Profitability and Competition Determinants of Islamic and Conventional Banks: the case of QISMUT+3.

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ABSTRACT

The aim of this study is to assert profitability and competition determinants of Islamic and Conventional banks operating in top nine Islamic Finance oriented countries that are named as QISMUT+3 (Qatar, Indonesia, Saudi Arabia, Malaysia, UAE, Turkey, Bahrain, Kuwait and Pakistan). For this purpose, it uses bank specific, market structure, and macroeconomic variables that are utilized from Orbis Bank Focus and World Bank database. In addition to static models, to capture endogeneity problem and unobserved heterogeneity, a dynamic approach is used by employing system GMM estimation. The major findings of the study show higher profit persistency of Islamic banks (IBs) than conventional banks (CBs). The results also suggest that profitability determinants of IBs and CBs are different. Concerning the risk behavior, bank capitalization and credit risk variables are more important for CBs. Credit risk enhances the degree of competition in both types of banks. The size is matter only in Islamic banks, and it is in line with efficient structure hypothesis. Liquidity management reduces the competitiveness of conventional banks. IBs outperform CBs in terms of competitiveness. Crisis results attribute better resilience to Islamic banks.

Keywords: Profitability, Competition, Islamic Banking, QISMUT+3, Conventional Banking, Service Industry.

ÖZ

Bu çalışmanın amacı, QISMUT + 3 (Katar, Endonezya, Suudi Arabistan, Malezya, BAE, Türkiye, Bahreyn, Kuveyt ve Pakistan) olarak adlandırılan ve ilk dokuz İslami finans odaklı ülkelerinde faaliyet gösteren İslami ve Geleneksel bankaların karlılık ve rekabet belirleyici etkenlerini ortaya koymaktır. Bunun için "Orbis Bank Focus" ve "Dünya Bankası" veritabanlarından alınan Banka Özellikleri, Piyasa Yapısı ve makroekonomik değişkenleri kullanmaktadır. Statik modellere ek olarak, endojenlik problemi ve gözlemlenmemiş heterojenliği yakalamak için, GMM tahmin sistemi uygulanarak dinamik yaklaşım kullanılır. Çalışmanın ana bulguları, İslami Bankaların (IB) Geleneksel Bankalara (GB) nazaran daha yüksek kârlılığı elde ettiklerini göstermektedir. Ayrıca sonuçlar, İslami Bankaların ve Geleneksel Bankaların karlılık belirleyicilerinin farklı olduğunu göstermektedir. Geleneksel Bankalar için Risk Davranışları, Banka Sermayesi ve Kredi Riski gibi değişkenler daha fazla önem taşımaktadır. Kredi Riski değişkeni böylece her iki banka arasındaki rekabetin şiddetini arttırır. Büyüklük sadece İslami Bankalar için önemlidir ve etkili yapı hipotezi ile uyumludur. Likidite yönetimi, Geleneksel Bankaların rekabet gücünü azaltır. Rekabet edebilirlik açısından İslami Bankalar Geleneksel Bankalar karşısında üstünlük sağladı. Kriz sonuçları İslami bankalara daha iyi esneklik sağlar.

Anahtar Kelimeler: Karlılık, Rekabet, İslami bankacılık, QISMUT + 3, Geleneksel Bankacılık, Hizmet Sektörü.

DEDICATION

To my lovely Family!!!

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INTRODUCTION

1.1 The importance of banking industry

In recent decades, operating environment of the banking industry has experienced global and substantial changes. The evidence shows that both external and internal factors are influencing banking structure and performance considerably (Athanasoglou et al., 2008; Fethi and Katircioglu, 2015; Hachicha 2008). Following the recent 2007 global financial crisis, Islamic Banking has emerged as an alternative option for investment and financial intermediation (Smolo and Mirakhor, 2010). The findings suggest that Islamic Banking has been accepted as one of the major contributors to global banking. Moreover, having a high level of immunity, it helps economies to withstand negative shocks of the crises. Islamic Banking with its better immune system, has attracted the interest of bank managers, academic researchers and government regulators, henceforth more empirical research is being conducted to compare the determinants of financial performance in Islamic and conventional banking. The banking sector in emerging markets, especially those with a majority of Muslim population, provides a context for conducting a comparative analysis of the financial performance of both Islamic and conventional banks.

Islamic Banking emerged because of high demand by Muslim population for Sharia compliant financial products and services in Muslim and non-Muslim countries (Bassens et al., 2011). As a result, Islamic banks have gained higher market share relative to conventional banks and have improved their competitive power in

QISMUT countries (Ernst and Young, 2016). As such, conventional banks started to offer Sharia compliant financial products through their Islamic Banking windows. The prohibition of interest rate (Riba) is the key principle of Islamic Banking and finance, and all financial products and services are based on Sharia (Islamic law) regulations (Hadi et al., 2016; Yunus 2016; Suryanto 2015; Abedifar et al., 2015; Amin et al., 2011; Hoque et al., 2018). In addition to Riba prohibition, Sharia regulations prohibit other various activities as well, such as excessive uncertainty (Gharar) in business activities (Waemustafa and Sukri 2016; Bassens et al., 2011). To insure Sharia regulations, Islamic banks' supervisory board members are composed of executive management and also Islamic Banking and finance scholars (Abedifar et al., 2015). Islamic banks also differ from conventional banks in terms of international accounting standards and risk management. The accounting system is needed by both Islamic and conventional banks to grow effectively and efficiently by controlling transactions. However, the conventional accounting system is not appropriate for Islamic organizations, which follow interest-free policy that demands specific accounting standards (Sarea and Hanefah, 2013). The rapid growth of Islamic banks and efforts to improve accounting standards in Islamic Banking has led the establishment of Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) in 1991. The role of AAOIFI is to enhance and facilitate the credibility and transparency of financial statements of Islamic banks (Mohammed Sarea and Mohd Hanefah, 2013). As both types of banking deal mainly with risk in their transactions, they expose different risks that include credit, liquidity, market and operational risks. In contrast to conventional banks, Islamic banks are relatively more liquid and more capitalized, therefore, IBs have less risk in their banking activities (Sorwar et al., 2016). Moreover, IBs do not offer complicated financial

products or services, such as derivatives and options that reduce the exposure to the risk as well.

1.2 Financial products of Islamic banks in general

Islamic banks offer the following financial products and services: equity structure instruments and debt structure instruments.

Equity structure instruments: Musharaka stands for partnership business run by two or more parties. In conventional system, it is called Joint Venture, where two parties come together and sign mutual agreement to conduct specific project or business together by investing specific amount of capital. Allocation profit or loss is determined before the running business, in other words profit is shared as well as loss. Musharakah transaction is provided below in the chart 1:
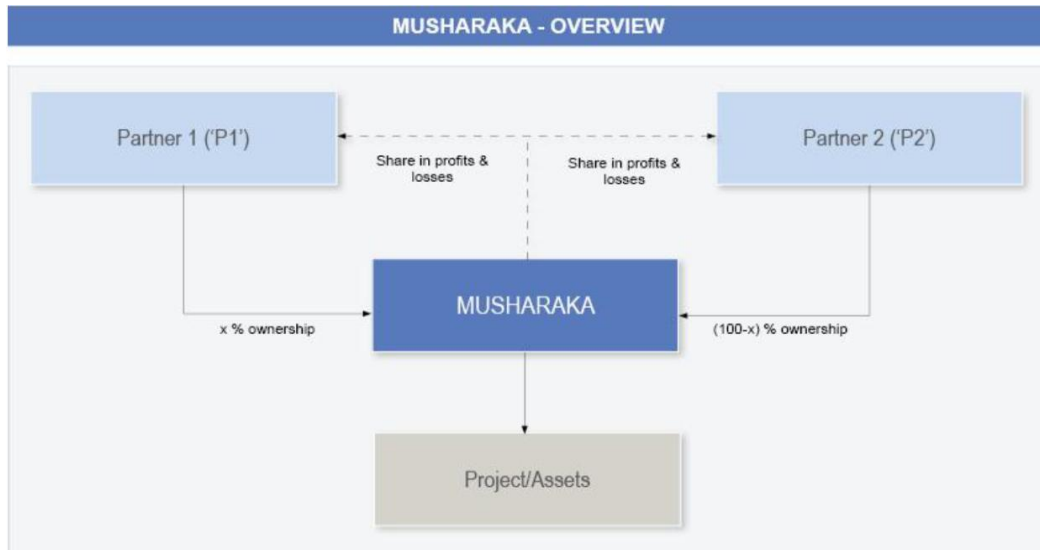
Figure 1: Musharaka PLS principle

Mudaraba refers to trust finance, where one partner comes with specific amount of capital and other one come with knowledge and expertise to run together the specific project or business in accordance with Islamic law. Profit or loss is based on

agreement they made at the beginning of contract, and investor bear all the expenses that they face during the business. The party that supply the capital is referred to the owner of the capital. The person that runs the business with management expertise is called an agent. Sharing the venture capital is the partnership or trust financing contract. The only time and efforts are done by borrower, the chart 2 illustrates in more detail.
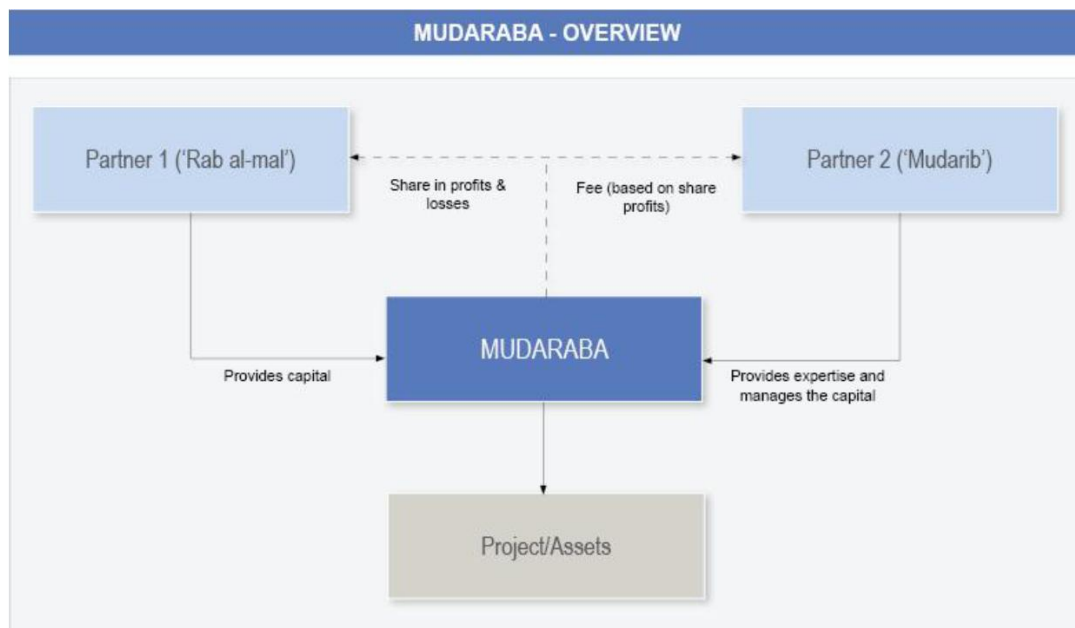
Figure 2: Mudaraba

Debt structure instrument: Murabaha refers to cost plus financing, buying the specific product with the purpose to resell at higher price with installments by adding profit margin. In other words, it is the sale of financial products at cost plus profit margin. This financial principle similar to lending activity, Murabaha is demonstrated in the chart 3 below:
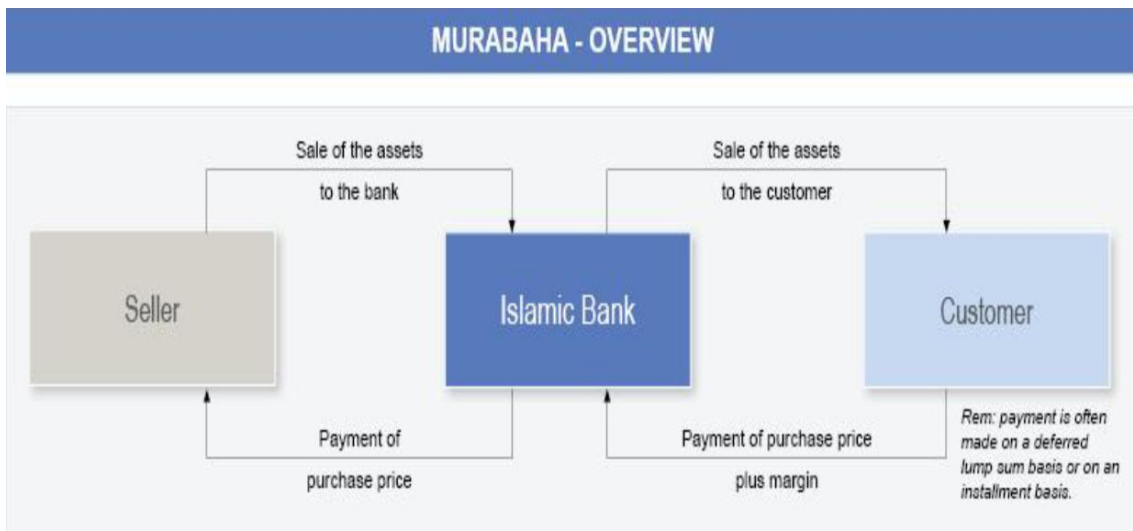
Figure 3: Murabaha

