Performance Comparisons of Islamic and Conventional Banks in Bangladesh, Malaysia and Pakistan

by

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I want to dedicate this thesis to my parents, respected teachers, friends and siblings for their love, support and care.

CERTIFICATE OF APPROVAL

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Abstract

The objective of this study is to assess and compare the profitability of Islamic banks and conventional banks. In the Panel data framework fixed and random effect models are used on the data from Pakistan, Malaysia, and Bangladesh ranging from 2008-2018. The results show that interest/mark-up income enhance the ROA and ROE of both Islamic and conventional banks. Further non-interest/non-mark-up income increase the profitability (ROA and ROE) of Islamic banks while decrease the profitability (ROA and ROE) of conventional banks. On the contrary, loan/advances to deposits (LTD) increase the profitability of conventional banks while discourage the profitability of Islamic banks. The effect of deposits to total assets is significant and positive on the ROE of both Islamic and conventional banks while insignificant on ROA. Moreover, loan/advances to assets (LA) positively effect and capital adequacy ratio (CAR) negatively affect the profitability of both Islamic and conventional banks. Interestingly, the impact of size on the profitability of Islamic banks is positive and on the profitability of conventional banks its negative. Lastly, the economic activity (GDP) helps to increase the profitability of both Islamic and conventional banks. The country-wise analysis indicate that the impact of the profitability of banks is significant different of one country from another.

Keywords: Efficiency, Liquidity, Interest/Mark-Up Income,
Profitability, Islamic Banks, Conventional Banks, Country-Wise Banks.

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Abbreviations

CAR	Capital Adequacy Ratio
CB	Conventional Bank
DTA	Deposits to Total Assets
DTA	Deposits to Total Assets
GCC	Gulf Cooperation Council
IB	Islamic Bank
LTD	Loan to Deposits
LA	Loan to Assets
LMI	Interest/Mark-Up Income
LNMI	Non-Interest/Non-Mark-Up Income
OIC	Organization for Islamic Cooperation
ROA	Return on Assets
ROE	Return on Equity
Size	Bank Size

Chapter 1

Introduction

1.1 Background of the Study

The Islamic financial system debate began, across the globe, particularly after the 2008 financial crisis, when the crisis abruptly shocked the conventional financial system (Trabelsi, 2011; Fakhfekh et al., 2016). The crisis first began in USA, termed as the subprime mortgage crisis. The financial institutions particularly commercial banks excessively lent money at a lower interest rate and even with insufficient collaterals (Hussain et al., 2019). The households were provided with easy availability of loans, at lowers rate, which caused an expand their consumption even beyond their affordability (Chapra, 2007). Furthermore, in the conventional system all the risk is born by the borrower or entrepreneur and, therefore, the lender either have little or no incentive to look into projects in which the money is invested. These moves lead to the failure of financial system, which many researchers count as the worse after the Great Depression of 1930 (Thillainathan, 2011). The crisis destabilized all the financial system and the world economies were crippled. However the Islamic financial system maintained its sustainability and functioning (Mat Rahim, & Zakaria, 2013; Ftiti, Nafti, & Srairi, 2013).

The emergence of crisis and subsequent recession raised multiple questions on the system and performance of the existence financial system, and particularly role of the banks in crisis period followed by recession (Rosman, Abd Wahab, & Zainol,

2014). A renowned French economist, and Nobel Laureate, had in advance predicted the happening of crisis and warned against the serve consequences of the crisis. He then suggests that a structural reform of the monetary system to ensure that similar crisis will not happen in future (Kayed & Hassan, 2011). He also suggested tax reforms and proposed zero percentage interest rate (Kayed & Hassan, 2011). Some other researchers suggest that temporary cosmetic changes will not be sufficient to control the persistence of each crisis (Chapra, 2009). Thus, the need is to have structural changes and a paradigm shift to ensure the stability of banking system. Consequently, there is the call for the new architecture of the financial system.

Therefore, the Islamic financial system attracted the attention. It is considered as a remedy for the conventional financial system which failed to function effectively (Hasan, & Dridi, 2010). The survival of Islamic banks in the crisis absorb the attention of many stakeholders (Trad, Trabelsi, & Goux, 2017). Several studies argue that this financial crisis could have an possibly avoided had the Islamic financial system was adopted rather than the traditional financial system (Choong, Thim, & Kyzy, 2012; Beck, Demirguc-Kunt, & Merrouche, 2013). To ensure the effective functioning of the financial system it is important to address the drawbacks in the current financial system (Trad, Trabelsi, & Goux, 2017). Thus, the Islamic financial system could be one of the solutions to the existing financial system.

Researchers and proponents of the ethical finance claimed that the Islamic banking system, free from interest, is not only fair but also have more capacity and ability than the traditional banking system to absorb the shocks (Zehri, & Al-Herch, 2013; Ftiti et al., 2013). In contrast, other studies raised questions on the ability of Islamic banks to absorption shock and the role in crisis prevention (see e.g. Ariff et al., 2008; Said, 2012).

To compare the conventional and Islamic financial system, the basic underlying feature of Islamic finance is that it is governed by the divine rules of Sharia (Islamic Law). the financial system including Islamic banks have to operate as per the rules and guidelines of Sharia Law. Islamic banking is guided by sharia compliance and

the interest (riba) is forbidden, the money is not to be treated as a commodity, the justice is there, and the uncertainty (gharar) is prohibited (Hamdan, 2009). Consequently, the Islamic banks are based on profit and loss sharing, where there is no promise of fixed return on the deposited amount and neither require the borrowers to pay a fix rate of return. Moreover, Islamic banks to also charge fee on the services provided.

