance Bank Berhad; Alkhair International Islamic Bank Berhad;</td>
</tr>
<tr>
<td></td>
<td>Philippines</td>
<td>1</td>
<td>Al-Amanah Islamic Investment Bank of the Philippines</td>
</tr>
<tr>
<td></td>
<td>Thailand</td>
<td>2</td>
<td>Islamic Bank of Thailand; Albaraka Bank Tunisia</td>
</tr>
<tr>
<td>Region (1): GCC (Gulf Cooperation Council)</td>
<td>Bahrain</td>
<td>19</td>
<td>Albaraka Banking Group B.S.C.; Ithmaar Bank B.S.C.; Al-Salam Bank-Bahrain B.S.C.; Kuwait Finance House; Arcapita Bank B.S.C.; GFH Financial Group B.S.C.; Bahrain Islamic Bank B.S.C.; Albaraka Islamic Bank BSC; Khaleej Commercial Bank; ABC Islamic Bank (E.C.); First energy bank; Bank Alkhair BSC; Ibdar Bank BSC; Venture Capital Bank BSC (c); VCIBank; International Investment Bank B.S.C.-IIB; Seera Investment Bank BSC; Global Banking Corporation BSC; Investors Bank BSC; Citi Islamic Investment Bank EC;</td>
</tr>
<tr>
<td>6 countries</td>
<td>Kuwait</td>
<td>11</td>
<td>Kuwait Finance House; Ahli United Bank KSC; Boubyan Bank KSCP; Kuwait International Bank; Investment Dar Co (The); Warba Bank; Aref Investment Group; A’ayan Leasing &amp; Investment Company; First Investment Company K.S.C.C.; International Investor Company, K.S.C. (The) Rasameel Structured Finance Company K.S.C (closed);</td>
</tr>
<tr>
<td>53 IBs</td>
<td>Oman</td>
<td>2</td>
<td>Bank Nizwa SAOG; Alizz Islamic Bank S.A.O. G</td>
</tr>
<tr>
<td></td>
<td>Qatar</td>
<td>6</td>
<td>Qatar Islamic Bank SAQ; Masraf Al Rayan (Q.S.C.); Barwa Bank; Qatar International Islamic Bank; Qatar First Bank LLC; First Finance Company (Q.S.C.);</td>
</tr>
<tr>
<td></td>
<td>Saudi Arabia</td>
<td>5</td>
<td>Al Rajhi Bank Public Joint Stock Company; Alinma Bank Public joint stock company; Islamic Development Bank; Bank AlJazira JSC; Bank AlBilad</td>
</tr>
<tr>
<td>Region (3): South Asia</td>
<td>United Arab Emirates</td>
<td>10</td>
<td>Dubai Islamic Bank PJSC; Abu Dhabi Islamic Bank - Public Joint Stock Co.; Emirates Islamic Bank PJSC; Al Hilal Bank PJSC; Noor Bank; Sharjah Islamic Bank; Ajman Bank; Amlak Finance PJSC; Tamweel PJSC; Mawarid Finance PJSC;</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------</td>
<td>----</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>8</td>
<td>Islami Bank Bangladesh Limited; Export-Import Bank of Bangladesh Limited; First Security Islami Bank Limited; Al-Arafah Islami Bank Ltd.; Social Islami Bank Ltd; Shahjalal Islami Bank Ltd; Union Bank Limited; ICB Islamic Bank Limited;</td>
<td></td>
</tr>
<tr>
<td>Pakistan</td>
<td>9</td>
<td>Meezan Bank Limited; BankIslami Pakistan Limited; Dubai Islamic Bank Pakistan Limited; Albaraka Bank (Pakistan) Limited; Albaraka Islamic Bank BSC (EC) - Pakistan Branches; Burj Bank Limited; First Habib Modaraba; ORIX Modaraba; First National Bank Modaraba;</td>
<td></td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>1</td>
<td>Lolic Finance Plc</td>
<td></td>
</tr>
<tr>
<td>Region (5): MENA</td>
<td>Egypt</td>
<td>3</td>
<td>Faisal Islamic Bank of Egypt; Al Baraka Bank Egypt SAE; Abu Dhabi Islamic Bank</td>
</tr>
<tr>
<td>6 countries</td>
<td>Iran</td>
<td>17</td>
<td>Bank Mellat; Bank Melli Iran; Bank Maskan; Bank Saderat Iran; Bank Tejarat; Bank Sepah; Bank Keshavarzi; Agricultural Bank of Iran; Parsian Bank; Bank Pasargad; Refah Kargaran Bank Bank Bank; Eghtesad Novin Bank PJSC-EN Bank; Bank of Industry and Mine; Saman Bank; Bank Sarmayeh; Bank Day; Export Development Bank of Iran; Karafarin Bank;</td>
</tr>
<tr>
<td>48 IBs</td>
<td>Jordan</td>
<td>3</td>
<td>Jordan Islamic Bank; Islamic International Arab Bank; Jordan Dubai Islamic Bank</td>
</tr>
<tr>
<td>Lebanon</td>
<td>3</td>
<td>Arab Finance House sal (Islamic Bank); Al Baraka Bank SAL Arab; Finance House Holding SAL</td>
<td></td>
</tr>
<tr>
<td>Sudan</td>
<td>18</td>
<td>Omdurman National Bank Public Limited Company; Faisal Islamic Bank (Sudan); Bank of Khartoum; Tadamon Islamic Bank; Sudanese French Bank Public Limited Company (The); Blue Nile Mashreq Bank Ltd; AlNil Bank for Commerce &amp; Development; Al Baraka Bank Sudan Public Limited Company; Al Salam Bank; United Capital Bank; Al Shamal Islamic Bank; Sudanese Islamic Bank; Byblos Bank Africa Ltd; Al Jazeera Sudanese Jordanian Bank; Industrial Development Bank; National Bank of Sudan; Sudanese Egyptian Bank; Arab Sudanese Bank Co Ltd;</td>