Ijara is similar with conventional lease contract, where buildings, machines, flats and equipment are used on rental basis. Islamic banks find assets upon the request of customer, and then IBs rent or leases his property or goods to a lessee for a specified number of periods for a fee. Ijara principle is shown below in the list:
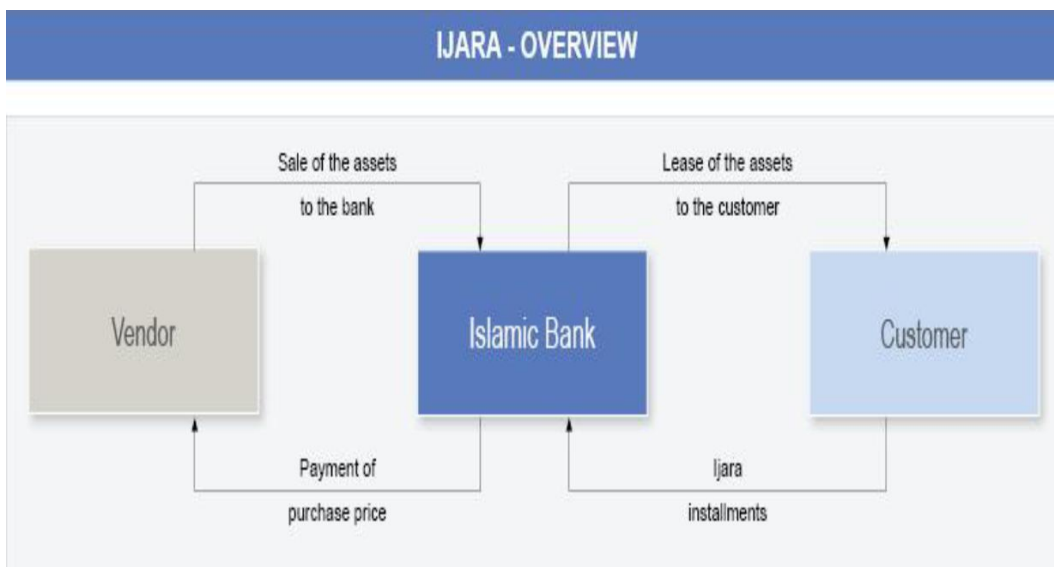
Figure 4: Ijara - Leasing

Istisna'a is manufacture contract, where buyer asks the producer or seller to manufacture a specific product by using seller's raw material at agreed mutual price in predetermined future time. Islamic banks finance construction of buildings,

manufacturing ships, engines and so on. The chart 5 that describes Istisna Islamic principles:
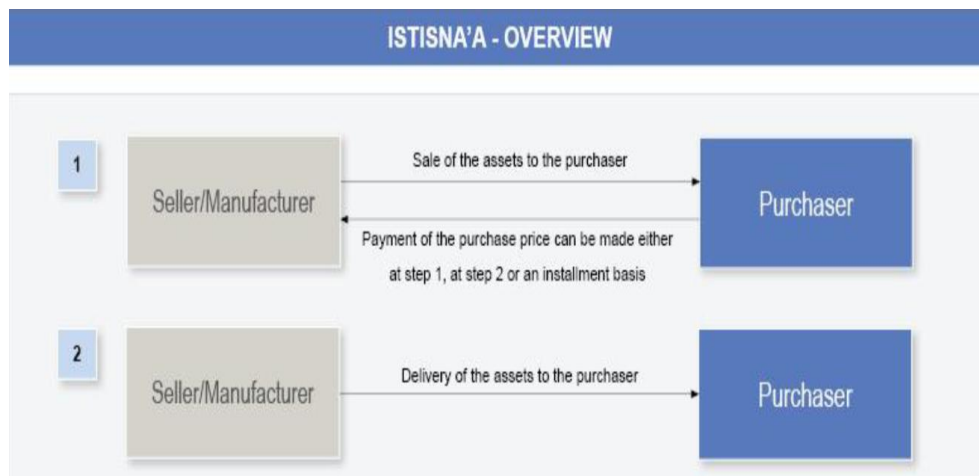
Figure 5: Istisna'a

The heart of international participation banking (internation Islamic Banking) is nine core markets — Qatar, Indonesia, Saudi Arabia, Malaysia, United Arab Emirates, Turkey, Kuwait, Bahrain and Pakistan (QISMUT+3 contributions). Together, they account for 93% of participation banks' global assets, which were estimated to exceed US$920 billion in 2015. These countries are also included among a list of 25 countries identified as rapid growth markets based on three indicators: economic growth with future outlook, size of the economy and population, and strategic importance for global business (Lackmann, 2014). According to Yildirim, (2015), six rapid growth market countries (QISMUT) are expected to play a significant role in the globalization of Islamic Banking. These countries continuously grow in population and attract the interest of both Islamic and non-Islamic companies due to their strong social infrastructure and rich natural resources.

This work makes a threefold contribution to the existing literature. First, our work is the first that examines the main improved drivers of profitability, and then

competition determinants of Islamic banks (IBs) and conventional banks (CBs) in a new classification of countries, abbreviated as the QISMUT+3 countries. These are the top nine Islamic finance-oriented countries, which encourage the prosperity and growth of Islamic finance. Second, we employ advanced statistical methodologies such as the dynamic system Generalized Method of Moments (GMM) estimation and static FE/RE models to carry out a comparative analysis of IBs and CBs. Finally, we use a new competition measure in the dual banking industry, namely the Boon indicator.

The rest of the thesis is structured as follows: chapter 2 reviews the existing literature on the determinants of financial performance and banking competition for both IBs and CBs. Chapter 3 outlines the data and methodology. Chapter 4 provides empirical estimations and results for the QISMUT+3 countries, and Chapter 5 presents the conclusion.

Chapter 2

LITERATURE REVIEW

2.1 Profitability and persistency literature

In the existing literature, there are only a few studies that compare IBs and CBs in terms of profitability by using dynamic methodologies. Many studies have been conducted to identify the determinants of profitability in banking using a static approach. However, as it is referred in the methodology section, these approaches have some weaknesses. Among others, Bashir (2003), Samad and Hassan (1999), Ariss (2010), Alqahtani et al. (2016), Hassan and Bashir (2005), Gul et al. (2011), Hassan (2008), Hassoune (2003), Kosmidou and Zopounidis (2008), and Spathis et al. (2002) have used static approach in their analysis. Another strand of literature has followed the dynamic approach such as Sun et al. (2017), Athanasoglou et al. (2008), Mirzaei et al. (2013), Goddard et al. (2004), Goddard et al. (2011), Chowdhury et al. (2016), Dietrich and Wanzenried (2011), and Dietrich and Wanzenried (2014). The common objective of the existing static and dynamic literature is to examine internal and external factors that influence the financial performance of banks.

Studies related to internal determinants of financial performance in Islamic and conventional banks employ variables such as capital adequacy, bank size, expense management and risk management. Some of the studies find a positive and significant relationship between size and bank profitability (Smirlock, 1985; Goddard et al., 2004; Asli Demirguc-Kunt and Harry Huizinga, 2000; Almazari, 2014). However, Berger et al., (1987) suggest that size has no relationship with the

profitability of banks. Short (1979) and Kalifa and Bektaş (2017) found that size is closely linked to the capital adequacy of a bank. Therefore, large banks can benefit from economies of scale that lead to higher profits. Applying similar methodologies, different studies, have statistically shown that capital is linked to the size of banks – especially in the case of small and medium-sized banks – which, in turn, increases the profits of banks (Bikker and Hu, 2002; Goddard et al., 2004).

Risk management, as a buffer against risk, plays a crucial role in banking industry. As stated by Athansoglou et al. (2008), poor asset quality and low levels of liquidity are among the major risks that financial institutions face consistently, especially during global financial crises. As the asymmetry of information increases in the financial markets, financial institutions may decide to diversify their assets and increase liquidity in order to reduce their risk exposure. Molyneux and Thornton (1992) and Goddard et al. (2004) conducted an empirical analysis of the determinants of profitability for banks in European countries and found an inverse relationship between liquidity and profitability. European banks often put their funds in less liquid investments, which bring higher profits. Chiorazzo et al. (2008) also found a negative relationship between liquidity and profitability in Italian banks. However, Bourke (1989) found a significant and positive relationship between the level of liquidity and profitability. Another important risk concept in banking business is credit risk. According to Miller and Noulas (1997) and Athanasoglou et al. (2006), there is an inverse relationship between credit risk and bank profitability. As such, the low-quality credit increases risk exposure, potentially triggering more problem loans and resulting in a decrease in bank profits. In contrast to CBs, empirical investigation of the determinants of profitability of IBs shows that credit risk

negatively influences performance while liquidity positively affects profitability (Wasiuzzaman and Tarmizi, 2009).

Managerial efficiency is an important aspect of the banking sector, as it affects the profitability of banks (Waheed and Younus 2010). For instance, there is a positive significant relationship between higher management quality and bank profits (Molyneux and Thornton, 1992; Dietrich and Wanzenried, 2014). Athanasoglou et al. (2008) found a significant negative relationship between operating expenses and profitability in Greek banks. Samad and Hassan (1999) conducted an empirical analysis to find the relationship between efficiency and the performance of IBs. Comparing the efficiency of CBs with that of IBs, evidence showed that IBs are more inefficient when operating within a dual banking atmosphere. Also, Samad and Hassan (1999) found that CBs operate better than IBs in terms of managerial efficiency in Malaysia.

Previous studies also include external factors that influence banks' profits, such as, Gross Domestic Product (GDP) growth, inflation, stock market capitalization, central bank interest rate, money supply, taxation, domestic credit, market structure, and financial freedom. Some studies found a significant and positive association between GDP growth, inflation and bank profitability (Bourke, 1989; Molyneux and Thornton, 1992; Athanasoglou et al., 2008; Ugo and Gambacorta, 2009; Alexiou and Sofoklis, 2009). In general, positive effect of inflation on profitability attributed to accurate prediction of future inflation, where banks rise their margins with expected inflations. Also, inflationary periods are usually accompanied with higher GDP growth which enables banks to have higher profits.

Concerning the market structure, profit persistency of banks can also be used to evaluate competitive behavior. There are many studies that empirically investigated the drivers of abnormal profits[1] in manufacturing and services industries. However, in the banking sector, only a few authors have tried to analyze the persistence of profitability. Table 1.1 summarizes studies on persistency of profits for different industries. Concerning the profit persistency, banking industry differs from other industries. As suggested by Hirsch (2017), banks' revenues are not comparable with other sectors, due to different asset structure. Another significant difference is that profits of banks converge more slowly to the competitive norm than manufacturing firm profits and therefore banking industry is more persistent (Goddard et al., 2004). Therefore, banks are analyzed separately from other industries (McGahan and Porter, 1997; Goddard and Wilson, 1996).

Goddard et al. (2004) is the first study that examined the determinants of profit persistency in banking sector. They found that persistence of profits of mutual banks is higher than commercial banks in European countries. Bektas (2007) who analyzed Turkish banks, found that persistence of profits does not exist as competitive structure eliminates abnormal profits (within 6 months). Goddard et al. (2011) also investigated the persistence of profitability in 65 countries using a dynamic approach that incorporates SCP and the NEIO hypothesis. The findings show that persistence of profitability exists with low intensity of competition, high entry barriers, and low GDP growth. On the other hand, Sun et al. (2017) and Chowdhury et al. (2016) found a low level of persistence of profitability for IBs in the Organization of Islamic Cooperation and Gulf Cooperation Council countries, respectively, which

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[1] Profit is divided into two components: abnormal profit and normal profit. Abnormal profit refers to excess profit that is earned through exercising market power, where the firms are monopolistically oriented. Normal profit refers to the minimum level of profit generated by firms needed to remain competitive in the market.

implies higher competition among IBs. Goddard et al. (2011) also asserted that countries with more advanced institutional development and stronger external governance mechanisms tend to have weaker persistence and stronger competition.

Table 1: Summary of articles on measures of profit persistency.

Authors	Countries	Time-Span	Industry	No of firms	Method	Results
Goddard et al. (2004)	Germany, Spain, UK, Italy, France, Denmark	1992-1998	Banking	665	GMM&OLS	The financial performance of EU banks is examined in 1990s using cross sectional, pooled cross sectional and dynamics models. Size, diversification, ownership type and dynamic effects used as determinants of profitability. The relationship between size and profitability on average is not convincing. And the results go in line with other findings where efficiency is more driving the profitability than size. Capital adequacy ratio positively affect performance overall. And little relationship was found between ownership and profitability. Despite higher competition in EU, there is significant persistence of profits was found. The effectiveness of competition to eliminate persistency changes from country to country. For example, in France due to high regulation of competition, the degree of profit persistency is high.
Goddard et al. (2011)	65 Countries	1997-2007	Banking	11634	GMM	The paper empirically investigates the intensity of competition in 65 countries. Dynamic model used, and bank profit persistency reported with comparison. On average the persistency of profits varied across the countries. They found that advanced economies have higher abnormal profits than emerging economies, but the difference is not statistically significant. GDP per capita is negatively related with profit persistency, and as the size of entry barriers increase that lead to higher persistency.

Table 1 cont.