The Islamic law requires business community to serve the mankind with full fairness and justice, the Islamic law also takes into consideration the moral issues. As per the Islamic Sharia the banks can only lend money to the projects dealing with an economic activities, which add to connected with the human well-being and contribute in the economic growth. In principle, Islamic banks are not allowed to either involve or finance uncertain activities, or follow excessive risk-taking behaviour. Furthermore, Islamic banks are not allowed to lend money for the production of socially immoral goods or services and which are prohibited in the Islamic sharia. For example, an Islamic bank cannot finance a wine or gambling business.

All these features of Islamic banking are considered to have an impact on the profitability, liquidity, risk, size and efficiency. Many empirical studies in the past were conducted to compare and contrast the Islamic and non-Islamic banking and its financial performance. These studies found a number of performance determinants where some have negatively/positively sign for Islamic banks and others have positive/negative conventional banks. But one thing is clear that performance of Islamic and conventional banks is somewhat different.

In past, various studies such as Cihak and Hesse (2010), Rajhi (2013) and Bourkhis and Nabi (2013) found that during financial crises the Islamic financial system performed better as then the conventional banks. Similarly, Mobarek and Kalnonoy (2014) analysed and found that the Islamic banks in middle east, Africa, and East Asia are more stable then the commercial counterparts. A few more studies also argued that it is less probable for the Islamic banks to be influenced by financial crises as compare to the conventional banks (See e.g.; Parashar & Venkatesh, 2010; Miniaoui and Hesse, 2010).

In line with these studies, Beck et al., (2010) found that during financial crises total reserves of Islamic banks were more than the conventional banks. Further more, during financial crises of 2008. Islamic banks were more resilient in the first phase of the 2008 financial crises, because during that time Islamic banks have more worth credit growth and asset base, which was approximately two times greater than the commercial banks (Hasan & Dridi, 2010). Interestingly, the study of Bourkhis and Nabi (2013) reported that during and after financial crises the ROA of the Islamic banks was comparatively more than the commercial banks. However, with regard to the technical efficiency and scale efficiency the Islamic banks did not has any advantage over conventional banks (Kuran, 2004). Moreover, Alexakis, Izzeldin, Johnes, and Pappas (2019) reported that on the basis of cost and profit performance Islamic banks are worse than the conventional banks.

Previous studies show that IBs face lack of short-run liquidity instruments, weak inter-bank money market, followed by weak money market management (see Bitar, Madies, & Taramasco, 2017). Moreover, Islamic banks cannot sell debt instruments, cannot deal with commercial banks, also they as are not able to borrow from central banks as a last resort. Therefore, Islamic banks have to protect themselves against the potential risk by holding higher liquidity buffer. This high liquidity buffers can help Islamic banks to deal with the maturity mismatching, but this higher amount holding for the sake of liquidity could be considered as management inefficiency, therefore has a negative effect on the profitability and financial performance. In short, various past studies examined the influence of liquidity on the financial performance of conventional and Islamic banks (See i.e. Loghod, 2010; Ika & Abdullah, 2011; Iqbal, 2012) but most of these studies reported mixed findings.

As a business model rules and regulations, products, and the basic structure of Islamic banks is significantly different from commercial bank. Therefore, there will be significant differences between Islamic and conventional banks in terms of profitability, liquidity, risk, efficiency, and size. Up-to-date a number of studies have been conducted to examine the differences between Islamic and conventional banks. This study focuses on stability, profitability, liquidity, and efficiency of

Islamic banks as compared to that of commercial banks in three Southeast Asian economies Malaysia, Pakistan, and Bangladesh.

Some of the basic features of the comparative works of Islamic and conventional banks are discussed here. First, as for the efficiency some of the previous studies found the Islamic banks are additional efficient when compare to traditional banks while others did not find any significant differences. Second, generally the larger Islamic banks are more constant and, in a position, to mitigate the risk efficiently. Third, Islamic banks are categorised by relatively improved asset quality and are at lesser risk of disaster in comparison to conventional banks.

One major purpose of the investigation is to exploring the Islamic banks liquidity standing and its evaluation with conventional banks. In modern intermediation theory, the main reason for existence of banks is the liquidity creation and risk transfer mechanism. During the financial crisis various banks struggled with maintaining liquidity even with a strong support from the regulatory bodies and government. The primary role of the banks, liquidity, is under severe threat. The simple reason of the liquidity problems experienced by the banks is they did not prudently manage their liquidity. Liquidity is considered as one of the major reason of 2008 financial challenges. Therefore, it is very significant to report the problem of liquidity risk more than the issues of market and credit risk. Therefore, Islamic banks are expected to be further liquid than commercial banks.

The main focus in the Islamic banking literature is on the bank performance. Multiple variants exist in these past studies. A comprehensive study of (Beck et al., 2010) covering the sample of 22 countries found commercial banking is more fee operative while Islamic banking having higher intermediation ratio, highly capitalized as well as better assets quality. A study of (Abedifar, Molyneux, & Tarazi, 2013) analyse 200 banks and reported that bulky Islamic banks are less constant as compared to slight Islamic banks, the Islamic banks loan quality less responsive to domestic interest rate. Another study of investigated the credit risk standing of both banking systems and found that Islamic banks carries lower credit risk than the traditional one. Likewise, (Mobarek & Kalonov, 2014) studies reported relative higher constancy of Islamic banks. In nutshell, as for the findings of previous

studies on some of the factors IBs are better while on other factors conventional banks are leading. Therefore, the current study aims to assess and compare the liquidity, efficiency, and performance of Islamic banks conventional banks.