<td></td>
</tr>
<tr>
<td>Yemen</td>
<td>4</td>
<td>Tadhamon International Islamic Bank; Saba Islamic Bank; Shamal Bank of Yemen &amp; Bahrain; Islamic Bank of Yemen for Finance &amp; Investment</td>
<td></td>
</tr>
<tr>
<td>Region (4): EUROPE</td>
<td>Turkey</td>
<td>5</td>
<td>Kuveyt Turk Katlim Bankasi A.S.-Kuwait Turkish Participation Bank Inc; Turkiye Finans Katlim Bankasi AS; Albaraka Turk Participation Bank-Albaraka Turk Katlim Bankasi AS; Asya Katlim Bankasi AS-Bank Asya; Ziraat Katlim Bankasi A.S.</td>
</tr>
<tr>
<td>2 countries</td>
<td>The UK</td>
<td>5</td>
<td>Bank of London and The Middle East Plc-BLME; Al Rayan Bank Plc; Gatehouse Bank Plc; Rasmala Plc; DD&amp;Co. Limited</td>
</tr>
<tr>
<td>Region (6): SUB-SAHARAN AFRICA</td>
<td>South Africa</td>
<td>1</td>
<td>Albaraka Bank Limited</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------</td>
<td>---</td>
<td>----------------------</td>
</tr>
<tr>
<td>1 country</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 IBs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table (A-6.1): Descriptive Findings for the dependent and independent variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return on Average Assets (ROAA)</td>
<td>1.33</td>
<td>7.83</td>
<td>-174.28</td>
<td>79.53</td>
<td>1,447</td>
</tr>
<tr>
<td>between</td>
<td>4.92</td>
<td>-30.69</td>
<td>44.69</td>
<td>n</td>
<td>161</td>
</tr>
<tr>
<td>within</td>
<td>6.44</td>
<td>-142.26</td>
<td>59.32</td>
<td>T</td>
<td>8.99</td>
</tr>
<tr>
<td>Return on Average Equity (ROAE)</td>
<td>9.25</td>
<td>21.69</td>
<td>-233.09</td>
<td>276.74</td>
<td>1,447</td>
</tr>
<tr>
<td>between</td>
<td>17.27</td>
<td>-41.24</td>
<td>172.79</td>
<td>n</td>
<td>161</td>
</tr>
<tr>
<td>within</td>
<td>17.72</td>
<td>-214.9</td>
<td>113.2</td>
<td>T</td>
<td>8.99</td>
</tr>
<tr>
<td><strong>Independent</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank-Specific variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td>22.86</td>
<td>34.75</td>
<td>-669.48</td>
<td>100</td>
<td>N</td>
</tr>
<tr>
<td>Equity / Total Assets ratio (ETA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>between</td>
<td>26.68</td>
<td>-100.24</td>
<td>98.6</td>
<td>n</td>
<td>161</td>
</tr>
<tr>
<td>within</td>
<td>23.88</td>
<td>-555.36</td>
<td>179.64</td>
<td>T</td>
<td>8.94</td>
</tr>
<tr>
<td>Loan Loss Reserve / Gross Loans (LIRGL)</td>
<td>6.99</td>
<td>13.01</td>
<td>0</td>
<td>100</td>
<td>N</td>
</tr>
<tr>
<td>between</td>
<td>8.76</td>
<td>0.06</td>
<td>46.39</td>
<td>n</td>
<td>148</td>
</tr>
<tr>
<td>within</td>
<td>9.9</td>
<td>-34.88</td>
<td>79.14</td>
<td>T</td>
<td>7.26</td>
</tr>
<tr>
<td>Net Interest Margin (NIM)</td>
<td>5.49</td>
<td>20.83</td>
<td>-282.75</td>
<td>472.87</td>
<td>N</td>
</tr>
<tr>
<td>between</td>
<td>13.13</td>
<td>-36.46</td>
<td>159.04</td>
<td>n</td>
<td>161</td>
</tr>
<tr>
<td>within</td>
<td>13.83</td>
<td>-240.81</td>
<td>319.32</td>
<td>T</td>
<td>8.82</td>
</tr>
<tr>
<td>Cost-to-Income Ratio (CIR)</td>
<td>73.81</td>
<td>80.54</td>
<td>9.04</td>
<td>973.33</td>
<td>N</td>
</tr>
<tr>
<td>between</td>
<td>59.04</td>
<td>16.26</td>
<td>380.67</td>
<td>n</td>
<td>161</td>
</tr>
<tr>
<td>within</td>
<td>62.99</td>
<td>-200.95</td>
<td>851.12</td>
<td>T</td>
<td>8.88</td>
</tr>
<tr>
<td>Liquid Assets / Deposit &amp; Short-term Funding (LADF)</td>
<td>53.95</td>
<td>95.57</td>
<td>0.16</td>
<td>997.72</td>
<td>N</td>
</tr>
<tr>
<td>between</td>
<td>83.87</td>
<td>6.48</td>
<td>533.59</td>
<td>n</td>
<td>158</td>
</tr>
<tr>
<td>within</td>
<td>64.29</td>
<td>-318.11</td>
<td>857.53</td>
<td>T</td>
<td>8.59</td>
</tr>
<tr>
<td><strong>Macroeconomic variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td>4.57</td>
<td>3.84</td>
<td>-15.09</td>
<td>26.17</td>
<td>N</td>
</tr>
<tr>
<td>Economic growth rate (EGR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>2.82</td>
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Note: where N is the number of observations, n is the number of panel units (e.g. IBs) for the variable, and T is the average number of years the variable covers for each unit.
Table: (A-6.2): The model estimations for the panel models.