Agostino et al. (2005)	Italy	1997-2000	Banking	331	OLS&TS LS	The paper investigated the relationship between ownership and profit persistency in Italy. They found that profit persistency is strongly correlated to ownership concentration, indicating banks are monopolistically oriented. And another finding shows that increase in private investments lead to a reduction in persistency of earnings.
Bektas (2007)	Turkey	1989-2003	Banking	28	AR(1)-The IPS test methodology is used to apply the ADF	This paper was one of the firs studies that examined the persistency of profits in banking industry. He found that in Turkish banking system in the long run competition eliminates the profit persistency, in other words unit root hypothesis is rejected that indicates profit persistency does not exist in the long run in Turkish Banking System.
Jaisinghani et al. (2015)	India	2005-2013	Banking	51	GMM	The paper examined the profit persistency of Indian banking sector. The determinants of profitability also were investigated using dynamic approach. The results show that Indian banks are more monopolistic, there is profit persistency. Bank level variables affect more performance than macroeconomic. For example, government ownership and mom performing assets are negatively affecting profitability. But, fund based income and capital adequacy positively associated with profitability.

Table 1 cont.

Cable and Jackson (2008)	UK	1968-1999	Manufactu ring Industry	53	TREND ESTIMA TION= AR(1)	This paper used alternative way to measure profit persistency of manufacturing firms. They find that nearly third of companies converged on the competitive norm, but 60% of firms in the long run have profits above the norm, that is to say they reach profit persistency through the economies of scale and scope.
Hirsch and Hartmann (2014)	Belgium, France, Italy, Spain, and the United Kingdom.	1996-2008	Food Industry	351	AR&GM M	The paper examines 590 dairy processing industry; dairy industry is one of the important subsectors in the food industry in Europe. They found that 20% of all dairy processing firms are not profit oriented .40% of the all firms earn partly above the norm. In addition to, profit persistency in subsector of food industry is low and more competitively oriented. Both short and long run variables affect profit persistency. Concerning the determinants of profit persistency, growth of the firms and R&D investments reduce profit persistency. In addition to, profit persistency is higher for young and large firms with a low risk factors.

Table 1 cont.

Hirsch and Gschwandtner (2013)	Belgium, France, Italy, Spain, and the United Kingdom.	1996-2009	Food Industry	841	GMM	The results show that firm specific variables affect profit persistency of firms. For example, the size of firms drives the persistency. In contrast to other manufacturing sectors, in food industry the degree of profit persistency is lower due to the higher competition and higher concentration in retailing. In addition to low risk of dairy processing firms, evidence show that large and young firms are the ones who generates high profit above the norm.
Gschwandtner and Hirsch (2017)	US and EU	US=1990-2012 EU=1990-2008	Food Industry	409	GMM	The paper examines profitability drivers in EU and US food industries. The results show that in food industry profit persistence is lower than in other manufacturing industry. Firm level variables affect the profitability, concerning the industry variables- they significantly affect the profitability. For example, in US, the main determinants of profit persistency and profit are size, financial risk, and growth. Large firms are more persistent in profits; they earn more of abnormal profit. In contrast to US, in EU growth is not significant. Long term variables affect the profit persistency negatively in EU, while in US it is positive. Moreover, industry growth influence abnormal profits differently in EU and US.

Table 1 cont.

Study	Region	Period	Type	Sample	Method	Findings
Chowdhury et al. (2016)	GCC Region	2005-2013	Islamic Banking	29	GMM, Quantile Regression, Wavelet Coherence Approach, OLS	The paper investigates the internal and external determinants of profitability. Capital adequacy is positively related to ROA. IBs should increase equity financing rather than debt. On other side, operational efficiency affecting inversely the ROA. Money supply and inflation have negative impacts on ROA. The results suggest that bank specific variables, specifically capital adequacy significantly affect Islamic banks performance. Moderate degree of profit persistency was found in Islamic banks. Macroeconomic variables significantly drive the performance as well.
Sun et al. (2016)	OIC	OVER 14 YEARS	Banking	105(66CBs and 39IBS)	GMM	The paper examines the determinants of bank intermediation margins of Islamic and Conventional banks in Organization of Islamic Cooperation countries. In both type of banks capital adequacy, management quality, and diversification drivers significantly explain the financial performance. IBs have low level of the persistence of profitability for IBs in the Organization of Islamic Cooperation.

2.2 Banking competition literature

In previous literatures, the banking competition has been estimated and analyzed through market power and efficiency directly and indirectly. Indirect measures are based on so-called structure conduct performance (SCP) paradigm, and direct one which is more recent one and based on new empirical industrial organization (NEIO) hypothesis.

Structure Conduct Performance was a dominant model for empirical studies in the Industrial Organization theory during the 1950-1980s. SCP paradigm was originated in 1930s by Harvard economist Edward Mason. For example, Mason (1939) in one of his first studies finds that market share significantly determines production and price policies of a firm. SCP theory falls into three parts:[2]

1. *Structure*: this refers to market structure, and variables that describe the market structure are seller concentration, degree of product differentiation and entry barriers.

2. *Conduct*: it stands for behavior of a firm. Variables that describe the conduct of a firm are collusion, advertising, investment capacity and research.

3. *Performance*: it is measured by profitability and price cost margin, where it shows equilibrium measured in term of allocative efficiency.

The SCP paradigm assumes that there is a causal association between the structure of the banking sector, bank conduct, and performance. It states that larger banks are more likely to have monopolistic oriented behavior. In this framework, competition is negatively related to measures of concentration, such as the share of assets held by

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[2] See (Lee, 2007).

the top five largest banks (concentration ratio CR) and the Herfindahl-Hirschman index (HHI- measures degree of market concentration). CR and HHI are the most commonly used in studies related to SCP paradigm. However, concentration measures are considered to be not good predictors of banking competition (Claessens and Laeven, 2004).

$$CR_i = \sum S_i \qquad\qquad HHI_i = \sum S_i^2$$

where, CR refers to concentration ratio, n is the number of firms, $\sum S_i$ stands for total market shares of firms operating in a specific industry.

Unlike SCP paradigm, most of recent banking competition studies are based on direct measures that is associated with NEIO hypothesis. NEIO paradigm is primarily measures the behavior of the firm in the specific market that determines the market power of the firm. In most of the recent studies related to the competition in banking industry, authors used H-statistics, Lerner index and Boone (2008) indicator. Boone indicator takes the elasticity of profits to marginal cost, the rationale behind it, in competitive market efficient firms earn more profit than less efficient ones, and this approach goes in line with efficiency structure hypothesis (Demsetz, 1969). The hypothesis of Boone indicator states that banks with lower marginal cost will gain market share more than those with higher marginal cost (Mirzaei and Moore, 2014). Boone (2008) indicator is defined for bank i and at time t through the following equation:

$$\ln(MS_{ji}) = \alpha + \beta \ln(MC_{ji})$$

where, MS_{ji} refers to the market share of bank i in the output j, marginal cost is abbreviated as MC_{ji}, and β represents the Boone indicator.

They estimated Boone indicator through the calculation of marginal cost, and it is illustrated as follows:

$$MC_{ilt}= \left(\frac{\frac{C_{it}}{w_2}}{y_{ilt}} \right) a_{j=1} + 2a_{ll} \ln y_{ilt} + \sum_{j=1,\dots,J;j\neq1} a_{lj} \ln y_{ijt} + \emptyset \ln(\frac{w_1}{w_2})$$

where, C_{it} denotes total cost of banks, y_{ilt} measure the total loans, total deposits, other earning assets, and non-interest income, and W_1 with W_2 denote two input prices: interest expenses to total deposits and non-interest expenses to total assets.

Table 2: Summary of articles on measures of competition determinants.

Authors	Countries	Time-Span	Industry	No of firms	Method	Results
Claessens and Laeven (2004)	50 countries	1994-2001	Banking	6755	H-stat, OLS, GLS	They used bank level data across the countries to test the degree of competition by employing PR H statistics in banking industry. They didn't find evidence that competitiveness measure related inversely to bank concentration across their sample of countries. And their findings showed that contestability determines effective competition by letting increase in foreign bank entry.
Leuvensteijn et al., (2011)	EU, Japan, UK and US	1994-2004	Banking	8605	Boone indicator	In this article they used new measure of competition and it was first study in banking industry. They used Boone indicator to measure competition in a specific segment of a loan market in banking. The advantage of Boone indicator over the others, it can be used with relatively moderate amount of data. They found that US had the most competitive loan market, but German and Spain showed that they are best in competitiveness among EU countries. Although Netherland had highly concentrated banking by few banks, they were in intermediate position in the sample in terms of competition. Italian competition declined significantly.

Table 2 cont.

Burke and Rhoades (1986)			Bnking	2861	Concentration, rates of return	They compared rate of return of banks with similar size with one, two and 4 banks in metropolitan markets. The findings show that rates of return of few banks significantly higher than in competitive markets.
Tabak et al. (2012)	10 Latin American Countries	2001-2008	Banking	376	Boone indicator	They estimated how effects of bank competition affect banks with risk-taking behavior in ten Latin American countries. Estimation is divided into two parts, estimation the Boone indicator and regression on stability inefficiency. These findings contradict the previous studies, where they found that competition affects risk taking behavior of banks in nonlinear way as both high and low levels of competition improve financial stability, but on average it does the opposite. In addition to, the larger the banks the more benefits it gets from competitive market. But in case when banks operate in collusive markets, the greater the capital ratios more advantage they get in enhancing the stability of large banks

Table 2 cont.

Sahut et al. (2015)	MENA countries	2000-2007	Banking	178	Lerner Index and PR H statistics	They have studied the factors that influence the competitive conditions of both Islamic and Conventional banks in MENA region. They measured the degree of competition of both types of banks by employing Lerner index and PR H statistics. The results have shown monopolistic behavior of banks in general. Islamic banks are more competitive and they are exercising higher degree of market power. And results confirm that profitability also increase with market power.
Abdul Majid and Sufian (2007)	Malaysia	2001-2005	Banking	17	PR H statistics	They have evaluated the degree of competition in the Islamic banking industry in Malaysia. The results are stating that Islamic banks are earning the revenue in the state of monopolistic competition.
De Paula and Alves (2007)	Argentina and Brazil	1994-2000	Banking			In this paper the behavior of foreign banks entries and its determinants were analyzed. The case is Argentina and Brazil. The results show that foreign banks entry did not contribute to the improvement of macroeconomic financial system of these countries. The behavior of foreign banks are similar to domestic banks with exception during the financial crises, where foreign banks entry enhanced the financial system in Argentina.

Table 2 cont.

Fungáčová et al. (2010)	Russia	2001-2007	Banking		Lerner Index	They analyzed the degree of banking competition and its determinants in Russia by employing direct measure of Competition-Lerner index over the period of 2001-2007. They have found that the banking competition in Russia has slightly improved over this period. And also results showed that Russian banks were not distressed from weak competition. In addition to this, state controlled banks and foreign owned banks has not exercised greater market power, and they found that there are some important factors affect competition such as market concentration, risk and size.
Haskour et al. (2011)	GCC countries	2002-2008	Banking	52	Lerner Index and HHI	The main aim of this paper was to find whether the market concentration was the main driver of market power in banking sector in GCC countries over the period of 2002-2008. The results show that there is high level of market power exercised by banks in GCC countries, and explanatory variables are significantly explaining changes in competition.

Table 2 cont.

De Guevara et al. (2005)	European countries	1992-1999	Banking	18810	Lerner Index	The evolution of competition in the main banking industry in European Union was measured for the period of 1992-1999. The results show that evolution of relative margins doesn't show increase in degree of competition in EU. Most of the independent variables are not significant. The efficiency of banks, size, default risk and economic cycle significantly explain the market power in these countries
Williams (2012)	Latin American countries	1985-2010	Banking	419	Lerner Index	To test quiet life hypothesis, the relationship between efficiency and market power was analyzed for the sample of 419 banks in Latin American commercial banks. The results show that restructuring in banks increased degree of competition at the expense of market power and under monopolistic competition conditions, it yielded efficiency gains at banks.
Mirzaei and Moore (2014)	146 countries	1999-2011	Banking		Lerner Index and Boone Indicator	They have investigated the determinants of competition of banks across 146 countries over the period of 1999-2011. They employed Lerner index and Boone indicator to measure the degree of competition, and they categorized the countries by income and the level of development. The results show that banking concentration jeopardize the competitiveness of banks in developing countries.

Chapter 3

DATA AND METHODOLOGY

3.1 Data

The panel data is used to conduct the empirical analysis on the determinants of profitability and competition level for IBs and CBs. Cross-country bank-level and macroeconomic data have been collected from Orbis Bank Focus Database, banks' websites, World Bank and the central bank's databases of the selected countries over the period 2006-2015. These are the most reliable secondary data source for the researchers. Concerning the study period, we tried to maximize the nubmer of observations and capture the crises effects. The number of countries and banks are 9 and 321, respectively (87 are IBs, and 234 are CBs). The nine Islamic finance-oriented rapid growth emerging countries studied are the QISMUT+3 countries: Qatar, Indonesia, Saudi Arabia, Malaysia, United Arab Emirates, and Turkey plus Bahrain, Kuwait, and Pakistan. Ernst and Young grouped 25 Rapid Growth Markets (RGMs) that are reshaping world economy and global trade flows; most of the identified countries are among the 25 (RGMs) and have a large Muslim population.[3]

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[3] "World Islamic Banking Competitiveness Report 2016", (Ernst and Young, 2016).