1.2 Problem Statement

According to some forecasts estimate the net worth of Islamic financial system will be more than \$3.4 trillion at the end of 2020 (Alam & Ennew, 2020), which was \$2.2 trillion at the end of 2019 (Salih, Ghecham, & Barghouthi, 2019). In addition, the Islamic banking system is not only limited to Muslim countries but also expands to other countries in the world. Certainly, the recent forecasts show a significant growth of Islamic banking sector other countries like United States, United Kingdom, and Australia. As an example, in the year 2014, the UK government announced that £200 million Islamic bonds (Sukuks) which have been sold out to investors (HM treasury website). It is evident that the banking industry of Southeast Asian emerging economies of Pakistan, Malaysia and Bangladesh may be an excellent case to examine the comparative performance of Islamic and conventional banks.

The 2008 financial crisis which started from United States and then spread to all countries across the globe put conventional banks under intense problems (See for example Choon, Thim, & Kyzy, 2012; Wasiuzzaman & Gunasegawan, 2013). In contrast, Islamic banks were relatively stable and also up to some extent benefited from the crisis (see e.g. Willison, 2009; Khediri, Charfeddine, & Ben-Yousef, 2015). Therefore, the Islamic financial system was considered a viable remedy for the system which failed to function effectively (Hasan, & Dridi, 2010). The survival of Islamic banks in the crisis absorbed the attention of many stakeholders (Trad, Trabelsi, & Goux, 2017). Several studies argue that this financial crisis have been avoided if Islamic financial system had been in operation instead of the traditional financial system (Choong, Thim, & Kyzy, 2012; Beck, Demirguc-Kunt, & Merrouche, 2013). To ensure the effective functioning of the financial system it is important to address the drawbacks in the current financial system

(Trad, Trabelsi, & Goux, 2017). Thus, the Islamic financial system could be one of the solutions to the existing financial system. The various attractive instruments and stability of Islamic banking system during the financial crisis get attention of different policy advisors, researchers, and financial experts. These fundamental differences between Islamic and conventional banks are significantly affecting the performance in terms of profitability, liquidity, efficiency, and size. Therefore, this study is designed to examine the effect of profitability, liquidity, efficiency, and size on the profitability of Islamic banks.

1.3 Gap Analysis

In the past, various studies on Islamic banking focused on different aspects. For example Saeed and Izzeldin (2014) and Johnes et al., (2014) focused on the efficiency of Islamic banks, other studies focused on stability of Islamic banks (see Cihak and Hesse, 2010; Pappas et al., 2016), yet some other studies on the loan defaults of Islamic banks (Baele et al., 2014), on the credit risk (Abedifar et al., 2013). With regard to financial mmarkket prior studies also concentrated on the Islamic equity market its volatility and spillovers (Majdoub and Mansour, 2014), on the association between Islamic and conventional equity indices (Majdoub et al., 2016), and on the predictors of Islamic and conventional equity indices (Sensoy et al., 2015). After thorough examination of literature, the objective of this study is to investigate productivity and financial performance of Islamic banks in comparison to conventional banks.

As mentioned, many comparative studies were conducted to investigate the performance of IBs and CBs. But there are some limitations of the previous studies. First, most of the previous studies either checked the performance of Islamic and conventional banks in GCC countries or targeted a single market like Pakistan or Malaysia. Therefore a comparative study between more than one country is needed to examine whether the performance and efficiency of IBs and CBs operating in one country are different than in other country or not. This differentiation is expected to be more in the Islamic banks of one country to another because the

Islamic banking system is not well established yet and the current study is focusing particularly on Islamic banking system. This study is examining the impact of liquidity, efficiency, and size on the profitability of Islamic banks in comparison to conventional banks operating in three Southeast Asian economies of Pakistan, Bangladesh, and Malaysia.

Second, past studies to examine the comparative performance of Islamic and conventional banks used limited sample size like few banks and the data for lesser years. But this study provides extensive data set by taking large sample size of 64 banks. These 64 banks are from three countries namely; Pakistan, Malaysia, and Bangladesh. The time horizon of this study is 11 years ranging from 2008-2018, as well as capturing the most recent picture of the banking system.

Third, past studies do not check the impact of efficiency (interest/mark-up income and non-interest/mark-up income) with the financial performance. While the ones conducted in other settings, reported mixed evidence as some found Islamic banks to be more efficient than conventional banks while others show not much difference between the two types of banks. There exist significant differences between the non-interest/non-mark-up earnings of Islamic and conventional banks. The behaviour of the data shows that the Islamic banks have more non-mark-up income as compared to conventional banks as well as the difference exist on the basis of interest/mark-up income. Therefore, the effect of interest/mark-up income and non-interest/non-mark-up income on the profitability of Islamic and conventional banks.

Forth, most of the previous studies are either descriptive in nature or confined to univariate analysis by comparing financial ratios of Islamic banks with conventional banks and very few used regression and correlation analysis the current study based on a penal data set and a numbers of regression have been estimated for finalize the results.

1.4   Research Questions

This investigation is designed to answer the following four questions:

1 Is Profitability of Islamic banks in all three countries and each country different from conventional banks?

2 What are the significant determinants of performance of Islamic banks?

3 What are the significant determinants of performance of conventional banks?

4 Which of the determinants of significantly affect of performance Islamic banks and which of determinants of significantly affect of performance of conventional banks?