<table>
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<tr>
<th>Model Dependent Variable</th>
<th>FE1 ROAA $\beta$</th>
<th>RE1 ROAA $\beta$</th>
<th>FE2 ROAE $\beta$</th>
<th>RE2 ROAE $\beta$</th>
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<tr>
<td>Equity / Total Assets, %</td>
<td>0.083***</td>
<td>0.039***</td>
<td>0.267**</td>
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<td>Loan Loss Reserve / Gross Loans, %</td>
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<td>-0.040***</td>
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<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
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<tr>
<td>Net Interest Margin, %</td>
<td>0.078</td>
<td>0.098**</td>
<td>0.602**</td>
<td>0.585**</td>
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<td>0.005</td>
<td>0.007</td>
<td>0.003</td>
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<td>Cost-to-Income Ratio, %</td>
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<td>-0.024***</td>
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<td>0.041**</td>
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* p < 0.05, ** p < 0.01, *** p < 0.001
Table: (A-6.3): OLS and Quantile Models – ROAA.

<table>
<thead>
<tr>
<th>Model Dependent Variable</th>
<th>OLS1 ROAA</th>
<th>Q1(25%) ROAA</th>
<th>Q1(median) ROAA</th>
<th>Q1(75%) ROAA</th>
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<tr>
<td>Equity / Total Assets, %</td>
<td>0.013</td>
<td>0.019***</td>
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<tr>
<td>Cost-to-Income Ratio, %</td>
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<td>0.031***</td>
<td>-0.027***</td>
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<td>Liquid Assets / Deposit &amp; Short-term Funding</td>
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<tr>
<td>Economic Growth Rate (EGR)</td>
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<td>0.061***</td>
<td>0.069***</td>
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<td>Muslim Population (MP)</td>
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World Region
- 2
- 3
- 4
- 5
- 6
- Intercept

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* p < 0.05, ** p < 0.01, *** p < 0.001
Table: (A-6.4): OLS and Quantile Models – ROAE.

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**Bank-Specific variables**

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<th>Q2(median)</th>
<th>Q2(75%)</th>
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</thead>
<tbody>
<tr>
<td>Equity / Total Assets, %</td>
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<td>0.167***</td>
<td>-0.136***</td>
<td>-0.115**</td>
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<td>&lt; 0.001</td>
<td>0.004</td>
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<tr>
<td>Loan Loss Reserve / Gross Loans, %</td>
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<td>Net Interest Margin, %</td>
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<td>Cost-to-Income Ratio, %</td>
<td>-0.109***</td>
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<td>-0.107***</td>
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<tr>
<td>Liquid Assets / Deposit &amp; Short-term Funding</td>
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**Macroeconomic variables**

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<th>Q2(median)</th>
<th>Q2(75%)</th>
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<tbody>
<tr>
<td>Economic Growth Rate (EGR)</td>
<td>0.459**</td>
<td>0.302**</td>
<td>0.544***</td>
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<td>0.178*</td>
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<td>&lt; 0.001</td>
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<td>Muslim Population (MP)</td>
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<td>-0.0390*</td>
<td>0.000</td>
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**World Region**

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**Intercept**

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| N       | 687       | 687        | 687           | 687         |
| R²      | 0.326     | 0.304      | 0.259         | 0.222       |

* p < 0.05, ** p < 0.01, *** p < 0.001