Table 3: Definitions, notations and expected impacts of independent variables.

Variables	Measure	Notation	Impact
Dependent Variables:			
Return on Average Assets	Net Income to average assets	ROA	
Net Interest Margin (CBs)	(Interest income- interest expense) to total assets	NIM	
Net Non Interest Margin	Non-int. Inc. -Non interest exp.) to total assets	NNIM	
Boone Indicator	Elasticity of total revenues to marginal cost, see for more details Boone (2008).	Boone	
1. Bank Specific Variables:			
One Lag of Profitability	Profitability ratio is lagged by one to measure persistence of profitability	ROA(-1) NIM(-1) NNIM(-1)	+
Capital Adequacy	Total equity to total assets	TETA	+
Asset Quality	loan loss provisions to total loans	PLLTL	-
Efficiency Management	Cost to Income ratio	CI	-
Liquidity	Liquid assets to total deposits	LIQ	+/-
Bank Size	Logarithm of total assets of banks	LTA	+/-
Loan Growth	Loan growth measure	LG	+
2. Market Structure:			
Boone Indicator	Elasticity of total revenues to marginal cost, see for more details Boone (2008).	Boone	-/+
3. Macroeconomic variables:			
Inflation	Measured by consumer price index	Infl	-
GDP Growth	Gross domestic product growth	GDPG	+
Political Stability	Measures political stability and no violence in country ranging from weak to strong governance, from -2.5 to 2.5 respectively	PolStab	+/-
Dummy Variable	IBs are coded as 1, but CBs as 0.	DUM	+/-
Time Dummy Crisis	for every year dummy is created	2009/2010/2011	-
Trade Openness	It shows the freedom in all types of trading. Ratio of trade to GDP.	OPEN	+/-
MONEY SUPPLY	It represents the quantity of money circulating in the economy.	MS	+/-
CORRUPTION	It is the abuse of entrusted power for private gain. The data is provided by Transparency International Index.	CORR	+/-

Countries: Qatar, Indonesia, Saudi Arabia, Malaysia, United Arab Emirates, Turkey, Bahrain, Kuwait, Pakistan

3.2 Model and Methodology

The main focus of this study is to evaluate and measure the effect of bank-specific market structure and macroeconomic variables on bank performance. The empirical analysis is based on the dynamic system GMM methodology. The robustness check of dynamic system GMM methodology, as our subordinate model, is also carried out by forming the peer group.

Another model of the thesis is about the competitive behavior of banks operating in the QISMUT+3. Degree of competition in the banking sector plays significant role in contribution to the economic growth of countries, as anticompetitive behavior of banks may lead to inefficiency and market failure (Mirzaei and Moore, 2014). As such, we use bank specific and macro variables to measure the determinants of bank competition. To empirically investigate driving forces of bank competition, FE/RE models and dynamic system GMM methodology are conducted.

Ordinary Least Squares (OLS) regression measures the relationship between independent variables and dependent variable. OLS is referred to a static model, and shows how current explanatory variables affect the dependent variable under exogeneity assumptions. Exogeneity assumptions is when mean and covariance of error term is equal to zero: $E(u|X) = 0$ and $cov(x, u) = 0$. In addition to this, OLS provides consistent and unbiased estimations under exogeneity assumptions, in other words when independent variables are exogenous. In reality, exogeneity assumptions in linear regression is violated if at least one of the explanatory variables is endogenous variable. Endogeneity problem in static model is solved through the introduction of instrumental variables. Instrumental variables are the variables that are correlated with endogenous variables, but uncorrelated with error term. So there

is advantage of using dynamic model over static because of its consistency and biasedness estimations. In general, static models are useful for identifying causal relationships between key variables when markets are in equilibrium, but they provide only a snapshot of the dynamic competitive process (Geroski and Pomroy, 1990). Running static model, FE/RE effects models may provide unreliable and biased estimations Baltagi (2005). Though, static models are analyzed, results (which are very different from system GMM) are provided in next chapter. To capture endogeneity problem and unobserved heterogeneity in panel data, dynamic approach of system GMM is a preferred methodology (Arellano and Bover, 1995; Blundell and Bond, 1998). Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998) developed dynamic panel estimators that became progressively popular. These dynamic estimators are designed for situations, when time period is few, number of observations are many, models that are static in nature, independent variables are not exogenous (they are correlated with past and current realizations of error- endogeneity problem), heteroscedasticity problem and autocorrelation. For example, Mileva (2007) used Arellano-Bond GMM estimator to capture time-invariant country characteristics (fixed effects), such as demographics and geography. Before running the regression analysis, the presence of multicollinearity is tested by employing the variance inflation factor (VIF) and each variable is tested for stationarity. We use two-step system GMM estimation methods that are dynamic in nature to perform a comparative analysis of IBs and CBs in terms of profitability. Among the dynamic models, it is preferred to use two-step system GMM, since it has lower bias and higher efficiency (Arellano and Bover, 1995; Blundell and Bond, 1998). We apply the Durbin, Wu-Hausman and Hansen "J" tests to find endogenous, exogenous and instrumental variables, respectively, before we employ the system GMM.

In the existing literature on banking, the role of size is emphasized by different studies. For example, Short (1979) asserts that in contrast to small banks, large banks raise capital less expensively and earn more profits. Similarly, Goddard (2004) and Pasiouras and Kosmidou (2007) stated that large banks benefit from economies of scale and market power, where they generate abnormal profits. To minimize the potential problems of the unequal size, some of these studies use similar size banks in their studies (Smirlock, 1985; Short, 1979; Bikker and Hu, 2002; Goddard et al., 2004; Hassan and Bashir, 2005; Čihák and Hesse, 2010). Following this literature, this study also formed a peer group from similar size IBs and CBs. Another advantage of forming the peer group is related with number of observations. As it is suggested by Wooldridge (2002), too many missing values leads to biased estimation and sample selection problem. Hencefoth, robustness check of the previous model is conducted by the peer group data. To form a peer group, first we dropped the banks with missing values and, secondly we kept banks with similar size. As such, we are left with 69 IBs out of 87 and 69 CBs out of 234 which makes 138 banks in total. The below linear form of general static regression model will be estimated by using three different groups: all banks, IBs and CBs:

$$Profit_{bct} = \alpha + \sum_{j=1}^{j} \beta_j X_{bct}^j + \sum_{l=1}^{l} \beta_l Y_{bct}^l + \sum_{m=1}^{m} \beta_m Z_{bct}^m + \varepsilon_{bct} \qquad where \quad \varepsilon_{bct} = \mu_b + v_t + u_{bct}$$

where $Profit_{bct}$ (b-bank, c-country, t-time) represents a measure of financial performance for our model, X_{bct}^j represents bank-specific variables, Y_{bct}^l refers to industry specific variables, and macroeconomic variables are grouped into Z_{bct}^m. α represents a constant term, ε_{bct} represents the error term, μ_b is the unobserved individual specific effect, v_t stands for unobserved time effect, and u_{bct} is the

disturbance component. This is the two-way error term regression form, where $\mu_b \approx$ IIN $(0, \sigma_\mu^2)$ and $u_{bct} \approx$ IIN$(0, \sigma_u^2)$.

As illustrated in the following equation, due to the presence of the endogeneity problem in static models, the dynamic panel data approach will be adopted.

$$Profit_{bct} = \alpha + \delta Profit_{bc,t-1} \sum_{j=1}^{j} \beta_j X_{bct}^j + \sum_{l=1}^{l} \beta_l Y_{bct}^l + \sum_{m=1}^{m} \beta_m Z_{bct}^m + \varepsilon_{bct}$$

where Profit$_{(bc,t-1)}$ is the one-period lagged dependent variable, and δ measures the speed of adjustment towards equilibrium and shows the presence of persistence of profitability in the banking sector.

$$\text{BOONE}_{bct} = \alpha + \sum_{j=1}^{j} \beta_j X_{bct}^j + \sum_{m=1}^{m} \beta_m Z_{bct}^m + \varepsilon_{bct} \quad where \quad \varepsilon_{bct} = \mu_b + v_t + u_{bct}$$

where BOONE$_{bct}$ (b-bank, c-country, t-time) represents a measure of bank competition for our model, X_{bct}^j represents bank-specific variables and macroeconomic variables are grouped into Z_{bct}^m. α represents a constant term, ε_{bct} represents the error term, μ_b is the unobserved individual specific effect, v_t stands for unobserved time effect, and u_{bct} is the disturbance component.

$$\text{BOONE}_{bct} = \alpha + \delta \Pi_{bc,t-1} \sum_{j=1}^{j} \beta_j X_{bct}^j + \sum_{m=1}^{m} \beta_m Z_{bct}^m + \varepsilon_{bct}$$

where BOONE$_{(bc,t-1)}$ is the one-period lagged dependent variable, and δ measures the speed of adjustment towards equilibrium and shows the presence of persistence of profitability in the banking sector.

3.3 Dependent Variables

All variables that are used in this study are described in table 1. We use two dependent variables to proxy for profitability, i.e., Return on Assets (ROA) and Net Interest Margin (NIM). ROA refers to the ability of banks to generate profits by using their assets (Athanasoglou et al., 2006). ROA shows how well banks perform in generating income from assets. On the other hand, NIM is another broadly used profitability indicator that shows whether traditional banks have made wise decisions when making loans. It is measured as the ratio of net interest income (interest income − interest expense) to the total asset. The aforementioned profitability proxies are extensively used in the existing literature, such as Kosmidou (2004), Spathis (2002), Sun et al. (2016), and Dietrich and Wanzenried (2011). However, due to prohibition of an interest rate in Islamic Banking activities, IBs are involved in non-interest based activities, such as Mudarabah, Musharakah, and Ijarah. Hence, for IBs, the Net Non-Interest Margin (NNIM) was used as a proxy for profitability in this study, as has been used in previous studies (Bashir, 2003; Hasan and Bashir, 2003; Sun et al., 2016).

On other side, Boone indicator used as dependent variable in this model that represents bank competition for both IBs and CBs. Boone indicator measures the effect of efficiency on performance in terms of profits, in other words, competition improves the financial performance of efficient banks at the expense of their less efficient ones, and this goes in line with efficient structure hypothesis (Demsetz, 1973). Up to our knowledge, there is only one study that used Boone indicator as

dependent variable in conventional banking system (Mirzaei and Moore, 2014), and there is no study conducted to measure the drivers of Islamic bank competition through the Boone indicator.

3.4.1 Bank-specific Independent Variables Factors of Profitability

ROA (-1) and NIM or NNIM (-1): The lagged dependent variables are used as proxies for the persistence of profitability for both types of banks in this study. Persistence of profitability over time shows competitiveness and sustainability of abnormal profits in banking industry. According to Mueller (1977), stability in profitability over time triggers stability in market share. Those banks with persistence of profitability may also create barriers to entry or exit from the financial market that enables them to earn abnormal profits and maintain a competitive advantage (Jaisinghani et al., 2015). When persistence of profitability is absent from the market, it indicates that competitive forces eliminate any profits above the norm. For instance, Bektas (2007) found that competitive forces eliminate abnormal profits in Turkish banking system.

Capital Adequacy (TETA): Total equity to total assets is a proxy for capital for both IBs and CBs (Hasan and Bashir, 2005;Pasiouras and Kosmidou, 2007; and Dietrich and Wanzenried, 2014). Capital adequacy measures resilience of banks against any unexpected losses or risks. Because of their strength, well-capitalized banks have lower risks and lower cost of borrowing (Mirzaei et al., 2013). Therefore, they are expected to obtain profits even during economic recessions. Most of the findings for both IBs and CBs indicate that capital ratio is positively related to profitability due to the sound capital position and reduced cost of funding (Berger, 1991; Hasan and Bashir, 2003; Sun et al., 2016; and Dietrich and Wanzenried, 2011; Chowdhury et al., 2017). However, having a higher capital may also reduce bank profits, since their

risk appetite will be lower. According to Dietrich and Wanzenried, (2014), better-capitalized banks have lower returns because they issue fewer loans.