1.5   Research Objectives

The main study objectives are manifold:

1 To asses and compare overall and county wise the financial performance of Islamic and conventional banks.

2 To investigate the determinants of performance of Islamic banks

3 To examine the determinants of performance of conventional banks.

4 To compare the significant determinants of performance of Islamic and conventional banks.

1.6   Scheme of the Study

The introduction of the investigation is provided in Chapter 1 followed by a thorough literature review in Chapter 2. The Chapter 3 provides the complete description of the sample, econometric models, and the variable constructions. The data analysis and empirical findings are presented in Chapter 4. Lastly, the discussion of results and policy implications are provided in Chapter 5.

Chapter 2

Literature Review

2.1 Background of Islamic Banking

In this world, every country has its own socio-cultural, religious, and economic features. A country standard of living and prosperity based on its financial prosperity, and this financial prosperity based on multiple variables including human resource development, economic development, and technological resources. In the economic development the financial system plays a significant role, where the financial position of a country is mainly based on the banking system. The banking system primarily collect deposits from households and lends these deposits to the business community. The bank pays some return on deposits which normally less than the return collected from the borrowers, which is the bank profit. Banking system is the back bone of a country economic well-being and growth.

The banking sector role becomes more prominent in the 16th and 17th centuries due to international trade and industrial revolution. In previous century, the banking system what we called conventional or commercial banking system faced significant criticism from the Islamic scholars and Muslims have been afraid to use the commercial banks. The reason is the "Riba" which as per Islamic sharia and guidelines is strictly prohibited. Thus, to fill the gap of this huge market a new system emerges, called Islamic banking system. The basic difference between these two-banking systems is the "Riba" or interest, where conventional banking system

is based on interest and Islamic banking is free from interest and, therefore, based on the sharing of profit and loss principle. The Islamic system comply with the Islamic sharia and are required to strictly follow the Islamic guidelines. To avoid the interest from a banking system, there are multiple products which cannot be used, therefore, the products used by the Islamic banking system are significantly different. The Islamic modes of finances include Musharakah, Mudarabah, Ijarah, Murabaha, Musawamah, Ijrah-wal-igtina and commercial banking modes of financing include Leasing, term financing, saving, bill of exchange, letter of credit, overdraft, and resolving credit etc.

For banks the liquidity problem arises when there is lack of commitment from the depositor to withdraw commitment. The study of How, (How, Karim, & Verhoeven, 2005) using three different risk measure, found that deposit volatility significantly affects banks liquidity risk, and this liquidity is directly connected to banks profitability. Similarly, the study of (Aldoseri, 2012) also reported that deposit variability reduces IBs liquidity and this liquidity then affect IBs profitability. Similarly, (Zolkifli, Hamid, & Janor, 2015) examined the liquidity and profitability association of Islamic and conventional banks in Malaysia and Bahrain. The study used data from 2008 to 2014 and Panel data analysis. They found that liquidity risk is associated with the regularity requirements and decrease in liquidity will increase banks profitability. Further, the study found no difference in the liquidity of commercial and IBs.

Islamic banking, begun in 1970's, have a distinct mode of operations as compared to commercial banking. The Islamic system emerged to address the issue of "Riba". The Islamic economists, policy makers, researchers, philosophers, bankers, and religious scholars are to be credited with the new Islamic banking system which is designed to exclude interest from the banking system. The main concept of Islamic finance is not new it is dated back to more than 1400, this concept is outlined in Holy Quran and the Sunnah of the Prophet Muhammad (Peace be upon Him). The emergence of Islamic banking is quite often attributed to the revival of Islamic financial system which distinction is that it is totally interest-free (Riba free). Before the initiation of Islamic banking, there was no such model

exist, however, the thought was principally there for a system to be based on the profit and loss sharing but not interest. In the beginning, the interest-free institutions were established by some of the parties in private sector but latterly the move goes on to the seventies and latter in eighties when Pakistan, Malaysia, Egypt, Iran, Sudan, and Saudi Arabia felt the need for the interest free banking system (Ahmad, 1989).

The very first Islamic bank was established in Egypt, who operate as per the Sharia guidelines. In 1973, OIC held the conference at Jeddah, the member countries support the Islamic financial system and encourage the system to expand in all Islamic countries. Where in 1973 Philippine a bank was established named Amanah Bank, after two years in 1975 Dubai Islamic bank, followed by banks in Sudan, then in Bahrain in 1979, and in the same row in Egypt. In year 1983, Malaysia approved act in the national assembly on Islamic banking. The main idea of this long-going process was to establish a new system of Islamic banking in place of the traditional system (Abdul-Majid, Saal, & Battisti, 2011).

Now everywhere in the world IBs can be found with either total or window operations. The IBs growth is higher in later 200's specifically after the 2008 crises when the higher growth is noticed. One of the reasons is the expansion of financial system and liberalization, second, the Muslim population across the world. Third is the larger and important role of banking system in the everyday life.