Asset quality (PLLTL): To measure asset quality banks, we use loan loss provisions to total loans that also measure credit risk of banks (Dietrich and Wanzenried, 2011; Chowdhury et al., 2017; Mirzaei et al., 2013). A higher ratio indicates an increase in credit risk exposure that may reduce the profits of both types of banks. Therefore, we expect an inverse relationship with the financial performance of banks. If banks want to increase their profitability, they can do so by monitoring and screening borrowers closely. This will enhance detection of bad loans and reduce default risks (Athansoglou, 2008). Management Efficiency (CI): The cost to income ratio represents the managerial efficiency of banks (Čihák and Hesse, 2010). A lower cost to income ratio reveals the operational efficiency gain of banks. Therefore, we expect a negative relation with profitability. Here, in the case of both IBs and CBs, an additional return will be generated by reducing cost and increasing income (Kasman et al., 2010). Liquidity (LIQ): The liquid assets to total deposits ratio is used to measure bank liquidity (Johnes et al., 2014). This ratio reflects the ability of financial institutions to generate enough cash to meet short-term obligations, especially in emergency cases, such as crises. A higher liquidity risk leads banks to pay for higher margins as a risk premium, particularly when they are in need of cash. As such, this ratio is expected to show a positive association between liquidity risk and profitability indicators (Valverde and Fernández, 2007; Sun et al., 2016). Bank Size (LTA): The natural log of total assets is a proxy for bank size (Goddard et al., 2011). This is one of the most important determinants of profitability because it promotes economies in scale and scope in banking operations. Size is one of the most important factors affecting a bank's policy to optimize profitability. Nevertheless, the

effect of size on the financial performance of banks is mixed. Some findings show that size is positively related to profitability, perhaps because large banks (CBs) are involved in outsized activities that bear higher risks and require greater margins, while smaller banks (IBs) are more interested in improving management quality to comply with Sharia laws rather than optimizing profitability (Sun et al., 2016; Kasman et al, 2010; Lai and Hassan, 1997). Loan Growth (GL): Loans are the main source of earnings for both IBs and CBs (Mirzaei et al., 2013). Unlike CBs, IBs' lending activities include non-interest based activities such as Musharakah, Mudaraba, and other Islamic financial investments. The expansion of loans may increase both profits and market share in the banking sector. At the same time, however, growth in the number of loans may trigger bad loans. The effect of this growth on profitability is mixed. According to Mirzaei et al., 2013, the rapid growth of loans leads to higher profits for CBs. However, growth in the number or size of loans may increase the number of bad loans for several reasons, including the relaxation of credit standards and economic turmoil (Keeton, 1999).

3.4.2 Industry Specific/Market Structure Factors for Profitability Determinants

Boone Indicator (Boone): Boone (2008) indicator is used to measure the effect of competition on banks' profitability. In a healthy competitive environment, only efficient banks are rewarded by higher profits through the increase of market share (Schaeck and Cihak, 2014). The Boone indicator has an advantage over other competition proxies, such as the HHI and the concentration index (Tabak et al., 2012b). The advantage of the Boone indicator is that it allows a comparison between different types of banks in terms of the level of competition. For instance, Leuvensteijn et al. (2011) found that commercial banks are subject to higher competition than other types of banks in Germany and the USA. The more negative the Boone indicator is, the higher degree of competition and profits efficient banks

achieve (Bikker, 2010). The Boone indicator is going to be used to compare the competitive strength of participation banks vis a vis conventional banks in the QISMUT+ 3 countries by incorporating it with the NEIO hypothesis.

3.4.3 Macroeconomic Factors of Profitability Determinants

GDP Growth (GDPG): This variable measures the growth in gross domestic product and GDP growth and inflation are expected to capture and control the conditions associated with the macroeconomic environment as a proxy for business cycle fluctuations (Mirzaei et al., 2013). Owning this feature GDP can also act as a dummy variable in the regression model. In accordance with the existing literature, GDPG has a positive relationship with the financial performance of banks (Athansoglou et al, 2008; Dietrich and Wanzenried, 2014; Demirguc-Kunt and Huizinga, 2000). Economic turmoil or fierce competition may reduce profits of banks by increasing bad loans and decreasing demand for loans. Inflation (Infl): This refers to an increase in prices that is measured by the consumer price index. The relationship between inflation and profitability measures is mixed. The effect of inflation on profits of banks has been found to depend on whether future inflation is accurately forecasted or not (Athanasoglou et al., 2008). If inflation is not predicted correctly, then the cost may grow faster than income, and profitability will be negatively affected (Dietrich and Wanzenried, 2014). Political Stability (PolStab): This variable measures political stability in the country and the absence of violence, especially terrorism. Currently, it is crucial to have political stability in a country so that firms and banks will not be negatively affected. All foreign investors are seeking a stable environment without any obstacles and barriers to doing business. Military coups, corruption, violence, terrorism, and an inefficient judicial system are among the elements that constitute political stability. These types of instabilities may damage the financial performance of banks. Dummy: The Islamic bank dummy type is used to show whether there is a

difference between IBs and CBs in their overall financial performance. In addition, crisis-period dummy variables are used to determine the effect of the 2009-2011 crisis on both IBs' and CBs' profitability. The financial crisis started in 2007 in the US and spill over to the developing countries by late 2008 (Naudé, 2009; Chazi and Syed, 2010). Therefore, to capture the entire effect of the crisis, we used 2009-2011 as the crisis period for the QISMUT plus 3 countries.

The perception of banking industry in emerging and developing markets was characterized as with higher market power, relatively low legal system and with higher corruption in their financial system that may erode the competitive market (Mirzaei and Moore, 2014). Corruption (CORRUP) – refers to illegal and dishonest behavior by people who are in power. Due to religiosity of people in those countries we expect no relationship between IBs competition and corruption. Trade openness (OPEN)- refers to trade liberalization, it is the summation of export and import of goods and services to GDP. All trade to GDP ratio is used in previous literature as proxy for trade openness (Chen et al., 2009; Ashraf, 2018). In emerging and developing markets, trade openness may diversify bank portfolios and provide access to international markets and increases demand for financing, as a result it increases the profit for banks through the exercise of market power (Ashraf, 2018). Money Supply (MS)- all currencies in circulation over GDP, we expect positive relationship between bank competition and money supply. In the case of loose monetary policy that may enhance the bank's risk positions and this eventually will lead to efficiency (Altunbas et al., 2014) because increase in money supply happens frequently after the crises to stimulate economy, and during that time banks are exposed more to potential risks, where they strengthen loan monitoring and credit rationing.

Chapter 4

ANALYSIS AND RESULTS

4.1 Descriptive Analysis

A descriptive analysis is provided in Table 4. The report shows that on average, the return on assets for all banks in the QISMUT plus three countries is 1.48%, it is 1.45% for CBs and 1.23% for IBs. The ROA and NIM (4.56%) of CBs are higher than ROA and NNIM (3.89%) of IBs, and this difference is statistically significant. On average, both IBs and CBs are well capitalized, and they outperform the Basel III minimum requirement for the capital adequacy ratio (TETA of IB= 18.10% and TETA of CB=14%), which is 8%. However, IBs are better capitalized than CBs. One reason for this difference is the funding preferences. Alqahtani et al., (2016) stated that IBs are more equity financed and less leverage dependent than CB's. According to Siraj and Pillai (2012), another reason for the higher capital ratio is related to the higher risk of IBs. Efficiency statistic shows that management of IBs (CI=63.19%) is more efficient than that of CBs (CI=54.90%), perhaps due to the smaller size and lesser age (Sun et al., 2016) and, lower transaction cost because of their smaller size (Siraj and Pillai, 2012).

Table 4: Descriptive statistics for all banks, Islamic banks and Conventional banks.

Variable	All Banks	IB	CB
ROA	1.48%	1.2311%	1.45%
NNIM		3.8983%	…
NIM	4.39%		4.56%
TETA	14.95%	18.1042%	14.00%
PLLTL	3.85%	4.4516%	3.66%
LIQ	35.26%	43.4627%	31.45%
TA	11664.07	13639.55	6642.049
Boon	-0.0078524		
LG	24.03%		
GDPg	5.13%		
Infl	5.66%		
OPEN	90.00%		
MS	20%		
PolStab	-0.4470362		

Dependent Variables: ROA: return on assets measures profitability of the banks in relation to total assets. NIM: net interest margin measures the investment return based on interest. Difference between interest income from depositors and interest paid to lenders in relation to all earning assets. NNIM: net non-interest margin measure the profitability of Islamic banks generated from non interest based activities such as: Musharakah, Mudarabah, Salam, Murabah and so on. Independent Variables: TETA: total equity over total assets measures capital adequacy of both types banks.PLLTL: provisions loan losses over total loans measures asset quality of banks. CI: cost to income ratio represents the managerial efficiency of banks.LIQ: the liquid assets to total deposits ratio is used to measure bank liquidity.TA: total assets are in millions indicates the size of banks.Boon: Boone (2008) indicator is used to measure the effect of competition on banks' profitability. LG: loan growth, Loans are the main source of earnings for both IBs and CBs.GDPg: gross domestic product growth. Infl: inflation. PolStab: political stability measures the political stability in the country and the absence of violence, especially terrorism. from weak to strong governance, from -2.5 to 2.5 respectively.

In addition, IBs are subject to greater risk and they need to hold greater liquidity; this may be the reason as to why IBs (LIQ=41.46%) have greater liquidity than CBs (LIQ= 31.45%) (Alqahtani et al., 2016). Table 5 shows the distribution of Islamic banks' assets among the QISMUT+3 countries. Saudi Arabia, Malaysia, and the United Arab Emirates own the largest shares respectively.

Table 5: Market Share and Total Assets of IBS in QISMUT + 3 countries for the period of 2015

Countries	Market Share	Total Assets in Billions USD
QATAR	8.10%	89.54486756
INDONESIA	2.50%	16.41097021
SAUDI ARABIA	33.00%	154.0757068
MALAYSIA	15.50%	159.9533752
UAE	15.40%	136.9492572
TURKEY	5.10%	37.56934767
BAHRAIN	1.60%	55.55367963
KUWAIT	10.10%	87.69067679
PAKISTAN	1.40%	11.12503408

Source: Ernst and Yong "World Islamic banking competitiveness report 2016".

As we can see from figure 1, the non-performing loans are decreasing and become very low before the crises, and during global financial crisis it goes up for all countries, and then fall again. However, the highest NPL is for Pakistan and United Arab Emirates, and the lowest one is Qatar. Moving to the bank competition level of countries that is illustrated in figure 2, the more negative Boone indicator the more competitive banking market is.
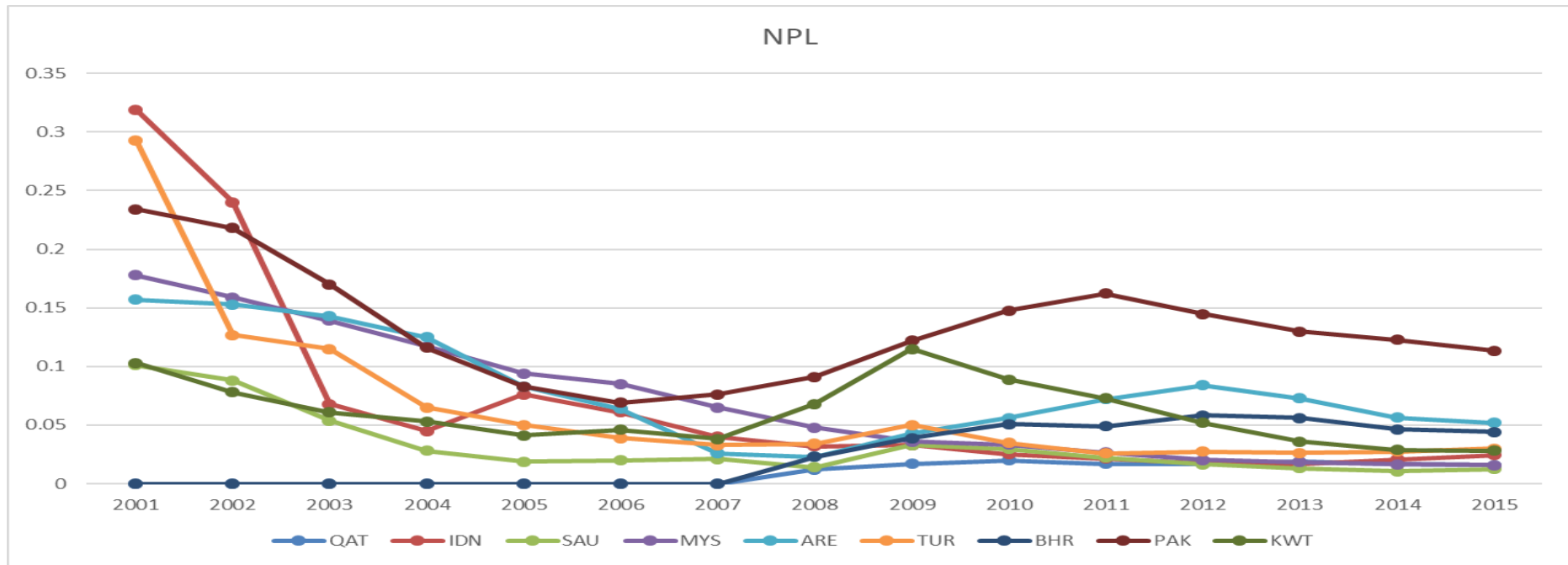
Figure 6: Non-performing loans to gross loans for all nine countries.
Source: WorldBank, *QAT- Qatar, IDN- Indonesia, SAU-Saudi Arabia, MYS- Malaysia, ARE- United Arab Emirates,   TUR- Turkey, BHR-Bahrain, PAK- Pakistan, KWT- Kuwait.
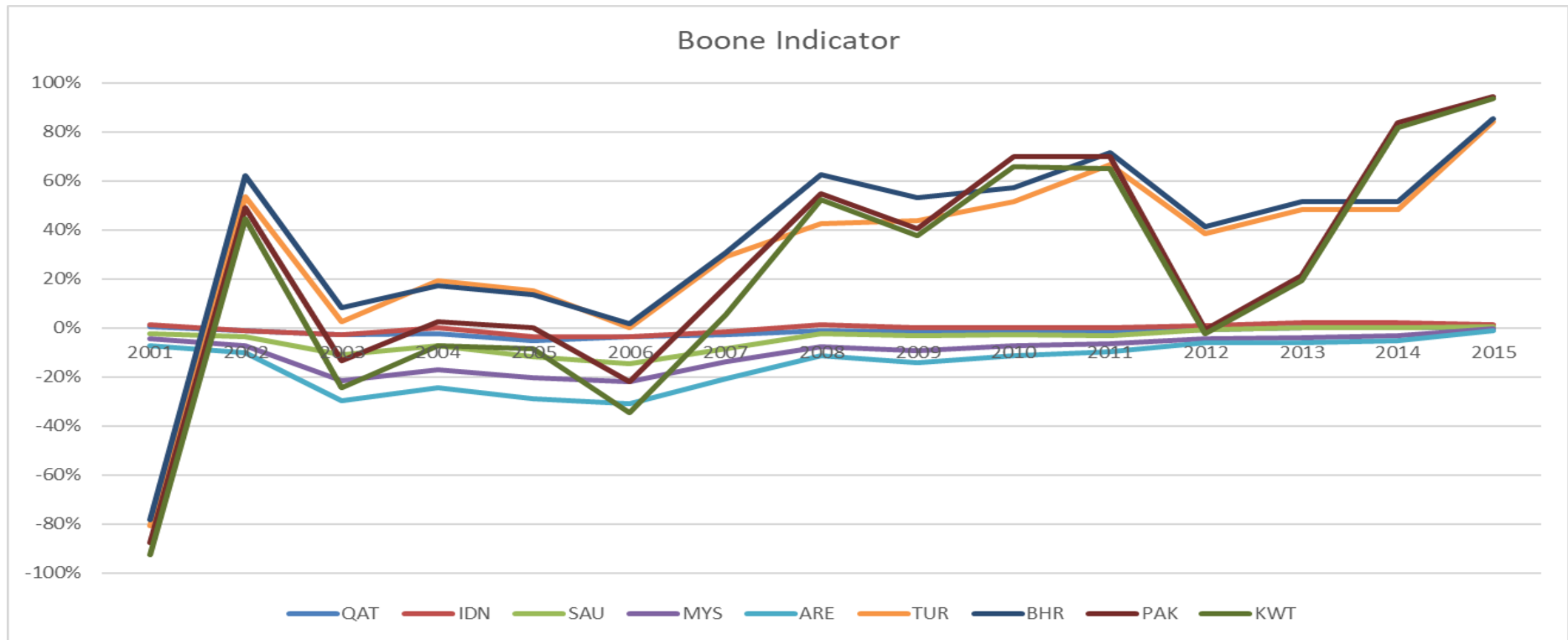
Figure 7: Boone Indicator measures degree of banking competition.
Source: WorldBank, *QAT- Qatar, IDN- Indonesia, SAU-Saudi Arabia, MYS- Malaysia, ARE- United Arab Emirates,   TUR- Turkey, BHR-
Bahrain, PAK- Pakistan, KWT- Kuwait.

4.2 Regression Analysis of Profitability determinants: FE and RE methodologies

Starting from a static econometric analysis in table 6, not surprisingly, the capital adequacy ratio positively affects profitability across all three models. Well-capitalized banks have a lower probability of entering into bankruptcy henceforth, obtain low-cost funds that increase profitability. This result is in line with Kosmidou (2008), Goddard et al. (2004) and Chowdhury et al. (2016). In addition, asset quality significantly explains the financial performance of banks in all banks and IBs model. An increase in bad loans triggers a reduction in the profitability of banks nevertheless this is not statistically significant for CBs. As it is expected, management efficiency that was measured by the cost to income ratio has a negative and significant relationship with the profitability of banks across all three models. Size negatively affects the profitability of banks across all three models. A possible explanation for this result is that all banks, IBs and CBs are not benefiting from economies of scale. As banks expand their business, profits tend to go down. The market structure is not an important determinant of profitability in IBs bank market. However, it takes positive and significant value for the conventional banks when profitability measured by NIM. This implies that competitive behavior can be different in banking services market. For the ROA, interestingly loan growth is taking the negative and significant value of the conventional, which makes all banks value negative. These finding delegates support the size results and also imply imprudent lending practices of CBs.

Table 6: Static Model[4]

Dep. Var.:	All BANKS ESTIMATIONS				Participation Banks				Conventional Banks			
	ROA(FE)		NIM/NNIM(FE)		ROA(FE)		NNIM(RE)		ROA(FE)		NIM(FE)	
	(1)		(2)		(3)		(4)		(5)		(6)	
	Coef	Prob.	Coef	Prob.	Coef	Prob.	Coef	Prob.	Coef	Prob.	Coef	Prob.
1. Bank Specific Variables:												
Intercept	0.022	0.139	0.083	***0.00	0.072	*0.086	0.135	**0.022	0.0243	**0.034	0.073	***0.000
TETA	0.080	***0.005	0.043	***0.006	0.122	*0.06	0.003	0.879	0.0579	***0.000	0.053	***0.009
PLLTL	-0.077	***0.001	-0.083	***0.006	-0.078	***0.003	-0.108	***0.007	-0.0458	0.1690	-0.015	0.620
CI	-0.015	***0.000	-0.006	***0.039	-0.010	***0.003	-0.005	*0.087	-0.0342	***0.000	-0.014	***0.000
LIQ	-0.002	0.265	-0.002	0.108	-0.003	0.347	-0.002	0.313	0.0014	0.5420	0.000	0.996
LTA	-0.003	0.446	-0.011	**0.017	-0.008	*0.068	-0.011	*0.079	0.0000	0.9950	-0.004	*0.093
GL	-0.028	***0.00	0.009	0.435	-0.023	0.333	0.024	0.629	-0.0277	***0.000	0.001	0.921
2. Market Structure:												
Boone	0.002	*0.099	-0.001	0.523	0.003	0.194	-0.003	0.108	0.0012	0.1150	0.002	**0.026
3. Macroeconomic Variables:												
GDPg	0.056	***0.001	-0.010	0.424	0.057	0.156	0.045	0.147	0.0372	***0.000	-0.031	**0.015
Infl	0.002	0.874	0.003	0.688	0.017	0.662	0.005	0.782	-0.0060	0.3940	-0.001	0.930
PolStab	0.001	0.425	-0.004	0.104	0.015	**0.019	-0.002	0.706	-0.0014	0.3030	-0.007	***0.005
2009	-0.002	0.294	0.002	0.120	-0.012	**0.029	0.003	0.507	-0.0008	0.4970	0.001	0.200
2010	-0.002	**0.02	0.002	*0.057	-0.010	***0.002	-0.001	0.761	-0.0007	0.2830	0.002	**0.041
2011	-0.003	***0.002	-0.001	0.108	-0.007	***0.005	-0.005	*0.067	-0.0008	0.2230	0.000	0.641
R-square		0.280		0.088		0.1203		0.065		0.4735		0.1112
F-stat		***5.62		***5.80		***3.98		***28.74		***11.96		***8.08
Hausman test- chi2		***98.2		***539.74		***50.37		11.94		***61.05		***43.47

Concerning the GDP growth; results support the idea that CBs have closer interactions with the cyclical behavior of the economy, while the IBs do not have it. Though inflation is positive in all banks and IBs models and negative for CBs, it is not significant any model. The political stability indicator positively affects the profitability of IBs while negatively affecting that of CBs. Crises years suggest a negative impact of the crisis on the performance of IBs, nevertheless, CBs are not affected solely in 2010 in a positive way.

4.3 Regression Analysis of Profitability determinants: Two Step System GMM

The model fits the panel data very well; we have fairly stable coefficients. For the specification test in the system GMM estimation, Hansen (1982) J-statistic is used to test for over-identification restrictions, and the results show no evidence of over-identifying restrictions, which means the entire model is statistically validated. All instruments that are used to solve endogeneity problems in all three models (all banks, participation banks, and conventional banks) are statistically validated[5]. In some models, we have the first-order autocorrelation, but this does not necessarily mean that our estimation is inconsistent and biased. Inconsistent and biased estimation would exist if the second-order autocorrelation (AR) is present (Arellano and Bond, 1991). For all three models, table 7, AR (2) shows that there is no second-order autocorrelation. The results are free from multicollinearity as the VIF of each variable is less than five (Montgomery et al., 2012).

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[5] According to Athanasoglou (2008) capital adequacy is better modelled as endogenous variable, therefore TETA is treated as endogenous variable. Lagged values of dependent and exogenous variables are used as instrumental variables. Efficiency and consistency of estimation can be obtained through using all the available lagged values of dependent variables and lagged values of exogenous regressors as instruments (Arellano and Bond,1991). In addition to this, as suggested by Roodman (2009) to improve efficiency and consistency, time dummies are also employed as instruments. Our results are validated by Hansen "J" statistic, where p-values are between 0.10 and 0.30.

The lag value of the dependent that appears as an independent variable in the model indicates persistency of banks' profits. Findings in all models show that there is persistence of profitability of the banking sector in the QISMUT+3 countries. The results for the persistence of profitability are statistically positive and significant in all three models, which mean that the previous year's profit has a positive effect on the current year's profit. These findings imply that banks generate profits above the norm and that the market structure in the QISMUT+3 countries is less competitive. The coefficients of the lagged dependent values show that economic significance of persistency can be different with respect to profitability measures between the IBs and CBs. For example, persistency of CBs in terms of ROA (0.26) is higher than IBs (0.17) persistency. On the other hand, NIM or NNIM values, which are 0.76 and 0.90, respectively, for CBs and IBs reveal higher persistency in IBs market. One possible reason for this result may be related to the age of Islamic Banking concept; being their evolutionary state IBs have a less competitive structure than CBs in the QISMUT+3 countries which allows IBs to earn profits above the norm. If all banks results are considered as an average of the bank market, it can be argued that CBs operates above the average persistency in terms of ROA and IBs in terms of NNIM. In general, these findings are consistent with previous findings in CBs literature such as Torsten Persson (1997), Goddard et al. (2004) and Goddard et al. (2011).

Peer group analysis, where 138 similar size banks are chosen from the market, shows some differences both in terms of the statistical and economic significance of the coefficients. In IBs market statistical significance of ROA has lost while NNIM succeeds in keeping the same significance. However, both of the economic significance of coefficient has diminished, which means persistence in both aspects has declined. The economic significance of CBs profit persistency measures has also

shown downward tendency even a bit more than that of IBs. Nevertheless, statistical significance stayed at the same level. This is understandable since competition among similar size is expected to be higher. However, under the all banks column, it can be seen that profit persistency of 69 IBs and 69 CBs are higher than all banks; although NIM or NNIM is not statistically significant. This suggests that competition among dissimilar size IBs and CBs can be higher. The capital adequacy ratio shows the importance of underlying stability and creditworthiness of banks. Better capitalized banks may face a lower cost of funding since they have a lower probability of default and are safer. As such, with an efficient transformation mechanism of capital into assets, as capital adequacy ratio goes up, profits of banks are expected to increase. In all banks case, solely the ROA coefficient with a very low significance (10%) appeared with an expected sign. Though IBs are relatively more equity financed than CBs and hence own better financial stability, statistically insignificant capital ratio implies imprudent fund management for Islamic bank's managers under the whole IBs population. These findings are in line with Kasman et al. (2010), Sun et al. (2016) and Siraj and Pillai, (2012). On the other hand, conventional banks findings in column 9 support the study's hypothesis at the 1% significance level. The economic significance (0.07) of bank capitalization also reveals its importance for higher profit. Constraining analysis with all banks, IBs and CBs, columns 1, 2, 5, 6, 9 and 10, population findings propose better fund management for CBs. However, clustering the whole population with similar size banks, results are changing in statistical and economic significance aspects. Statistically insignificant values of TETA for IBs became significant at 5% for ROA and 1% for NNIM. Nevertheless, their economic significance is different and in opposite directions. For the ROA, the coefficient of TETA reveals a positive effect, which means better capitalized IBs can trigger profitability with respect to total

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assets. Though the economic significance is lower, with a higher statistical significance (1%), better capitalization has a negative impact on IBs NNIM. This envisages that IBs fund managers can follow different fund management strategies for different banking products. Concerning similar size CBs, column 11 and 12, improvement in both economic and statistical significance can be observed as in relation to the whole CBs sample. Similar values of coefficients 0.102 and 0.098 for ROA and NIM and, 1% and 5% significance respectively, reflects the coherent fund management and consistent positive impact of bank capitalization on profitability. Overall, capitalization results favor better fund management of CBs.

In all models, empirical evidence shows that IBs banks performance is not exposed to credit risk in the QISMUT+3 countries. This can be related to the low ratio of credit risk in these countries. Bad loans are very low in both types of banks, lower than the index of non-performing loans in emerging and developing economies.[6] On average, the percentage of non-performing loans in the QISMUT+3 countries is 3.85% for all banks, whereas the average bad-loans index overall in emerging and developing markets equals 9.25%. These findings are consistent with the findings in the studies of Dietrich and Wanzenried (2011) and Sun et al. (2016). Nevertheless, in line with expectation peer group analysis of CBs banks, columns 11 and 12, the findings show that credit risk is economically and statistically significant (though, it is 10% for NIM) and has a negative effect on CBs profitability. This suggests that significance of NIM or NNIM under column 4 is driven by CBs. Therefore, it can be argued that IBs are better than CBs with regard to credit risk management and asset quality in these countries. These findings can also be attributed to the different ways

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[6] The average of credit risk is calculated by using the World Bank non-performing loan ratio.

of offering banking services. In case of Islamic Banking, banks are expected to perform better monitoring role, henceforth lower the asymmetric information.