The 2008 financial crisis which started from United States and then spreads to all countries across the globe put conventional banks under intense problems (See for example (Wasiuzzaman & Gunasegavan, 2013). In contrast, at the time IBs were relatively stable and also up to some extent benefited from the crisis (Khediri, Charfeddine, & Youssef, 2015). This stability and benefits of Islamic banks should be attributed to the operational and regulatory environment of the Islamic banks guided by the Islamic sharia which do not allow them to invest in the projects invested by the CBs and faced the consequences as well as prohibits from the investment in activities that slowdown the economic growth and increase the potential crisis (Dridi & Hasan, 2010). In profit and risk sharing modes (like Mudharaba and

Musharaka) no interest is involve. Moreover, based on Debt-based financial instruments such as Tawaruq & Murabaha. All these contracts and economic transaction should be backed by some kind of real tangible assets, Riba free (interest), full disclosure of information, forbidden dishonest and speculative economic transactions (Alqahtani & Mayes, 2018; D.-K. Beck) Moreover, the Islamic banks use demand and investment deposits for the purpose to collect funds but free from Riba and based on mark-up and profit-and-loss sharing (Johnes, Izzeldin, & Pappas, 2014). These different attractive instruments and consistent performance of IBs during the crisis get attention of different policy advisors, researchers, economists, religious scholars, and financial experts (Johnes et al., 2014). The given variation in two systems are because of the fundamental guidelines and principle which provided the basis to the both systems.

Some previous studies for examples, Samad (1999), Al-jarrah and Moulyneux (2003), and Yudisstira (2004) to evaluate the performance of CBs and IBs used management and financial ratios. In Malaysian context using Stochastic Frontier Approach (SFA) the study of Mokhtar et al., (2006) found the IBs perform better than CBs on earning but worse on the stability of earnings during the sample period. In contrast, IBs are less competent than CBs due to lack of financial products availability. In addition, the study shows that better performance of IBs than the Islamic windows and CBs. Most of prior studies found differences on different parameters between CBs and IBs. Therefore, current study is checking the comparative performance of CBs and IBs in Malaysia, Pakistan, and Bangladesh. Khalil and Siddique (2019) explores the performance of IBs in comparison to CBs using data from Pakistan ranging from 2007 to 2017 and applying ratios analysis. They measured the banks performance on the basis of liquidity, profitability, solvency, risk and efficiency. The results demonstrate significant differences between IBs and CBs in Pakistan during the studies time period. They found that IBs in Pakistan are less efficient, less profitable while more liquid and less risky than the counterparts. The results show that there were no significant differences in terms of profitability while the liquidity, efficiency, and solvency differences were significant. Another study by Ansari and Rehman (2011) examines the financial

performance of both conventional and Islamic banking in Pakistan. The study uses 18 financial ratios covering 2006-2009 to measure the performance in terms of liquidity, profitability, risk, capital adequacy, efficiency, and solvency. They determine the significance of mean difference between IBs and CBs using t-test and ANOVA. The analysis exhibit greater profitability, liquidity, efficiency, and short of risk in IBs as compare to CBs. Another strand of studies identified a number of factors affecting the performances of banks. In the group, the study of found that loan to assets, core capital ratio, and diversification are the basic determinants of banks performance. Similarly, the study of (Bitar et al., 2017) also examined the profitability determinants of both banking systems. In their study they took a comprehensive sample of 8615 banks, in which 123 were Islamic banks, covering period of 2006-2012 from 124 developing and developed countries. They reported Islamic banks carries more liquidity, highly capitalized, and greater profitable but having higher earnings volatility as compared to the CBs from US and EU. Finally, they suggested high capitalization of Islamic banks increase earnings volatility and greater liquidity decrease the commercial banks profitability.

Forecasts estimates that the net worth of the current Islamic financial system will more than double during the period from 2014-2020 to more than 3.4 trillion US dollars (Hussien, Alam, Murad, & Wahid, 2019). At the end of 2016, the study of Salih, (Salih et al., 2019) reported that the current standing of the Islamic financial services sector stood at 2.293 trillion US dollars. Moreover, the network of IBs is not only limited to Muslim countries but available in rest of countries across the globe. Certainly, the recent forecast show a significant growth of the Islamic banking sector to other countries like US, UK, and Australia. In 2014, the government of UK announced £200 million Islamic bonds (Sukuks) and sold out to the local investors which are to be mature in the year 2019 (HM treasury website). It is evident that the banking industry of Southeast Asian emerging economies of Pakistan, Malaysia and Bangladesh may be an excellent case to examine the IBs and CBs performance.

Globally, the Islamic banking market becomes fastest expanding market across financial markets. The IBs assets with CBs valued at US \$1.73 trillion in 2013

as per the EYWIB competitive report (2014). The report more specifically show that Islamic banking sector is grow at 17.5% rate during the period from 2009 to 2013 and by then expected this rate to grow to 19.7% by the year 2018. In addition, Islamic Financial Services Industry Stability Report (2013) demonstrates the total assets of IBs and Islamic windows enhanced at a higher annual compound rate of 40.3% in the period of 2004-2011 and reached to 1.1 trillion US dollars. The above-mentioned statistics exhibit that IBs and finance system is the growing sectors in the world and therefore, have a key role each economy where operating.

2.2 Performance of Islamic and Conventional Banks

The performance of IBs and CBs can be measured via the financial ratios. Using the financial ratios (Saleh & Zeitun, 2006) measured the performance of two Jordan banks on the basis of efficiency, solvency, liquidity, and profitability. They found that these banks profitability is positively associated with the financing of small ventures. Another study of (Samad, 2004) investigate the performance of IBs and CBs in Bahrain, the sample of the study was after the gulf war ranging from 1990-2001. The study reported no significant differences between IBs and CBs as per liquidity and profitability while the variation exist on the basis of credit performance. Moreover, to explore the performance of CBs and IBs in UAE the study of used the sample from 2000 to 2004 and found that IBs are more profitable and efficient as compare to CBs. They credited the high growth of IBs to the Profit and loss sharing principle.