Across all models, a significant inverse relationship is found between management efficiency (CI) and ROA models. For both IBs and CBs, higher profitability can be gained through cost management efficiency, which is consistent with other findings in the existing literature (Athanasoglou et al., 2008; Detriech and Wanzenried, 2011; Chowdhury et al., 2016). According to the CI coefficients, managerial efficiency has a higher effect on the performance of CBs than it does on that of IBs since the economic significance of CI is considerably higher for CBs. This also implies that CBs profitability is more sensitive to changes in managerial efficiency policies. Though our findings are opposite to Miah and Sharmeen, (2015), who found better efficiency in CBs, we think our results are robust since we have consistency for CBs both in all CBs, column 9, and, peer CBs, column 11 models.

In most models, liquidity risk or liquidity management is not significant. This suggests that, in general, liquidity is not an important determinant of profitability of banks in the QISMUT+3 countries which is also among the findings of Sun et al. (2016). However, peer group analyses of liquidity risk, specifically for the conventional banks, take statistically significant negative values that are in line with the hypothesis. The higher negative coefficient of LIQ in CBs indicates a higher sensitivity of these banks for liquidity management. This suggests a prudent decision-making process within CBs management.

Results show that size does not have any impact on the profitability of CBs operating in QUISMUT+3 countries. Conversely, though there is consistency, findings are contradictory in the context of IBs, in terms of ROA and NNIM. Under the Islamic banks columns, it can be seen that size has a statistically positive effect on banks' ROA and, its economic significance increases considerably when it is used within similar size banks. This suggests that size analysis can be more effective among similar size banks. Simultaneously, negative coefficient of NNIM shows that larger IBs can be less profitable than smaller ones with respect to NNIM. Nevertheless, the economic significance of this value is trivial. In sum, it can be asserted that there are some profit opportunities for IBs that can be reaped by the better economies in scale and scope policies. Peer group of IBs provides a higher economic and statistical significance. The loan growth variable is another weak and mixed explanatory variable in all banks and CBs peer models. It takes lower significance with positive and negative values in NIM or NNIM model for all banks and CBs peer. While positive coefficient implies growth opportunities, the negative coefficient can be interpreted as imprudent lending practices of credit managers, which lowers credit standard and leads to an increase in bad loans. This result is consistent with the findings of Keeton (1999) and Foos et al. (2010).

The Boone (2008) indicator is a new direct measure of market structure in banking industry. The negative sign of the Boone indicator reflects increased competition in the banking sector. According to this context, only efficient banks are able to generate higher profits through an increase of market share. In the all banks analysis, we found a negative and statistically significant relationship between the Boone indicator and NIM or NNIM for the peer model, column 4. Though its statistical significance is very low, the coefficient of the Boone indicator takes a positive value

at ROA model, in column 3. This implies less competition and efficiency gains for the banks. When the Boone effect is analyzed in IBs, it can be seen that it is not significant in ROA model. However, with respect to NNIM, both in all and peer group IBS, it is statistically significant. But, its economic significance is higher in all Islamic banks analysis. This shows that competition and resulting efficiency gains and profitability among different size IBs are larger than the similar size of IBs. As for CBs, statistical significance is similar to that of IBs, however, the economic significance is relatively lower and different. For all CBs, results show that market is not competitive with respect to NIM and not significant for ROA. Under the peer group of CBs, findings indicate stronger competition in terms of NIM which reflects the principal intermediation role of banks. It is noteworthy to state that competition and resulting efficiency and profit gains are higher among Islamic banks. These results are also supported by Schaeck and Cihak (2008) and Leuvensteijn et al. (2010). As IBs receive different types of support from the governments in these regions, for example, Qatar's government has made it a goal to be a center for Islamic finance, and it encourages the development of Islamic finance and prohibits the operation of Islamic windows at CBs (Lackmann, 2014), this may contribute to efficiency gains in these banks.

Considering the macroeconomic explanatory variables, GDP growth has different implications for banks profitability measures. It has highest economic and statistically significant negative effect on all banks peer groups NIM or NNIM which is contradictory to our hypothesis. For IBs and CBs, a positive effect on ROA is detected. Positive results are similar to previous literature, such as Demirguc-Kunt and Huizinga (1999), Bikker and Hu (2002), and Athanasoglou et al. (2008). Inflation is statistically significant solely for the CBs peer group. According to this,

similar size CBs are benefiting from the higher inflation. The insensitivity of IBs towards GDP growth is also one of the findings that is supported by Almanaseer's (2014) findings.   Political stability is employed to evaluate and measure the investment implications to bank profitability. In all statistically significant findings, it has the negative but economically trivial effect on all profitability measures. The negative effect of political stability may have different reasons. Firstly, it may increase the competitive environment in the market as such, the profits of the existing banks shrinking. Secondly, political legislation that is passed to improve stability may also increase the operational and another cost of banks and hence lower profit. Thirdly, rising stability may, particularly, encourage foreign banks entry, which leads to higher competition and diminishing profit margins.

The dummy variable indicates that IBs outperform their counterpart in terms of NIM or NNIM in the top nine Islamic finance-oriented countries. This result is consistent with the findings of Mirzaei et al. (2013). However, with respect to ROA, CBs perform better than IBs. We take this normal as main profit driver of the IBs is comprised of non-interest income products.   Crisis-periods dummy shows that the negative effect of crisis on conventional banks is more than IBs.

Table 7: Two step system GMM estimation methodology all banks dep.var. Robustness test conducted.[7]

Dep. Var.:	ROA	NIM/NNIM	ROA(Rob)	NIM/NNIM(Rob)
	(1)	(2)	(3)	(4)
	Coef	Coef	Coef	Coef
1. Bank specific variables:				
Intercept	0.0388894***	0.0105984	0.0078455	-0.0492949
L.ROA/L.NIM/L.NNIM	0.1713278*	0.7442697***	0.3355583***	0.8492542
TETA	0.0434608*	0.0091759	0.0284256	0.0003652
PLLTL	-0.0505527	-0.0033864	-0.0335015	-0.2043942**
CI	-0.050513**	0.004693	-0.0030457	0.0213338
LIQ	-0.0030889	-0.0114645	-0.005672	0.0060689
LTA	-0.0009408	0.00031	0.0023108	0.003215
GL	0.0034499	-0.0201431*	-0.0058293	0.0171681**
2. Market structure:				
Boone	-0.0772756	0.1632205	0.2533978*	-0.3246225**
3. Macroeconomic variables:				
GDPg	0.0529723*	-0.0090667	0.2558765*	-0.6210617***
Infl	-0.001773	0.0061952	-0.1709368*	0.3258704
PolStab	-0.0034822**	-0.002983**	-0.0186411	0.0094012
DUM	-0.0084889**	0.0078218*	-0.0404095**	0.0635307**
2009	0.0002452	…	-0.0094358	-0.0027254
2010	-0.0014726	-0.0017461	-0.008691*	0.0073041
2011	-0.0025629	0.0005701	-0.0064734	0.0195843***
No of Observations	3211	3211	1381	1381
No of Banks	321	321	138	138
Mean VIF	1.32	1.320	1.280	1.280
Hansen test (p-v)=>	0.198	0.262	0.240	0.125
AB test AR(1) (p-v)=>	0.176	0.013	0.063	0.080
AB test AR(2) (p-v)=>	0.383	0.456	0.382	0.948

All BANKS

[7] Dependent Variables: ROA: return on assets measures profitability of the banks in relation to total assets. NIM: net interest margin measures the investment return based on interest. NNIM: net non-interest margin measures the profitability of Islamic banks generated from non interest based activities such as: Musharakah, Mudarabah, Salam, Murabah and so on. Independent Variables: TETA: total equity over total assets measures capital adequacy of both types banks. PLLTL: provisions loan losses over total loans measures asset quality of banks. CI: cost to income ratio represents the managerial efficiency of banks. LIQ: the liquid assets to total deposits ratio is used to measure bank liquidity. TA: total assets are in millions indicates the size of banks. Boon: Boone (2008) indicator is used to measure the effect of competition on banks' profitability. LG: loan growth, Loans are the main source of earnings for both IBs and CBs. GDPg: gross domestic product growth. Infl: inflation. PolStab: political stability. AB: Arellano and Bond test for autocorrelation, VIF: vector inflationary factor test for multicollinearity. DUM: dummy variable for types of banks, IBs codded as 1, CBs as 0. 2009,2010 and 2011: time dummies that capture crises effect. *** Denotes significance levels at 0.01 level of rejection of Null Hypothesis. ** Denotes significance levels at 0.05 level of rejection of Null Hypothesis. * Denotes significance levels at 0.1 level of rejection of Null Hypothesis. Rob- refers to robustness check of system GMM by forming peer group, the explanation is available in methodology chapter.

Table 7: Cont. [8]

	Islamic Banks				Conventional Banks			
	ROA	NIM/NNIM	ROA(Rob)	NNIM(Rob)	ROA	NIM	ROA(Rob)	NIM(Rob)
	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Coef	Coef	Coef	Coef	Coef	Coef	Coef	Coef
Bank specific variables:								
Intercept	-0.0137411**	0.0517265***	-0.1600264**	0.0441061	0.0213586	-0.0219885	0.0255408*	0.0344675
L.ROA/L.NIM/L.NNIM	0.1696292**	0.9015664***	0.1369218	.8730446***	0.2610353*	0.7562527***	.2153803*	0.6491765***
TETA	0.0104211	0.0107612	0.0674926**	-.0330396***	0.0718316***	0.0445408	.1029656***	.0988495**
PLLTL	0.0222466	-0.0419327	-0.0252581	-.0090475	0.0419148	0.0061998	-.1376405***	-.1549497*
CI	-0.0091403***	-0.0006311	-0.0008518	.0040406	-0.0434057***	-0.0033241	-.023241***	-.0043677
LIQ	-0.0013674	-0.0052278	-0.0086559*	.0076074*	-0.0070745	0.0022907	-.0170916***	-.0264381
LTA	0.0025561***	-0.005682**	0.0171405**	-.0060871***	-0.0001737	0.0021682	-.0007732	-.0012579
GL	0.0018318	0.0000654	0.0049093	.0067146	0.0035923	0.0007832	-.0001268	-.0201684*
Market Structure:								
Boone	0.0371803	-0.4789619***	-0.2775192*	-.123299***	0.0342668	0.1202473**	-.0554443***	-.0671566**
Macroeconomic variables:								
GDPg	0.088954*	-0.057184	-0.0667032	.1356456	0.0359631**	0.0998598*	-.0233172	-.2123485
Infl	0.0095457	0.0339191*	0.3231193	.1084299	-0.0126796	0.0065395	-.023595	.0772803**
PolStab	-0.0001955	-0.0081906**	-0.0202837	.0002392	-0.0039525**	-0.004117**	-.0026152	.0001216
DUM	…	…	…	…	…	…	…	…
2009	-0.0008184	-0.0076303	-0.0056056	.0128758	0.0015168	0.0053442**	-.0030658*	-.0071808*
2010	0.0015518	-0.0063971	-0.0237595	-.0040846	0.000524	-0.0025663*	-.0002192	-.0006694*
2011	-0.0037535**	-0.0019012	-0.0023639	-.0005067	-0.0008507	-0.0041932**	.0004212	.0048165*
Number of Observations	871	871	690	690	2341	2341	690	690
Number of Banks	87	87	69	69	234	234	69	69
Mean VIF	1.46	1.46	1.37	1.37	1.40	1.4	1.34	1.34
Hansen test (p-v)=>	0.233	0.209	0.182	0.198	0.202	0.158	0.206	0.214
AB test AR(1) (p-v)=>	0.112	0.116	0.144	0.175	0.246	0.000	0.085	0.082
AB test AR(2) (p-v)=>	0.383	0.269	0.579	0.297	0.425	0.148	0.289	0.741

[8] Dependent Variables: ROA: return on assets measures profitability of the banks in relation to total assets. NIM: net interest margin measures the investment return based on interest. NNIM: net non-interest margin measures the profitability of Islamic banks generated from non interest based activities such as: Musharakah, Mudarabah, Salam, Murabah and so on. Independent Variables: TETA: total equity over total assets measures capital adequacy of both types banks. PLLTL: provisions loan losses over total loans measures asset quality of banks. CI: cost to income ratio represents the managerial efficiency of banks. LIQ: the liquid assets to total deposits ratio is used to measure bank liquidity. TA: total assets are in millions indicates the size of banks. Boon: Boone (2008) indicator is used to measure the effect of competition on banks' profitability. LG: loan growth, Loans are the main source of earnings for both IBs and CBs. GDPg: gross domestic product growth. Infl: inflation. PolStab: political stability. AB: Arellano and Bond test for autocorrelation, VIF: vector inflationary factor test for multicollinearity. DUM: dummy variable for types of banks, IBs codded as 1, CBs as 0. 2009,2010 and 2011: time dummies that capture crises effect. *** Denotes significance levels at 0.01 level of rejection of Null Hypothesis. ** Denotes significance levels at 0.05 level of rejection of Null Hypothesis. * Denotes significance levels at 0.1 level of rejection of Null Hypothesis. Rob- refers to robustness check od system GMM by forming peer group, the explanation is available in methodology chapter.