The subprime mortgage financial crisis which started from United States and then spreads to all countries across the globe put conventional banks under intense problems (See for example Choon, Thim, & Kyzy, 2012; Wasiuzzaman & Gunasegawan, 2013). In contrast, at the time Islamic banks were relatively stable and also up to some extent benefited from the crisis (see e.g. Willison, 2009; Khediri, Charfeddine, & Ben-Yousef, 2015). This stability and benefits of Islamic banks should be attributed to the operational and regulatory environment of the

Islamic banks guided by the Islamic sharia which do not allow them to invest in the projects invested by the conventional banks and faced the consequences as well as prohibits from the investment in activities that slowdown the economic growth and stimulated crisis (Hasan & Dridi, 2010). The system of Islamic finance is based on the principle of profit and risk sharing (like in the modes of Mudharaba and Musharaka. Moreover, based on Debt-based financial instruments such as Tawaruq and Murabaha. All these contracts and economic transaction should be backed by some kind of real tangible assets, free from Riba (interest), full disclosure of information, forbidden dishonest and speculative economic transactions (Beck et al., 2013; Alqahtani & Mayes 2018). Moreover, the Islamic banks use demand and investment deposits for the purpose to collect funds but free from Riba and based on mark-up and profit-and-loss sharing (Johnes et al., 2014). These different attractive instruments and stability of Islamic banking system during the financial crisis get attention of different policy advisors, researchers, economists, religious scholars, and financial experts (Johnes et al., 2014). The given differences between the two banking systems are because of the fundamental guidelines and principle which provided the basis to the both systems.

Recently, the Islamic banking market becomes one of the fastest growing market in the world financial market (Mashal, 2012). Islamic banking assets with conventional banks valued at US $1.73 trillion in 2013 as per the Ernst and Young's world Islamic banking competitive report (2014). The report more specifically show that Islamic banking sector is grow at 17.5% rate during the period from 2009 to 2013 and by then expected this rate to grow to 19.7% by the year 2018. In addition, the report of Islamic Financial Services Industry Stability Report (2013) show the total assets of IBs and Islamic windows enhanced at a faster annual compound growth rate of 40.3% in the period of 2004-2011 and reached to 1.1 trillion US dollars. The above-mentioned statistics exhibit that IBs and finance system is in one of the fast-growing sectors in the world and therefore, plays a Vitol role in their respective economies.

Some other studies like (Said, 2012; Samad, 1999) to evaluate the performance of CBs and IBs used management and financial ratios. In Malaysian context

using Stochastic Frontier Approach (SFA) the study of (Mokhtar, Abdullah, & Al-Habshi, 2006) found the IBs perform better than CBs on earning but worse on the stability of earnings during the sample period. In contrast, IBs are less competent than CBs due to lack of financial products availability. Further shows better IBs than the Islamic windows and CBs. Most of prior studies found differences on different parameters between CBs and IBs. Therefore, this study checking the comparative performance of CBs and IBs in Pakistan, Malaysia, and Bangladesh. Khalil and Siddiqui (2019) explores the performance of IBs in comparison to CBs using data from Pakistan ranging from 2007 to 2017 and applying ratios analysis. They measured the banks performance as on liquidity, profitability, solvency, risk and efficiency. The results demonstrate differences between IBs and CBs in Pakistan during study time period. They found that IBs in Pakistan are less efficient, less profitable while highly liquid and greater risky than the CBs. Further. shows that there were no difference in terms of profitability while the liquidity, efficiency, and solvency differences were significant. Another study by (Aziz, Husin, & Hashmi, 2016) examines the performance of both conventional and IBs in Pakistan. The study uses 18 financial ratios covering 2006-2009 for measuring liquidity, profitability, risk, CAR, and solvency. They determine the significance of mean difference between IBs and CBs using t-test and ANOVA, analysis exhibit greater profitability, liquidity, efficiency, and short of risk in IBs as compare to CBs.

Moreover, the study of (Sorwar, Pappas, Pereira, & Nurullah, 2016) used the data of 65 CBs as well as 65 IBs, found no such difference in the credit risk of IBs and CBs. Critically examined the IBs literature and claimed that not all the IBs are following the profit and loss sharing basics in their operations but only by some of the banks. They further argue that major portion of the total deposits of IBs is pegged to commercial deposits. An extensive study investigates the insurance premium of IBS and CBS. The sample was 352 Islamic and 30,000 commercial banks from 213 countries and found the premiums for the publicly listed IBs are 28% less than the CBs. Using the sample data from Pakistan the study of (Baele et al., 2010) found the default loan rate of IBs is half of CBs. Further, the study of

using data from 18 countries comprises 84 CBs and 44 IBs. The findings show privately owned IBs using higher capital buffers are better safeguarding shareholders against the displaced commercial risk. Likewise, (Pappas et al., 2017) using 421 banks data found that IBs carries less risk of failure than CBs.

Safiullah (2010) in Bangladesh objective to check that which system is performing better by particularly focusing on the performance of banks, the performance includes profitability, liquidity, solvency, risk, financial development, productivity and efficiency. The findings show notable difference in both IBs and CBs performance. The results concluded better efficiency and productivity of CBs than IBs. But on the basis of liquidity, profitability and solvency IBs are performing better than CBs in Bangladesh. In short, they concluded that the overall performance of IBs is better.

Using a large dataset of 81 banks from 2006-2012 in region of GCC, the study of (Salih et al., 2019) investigates the liquidity, efficiency, profitability and solvency of CBs and IBs before, between, and after 2008 financial crisis. The study applied mixed-effect multiple regression analysis, and reported that on the basis of efficiency and ROA compared to IBs, CBs perform better during the study time horizon.