They have solely one negative and statistically significant coefficient in 2011, while CBs have 7 significant coefficients for CBs that of 5 is negative. The small economic significance of these variables suggests that QUISMUT+3 countries were not involved in risky assets that triggered the financial crisis. These findings are echoed by the findings of Detriech and Wanzenried (2011). The resilience of IBs can be referred to better capitalization and more involvement in non-interest based activities. As such, they are more capable of withstanding the global financial crisis during 2009-2011. These findings are in line with Beck et al. (2013), Chazi and Syed (2010) and Almanaseer (2014).

4.5 Regression Analysis of Bank Competition Determinants

In table 8, we used FE/RE methodologies to estimate the determinants of banking competition. Due to the biasedness of the estimation, explanation of these empirical results are not provided. The results are contradicting and not validated. To test for over-identification restrictions, Hansen (1982) J-statistic in system GMM is used, and the results show that entire model is statistically validated. To solve endogeneity, we used some instruments, according to our results, they are all statistically validated. For all three cases, table 5.3, AR (2) shows that there is no second-order autocorrelation. The results are free from multicollinearity as the VIF of each variable is less than five (Montgomery et al., 2012).

Results reveals that, in all cases (all banks, IBs and CBs) capital adequacy does not explain the degree of banking competition in QISMUT+3 countries in table 9. But non-performing loans are negatively associated with Boone indicator, and the results are statistically significant for all three cases. This means that credit risk enhances the degree of competition in this region, because the banks will be more efficient in

monitoring and credit rationing, bank supervision and regulation will be improved and strengthened during the high exposure of credit risk, this will lead the banks to be more competitive in the market. For example, Almarzoqi et al. (2015) found that banks with higher rate of non-performing loans are subject to stronger competitive pressures. Jiménez et al. (2013) states that banking competition increases as risk goes up. In addition to, CI is not matter in determining the competition level of both IBs and CBs in these countries. Unlike IBs, liquidity ratio of CBs erodes the competitiveness in these countries, and the results are significant. The results are consistent with our profitability estimations, where liquidity management affects negatively the profits of conventional banks, in competitive market profits of banks will be reduced if they are efficient. Another reason for this, unlike equity oriented IBs, conventional banks during the turmoil use liquidity as a buffer that in return reduces profit and competitiveness (Horvath et al., 2016). Unlike CBs, bank size significantly explain the competitiveness in all banks and IBs cases. In reality, CBs are older and bigger than IBs, and the CBs they reached its maximum level of size, that's why the size does not affect the competitiveness in CBs, whereas in IBs, the larger the IBs become more efficient that lead to competitiveness, and this findings is in line with efficient structure hypothesis (Demsetz, 1973) and scale efficiency (Farrell, 1957). These findings are consistent with results of Mirzaei and Moore (2014). Unlike CBs, GDP growth improves the banking competition level in all banks and IBs in QISMUT+3 countries, and results are in line with Mirzaei and Moore (2014). In contrast to IBs, trade openness in all banks and CBs reduce the level of banking competition, and results are statistically significant. Increase

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Table 8: Static Model Estimation[9]

Dep. Var.:	All BANKS ESTIMATIONS		Participation Banks		Conventional Banks	
	Boon		Boon		Boon	
	Coef	Prob.	Coef	Prob.	Coef	Prob.
1. Bank specific variables:						
Intercept	**-0.0277035	0.016	***-0.0719829	0.0000	***-0.1031962	0.0000
TETA	**0.0256531	0.0200	-0.01054	0.2990	0.018936	0.2750
PLLTL	***-0.0733757	0.0040	-0.00992	0.5870	-0.045880	0.2860
CI	0.000245	0.8930	0.00069	0.3870	0.001432	0.8820
LIQ	-0.000051	0.9630	0.00062	0.4010	-0.002808	0.4960
LTA	-0.000298	0.8320	*0.0025094	0.0640	0.003573	0.1160
2. Macroeconomic variables:						
GDPG	-0.003254	0.8440	0.04962	0.1130	***0.1041394	0.0000
OPEN	*0.0113602	0.0870	-0.01009	0.2880	**-0.0119173	0.0470
MS	0.005255	0.4640	***0.0813548	0.0000	***0.1551371	0.0000
CORRUP	*0.0083381	0.0940	0.00116	0.8270	0.004520	0.4780
Dum	-0.009663	0.3160				
R-square		0.003		0.023		0.024
F-stat		***34.82		**19.86		***18.82
Mean VIF		1.430		1.390		1.570
Hausman test- chi2		***98.2		***50.37		***98.2

Table 9: System Two Step GMM. Determinants of competition.[10]

Dep. Var.:	All BANKS		Islamic Banks		Conventional Banks	
	Boon		Boon		Boon	
	Coef	P-value	Coef	P-value	Coef	P-value
1. Bank specific variables:						
Boon(-1)	**0.2770525	0.0400	***0.7128494	0.000	*0.3636744	0.067
TETA	0.0138	0.8940	0.0091406	0.601	-0.4793466	0.132
PLLTL	*-0.5364382	0.0630	**-0.0479929	0.064	**-1.169858	0.006
CI	-0.0251	0.1370	-0.001022	0.557	0.0443929	0.414
LIQ	-0.0413	0.1770	-0.0119742	0.157	*0.1594192	0.073
LTA	***-0.044328	0.0000	*-0.0107394	0.086	0.0105813	0.384
2. Macroeconomic variables:						
GDPG	***-0.2671051	0.0010	*-0.0424214	0.084	***0.7256822	0.005
OPEN	*0.0302987	0.0920	0.0100605	0.111	*0.040405	0.084
MS	**-0.0475578	0.0470	*-0.0296807	0.085	***-0.1785583	0.004
CORRUP	-0.0070	0.4440	-0.0059714	0.243	**0.079729	0.032
Intercept	***0.2396753	0.0000	**0.0565658	0.057	0.0117346	0.896
DUM	**-0.0443181	0.0750				
Number of Observations		3211		871		2341
Number of Banks		321		87		234
Mean VIF		1.430		1.34		1.57
Hansen test (p-v)=>		0.146		0.159		0.127
AB test AR(1) (p-v)=>		0.058		0.052		0.008
AB test AR(2) (p-v)=>		0.128		0.172		0.659

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[10] Dependent Variables: Boon: boone indicator that measure degree of banking competition. TETA: total equity over total assets measures capital adequacy of both types banks. PLLTL: provisions loan losses over total loans measures asset quality of banks. CI: cost to income ratio represents the managerial efficiency of banks. LIQ: the liquid assets to total deposits ratio is used to measure bank liquidity. TA: total assets are in millions indicates the size of banks. GDPg: gross domestic product growth. OPEN- trade openness. MS- money supply over GDP. CORRUP- corruption. VIF: vector inflationary factor test for multicollinearity. DUM: dummy variable for types of banks, IBs codded as 1, CBs as 0. 2009,2010 and 2011: time dummies that capture crises effect. *** Denotes significance levels at 0.01 level of rejection of Null Hypothesis. ** Denotes significance levels at 0.05 level of rejection of Null Hypothesis. * Denotes significance levels at 0.1 level of rejection of Null Hypothesis.

in trade openness, diversifies the conventional bank's loan portfolio by increasing the number of foreign and domestic customers, and CBs profit increase, as result the competition falls down, and findings are in line with Ashraf (2018). In all three cases, loose of Monetary Policy enhances the degree of banking competition. Corruption erodes the competition in conventional banking system, but does not matter in IBs, and the rational stands behind this is that all transaction of IBs are based on Islamic laws, where the priority is religiosity before any financial transaction takes the place. According to the dummy variable, IBs are more competitive than CBs, and this is supported by estimation of profitability that is carried out above.

Chapter 5

CONCLUSION

5.1 Summary and Conclusion

The focal point of this study is to empirically investigate the main determinants of financial performance and banking competition in a dual banking system in the QISMUT+3 countries.

First of all, bank-specific, market structure, and macroeconomic variables are used as determinants of the financial performance of banks. We found that IBs who follow the PLS paradigm in practice, are significantly different from CBs. The evidence shows that there is the persistence of profitability across all banks. Furthermore, IBs have higher persistence of profits than CBs; perhaps IBs are generating more profits above the norm than their counterpart. Concerning long-term solvency and the soundness of banks, both CBs and IBs outperform the Basel III capital requirement, which signals the importance of creditworthiness and a stable banking industry in these countries. Nevertheless, CBs are doing better than IBs in terms of equity management. Concerning the credit and liquidity risks CBs are more prone than IBs. In other words, negative effects of these variables on CBs profitability considerably higher than Islamic banks. The findings of management efficiency show that it has the higher negative effect on conventional banks than the Islamic banks, especially in terms of ROA. The size effect, which has the positive and negative effect on IBs ROA and NNIM respectively, is not significant for CBs. The market structure variable, Boon indicator, significantly determines the profitability of IBs and CBs. In

the QUISMUT+3 countries bank market, IBs can achieve more profit through efficiency gains than the conventional banks. This result is also supported by persistency and market share variables. As economic growth reveals a closer relationship with CBs, inflation has not any significance in our models. The negative coefficients of political stability imply a mediating role for this variable. Improvements in political conditions may enhance market conditions and competition that causes lower profit. The performance of CBs was negatively affected by the global financial crisis in general, while the performance of IBs is resilient to unexpected negative shocks of the crises.

Secondly, we employed system GMM, to estimate the impact of bank specific and macroeconomic variables to banking competition in QISMUT+3 countries. Results show that credit risk enhances the degree of competition in this regions, because the banks after credit risk exposures will be more efficient in monitoring the potential borrowers. As credit risk increases, banks improve regulations and supervisions as well. Unlike IBs, CBs during the financial crisis use liquidity as a buffer that in return reduces the profit and competitiveness of banks (Horvath et al., 2016). Liquidity management erodes the competition level of conventional banks; the results are consistent with our profitability estimations. The size is not matter in determining competition of CBs. In reality, CBs are older and bigger than IBs, where they reached its maximum level in size. But as IBs get the larger in size, that leads IBs to more efficiency. Increase in trade openness, diversifies the conventional bank's loan portfolio by increasing the number of foreign and domestic customers that lead CBs to gain more market share, as result the competition falls down. Corruption erodes the competition in conventional banking system. However, due to the religiosity of IBs, corruption does not affect the competitiveness of IBs. IBs

outperform CBs in QISMUT+3 countries in banking competitiveness, and this is supported by profitability estimation.

The above results have some implications for policy makers, bank managers, and researchers. The high-profit persistency and increasing profitability of IBs through efficiency gains in the more competitive market suggest that policy makers should improve competitive conditions, particularly in the IBs market. Uncovering the mediating role of political stability can also strengthen its role in the banking sector development.

Concerning the competitive strength, our results show that CBs managers are losing competitive edge to IBs, this is what persistency, Boon indicator, and market share reveal. Islamic banks are also performing better than the CBs management with respect to credit and liquidity risks and, cost efficiency. Crisis dummies also support better risk management of IBs. Hence, there is a need for improvement of the CBs management skills on the above subjects. In other words, CBs management should concentrate on improving internal factors such as credit and liquidity management, cost efficiency, and size to increase performance. CBs should keep an eye on market structure and macroeconomic variables as well so that they do not lose market share in these countries, which would have a negative impact on profitability. This is particularly more important during the economic turmoil, where the performance of CBs deteriorated more than the IBs. Therefore, the management of CBs needs to strengthen risk management. In a competitive environment, IBs are more efficient than CBs because IBs offer unique financial products that are Sharia compliant products. However, the negative effect of equity ratio and size to NNIM recall the IBs managers to pay more attention to the related strategies. The weak significance

of macroeconomic variables suggests both types of banks to consider those factors more seriously.

As our findings reveal, different methodologies and data sets can provide different results. Therefore, researchers should be cautious in selecting the econometric methodologies and the data. That's why we employed different methodologies and data sets for robustness checks. In this study, more homogeneous peer groups provide better results relative to other models.

The empirical findings contribute significantly to the current literature by clarifying and critically investigating the determinants of bank performance in the QISMUT+3 countries. The new classification of countries shows that they have successfully built an environment that allows IBs to prosper and grow quickly and efficiently. Evidence also shows that IBs cannot be a viable alternative to CBs in these countries, but rather a financial supplement to conventional banking system. Furthermore, both types of banks have advantages in their strategies that they can share with each other. For example, CBs are better in prudent liquidity management, fund management and accurate forecasting of inflation eventually that leads to higher profits. Concerning IBs, they outperform CBs in terms of competitiveness and efficiency. Evidence also show that large and old conventional banks have more sources of profits than small and young Islamic banks, so IBs may grow in size through merger and acquisitions which will lead to higher profits. Both IBs and CBs should follow the strategy that will keep profitability, competitiveness and efficiency of their banks at higher levels. Our findings would subsequently have substantial implications for the practitioners, investors, governors and policy makers in the whole financial service industry. Present study identified several factors that may help bank managers to improve

financial outlook of their banks. Concerning regulators, policy makers and governors, they should not treat and apply same regulations on both banks due to their assets structure differences. Moreover, governors should continue to provide politically stable environment for all types of investments, especially after the 2007 global financial crisis.

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