In Past, various studies made the comparing analysis between IBs and CBs as per efficiency and liquidity by applying different methodological designs, econometric techniques, sample size, and geographical location. The study of (Metwally, 1997) investigates the performance CBs 15 and IBs 15 covering period 1992 to 1994, through discriminant analysis, the models of logit and probit. The study found comparable efficiency and profitability of IBs and CBs, but for the liquidity, leverage, and credit risk the variation exists between the two streams. Likewise, Iqbal (2001) also compare the financial position of 12 CBs and 12 IBs and mean test was used. The findings demonstrate better capitalization and profitability of interest-free IBs than CBs throughout the period of 1990 to 1998. Moreover, (Olson & Zoubi, 2008) concentrate on financial performance of GCC 16 IBs and 28 CBs during the period of 2000-2005 by applying neural network, mean test, and probit model. The findings express less efficiency and higher profitability of IBs

than CBs. They further argued that the accounting ratios are the best indicators and financial gauges to compare and contrast the performance of the two set of IBs and CBs.

Recently, the study of (Ramlan & Adnan, 2016) investigates the profitability of CBs and IBs throughout 2001 to 2006 in Malaysia. They applied T-test, correlation and regression analysis. The findings show that as compared to CBs, IBs are more profitable. Similar study of (Alqahtani & Mayes, 2018) examines the stability of IBs and CBs during the period of 2000 to 2013. The sample in the study was 76 GCC banks, demonstrate that small IBs express more stability during the sample period than larger Islamic banks and conventional banks.

Yaqoob and Khalid (2018) examine the association of liquidity with the profitability of IBs and CBs in Indonesia, Pakistan, and Malaysia. In the Panel framework (2011-2015), the study used regression analysis and for the profitability measurement they used ROA and ROE. The data of all CBs and IBs for all the sample period is collected from each bank annual reports. The results show that on the basis of both measures ROS and ROE, Islamic banks are less profitable than CBs. A similar study by (Sanwari & Zakaria, 2013) examines the macro and micro economic determinants of IBs in the framework of multivariate regression analysis and the timeframe was from 2000 to 2009. The findings express that the profitability of IBs basing on the interior factors rather than external. The results further show that liquidity and management quality significantly affect the performance of sample IBs.

Similarly, another study of (Ramzan & Zafar, 2014) empirically examine the relationship of liquidity and size of five Pakistan Islamic banks with their profitability. This study used OLS regression analysis on the dataset covering 2007 to 2011 period. The findings show positive relationship of size and liquidity with profitability of IBs in Pakistan. Which means that larger banks with higher liquidity are probable to earn higher profits than smaller banks with less liquidity standing. In addition, the study of (Ferrouhi, 2014) also examine the liquidity and profitability performance of IBs and CBs but in Morocco. He used Pooled ordinary least square analysis by ten years data ranges from 2001 to 2011. The findings show that IBs

are relatively more liquid as compare to the traditional banks.

In Pakistan, (Ahmed, Akhtar, & Usman, 2011) examined the liquidity, profitability, and size of 17 IBs, using data from 1994-2009. Using correlation and regression analysis show that liquidity of Islamic banks is negatively associated with size of the banks. It means that larger banks are less liquid as compare to smaller IBs. Further, shows that these banks liquidity is positively related to ROA, suggesting that the banks carry higher liquidity tend to earn more as compare to the less liquid banks. In short, the study expresses that big IBs are less liquid and less profitable while small IBs have higher liquidity standings and hence more profitable.

Youssef and Samir (2015) investigated the comparative performance between IBs and CBs in Egypt (The founding place of IBs). They used descriptive, correlation and regression to analyse the results. The findings show limited volatility in the profitability of IBs and CBs as measured through ROA and ROE. Further, Commercial banks have strong position on the basis of capital adequacy ratio as compared to IBs, which indicate the CBs better risk management. In addition, the CBs have higher liquidity as compare to Islamic banks. On the contrary, they found IBs have high management and assets quality than CBs, they claim this edge of Islamic basis due to the P&L sharing attribute.

Another group of studies identified the determinants of banks performance. In the group, the study found that core capital ratio, and diversification are the basic characteristics of banks performance. Similarly, the study of (Bitar et al., 2017) also explores the financial features of both IBs and CBs. The sample is of 8615 banks, where 123 were Islamic banks, covering period of 2006-2012 from 124 developing and developed countries. They exhibit that IBs are more liquid, more capitalized plus more profitable but earnings are highly volatile as compare to the banks from US and European Union. Finally, the study suggest greater capitalization of IBs increase earnings volatility and higher liquidity decrease the commercial banks profitability.

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econometric techniques, sample size, and geographical location. The study of Metwally (1997) investigates the financial performance of 15 CBs 15 IBs covering period 1992-1994, via discriminant analysis, logit and probit models. The study found comparable efficiency and profitability of IBs and CBs, but for the liquidity, leverage, and credit risk the variation exists between the two streams.

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To sum up, this study state that large size banks with enough capital followed by the management ability to utilize resources effectively will probably affect bank financial performance positively. In addition, the ability of the management to meet the financial obligations on time balance the liquidity position will in turn expands financial performance. Lastly, the type of bank, conventional or Islamic also affecting the bank's profitability.

Chapter 3

Research Methodology

This chapter contents the statistical model, variables definitions, sources of the data, and discussion penal of estimations method.

3.1 The Model

The model is given below to explore the effect bank specific micro variables on the profitability of both Islamic and conventional banks of Pakistan, Malaysia, and Bangladesh. It is described on the basis of previous studies on the topic.

$$y_{i,t} = \alpha_0 + \beta_1 X_{i,t} + \mu_i + \varepsilon_{i,t} \quad (3.1)$$

In the given Equation (1) where $Y_{i,t}$ is the dependent variable and the equation α_0 is constant. Moreover, β_1 is coefficient attached to every independent variable and explanatory variable I at time t is denoted by $X_{i,t}$. Further, μ explores panel individual effect. At last $\varepsilon_{i,t}$ is equation disturbance term.

First, to check the effect of expected variables on return on assets the given statistical model is change as given below.

$$\text{ROA}_{i,t} = \alpha_0 + \beta_1 CAR_{i,t} + \beta_2 DTA_{i,t} + \beta_3 LMI_{i,t} + \beta_4 LTD_{i,t} + \beta_5 LA_{i,t} + \beta_6 Size_{i,t} + \beta_7 LNMI_{i,t} + \beta_8 GDP_{i,t} + \beta_9 dummy_{i,t} + \varepsilon_{i,t} \ (3.2)$$

The specification of the Equation (2) is as follows. First the ROA indicate ROE of IBs and CBs of I at time t. The α_0 in the equation is constant and β indicate each explanatory variable coefficient from β_1 to β_9. The term $CAR_{i,t}$ stands for capital adequacy ratio which is also some time pronounced as core capital ratio. Further, $DTA_{i,t}$ denotes Deposits to total asset. Followed by $LMI_{i,t}$ which is interest/mark-up income of each bank I at time t and $LTD_{i,t}$ is the abbreviation for loan/advances to deposits of bank i at time t. The LMI which is interest/mark-up income and LNMI which is non-interest/non-mark-up income are measuring the efficiency of banks operating in the three sample countries. Moreover, $LA_{i,t}$ is the loan/advances to total assets of a given bank I at each time point. Both LTD and LA are the measures of banks liquidity. To measure the size of each bank for checking its impact on ROA log of total assets which is given as $Size_{i,t}$. In addition, the dummy variable in the equation shows whether the bank is Islamic (interest-free) or conventional (Interest-based). Lastly, $\varepsilon_{i,t}$ in the equation is white noise term.

Second, to check the effect of independent variables on the return on equity of Islamic and conventional banks the statistical equation is the following.

$$\text{ROE}_{i,t} = \alpha_0 + \alpha_1 CAR_{i,t} + \alpha_2 DTA_{i,t} + \alpha_3 LMI_{i,t} + \alpha_4 LTD_{i,t} + \alpha_5 LA_{i,t} + \alpha_6 Size_{i,t} + \alpha_7 LNMI_{i,t} + \alpha_8 GDP_{i,t} + \alpha_9 dummy_{i,t} + \varepsilon_{i,t} \ (3.3)$$

In the equation (3) starting from $\text{ROE}_{i,t}$ which denotes return on equity of bank i at time t is the dependent variable. The dependent variables is ROE instead of ROA. All expected variables are same. Next, in the equation α_0 indicates the equation constant term. The interpretation of the constant term is that if sum of the coefficients associated to all independent variables sum is zero the estimate of ROE will be the value of intercept. Moreover, α_1 to α_9 are the coefficients associate

to each explanatory variable. As mentioned in the previous equation CAR stands for capital adequacy, DTA is deposits to total assets, LMI is interest/mark-up income, LTD is the loan/advances to deposits, LA is the net bank loan/advances to total assets, while size is taken as log of total assets, LNMI is non-interest/non-mark-up income, GDP is the gross domestic product and lastly the dummy variable express whether a banks is Islamic or conventional.

Each of these equations is run six time. One for all banks for all three countries. Second all Islamic banks for all three countries. Third for all conventional banks for all three countries. Forth for all banks in Bangladesh. Fifth for all banks in Malaysia. Sixth for all banks in Pakistan.

3.2 Population and Sample of the Study

The population of this study is all Islamic and conventional banks operating in Pakistan, Bangladesh, and Malaysia. However banks selected for the analysis are those banks, which are listed on major stock markets of respective countries. These are total 64 banks.

The sample is drawn on the population to know the behaviour of the data. The sample should be representation of the population. That's why the sample of 64 banks is made of conventional and IBs from all three countries. There are total 64 banks in the current study where 14 are Islamic and remaining 50 are conventional banks. Moreover, in the sample 29 banks are from Bangladesh, 22 from Pakistan and 13 banks are Malaysian. Furthermore, from the total 29 banks from Bangladesh, 6 are Islamic and remaining 23 are interest-based commercial banks. Similarly, the banks from Pakistan are 5 Islamic and 17 conventional. As for the Malaysia, the IBs are 3 and CBs are 10. The complete description of the sample is given in Table 3.1.

In current study, the sample commercial banks are more than the IBs. The reason is that the focus was only on the complete Islamic banks not the banks having window operations of IBs. It is evident that in Pakistan normally commercial banks have window operations of Islamic banking. Second, some of the IBs either

data of the required variables were not available or did not found their annual reports to extract the balanced panel data. These two conditions reduced the number of IBs in the current study.

The data for this study is taken from the individual bank annual and other financial reports. These reports are either downloaded from the website of each bank are from the central bank of each country.

The current study dataset consists of 11 years which ranges from 2008 to 2018. The annual frequency is used for all the variables in this study. The recent dataset is used to understand the real and up to date dynamics of the variables in concern.

TABLE 3.1: List of Selected Banks

Countries	Total Banks	Included	Islamic Banks	Conventional Banks
Bangladesh	29		6	23
Pakistan	22		5	17
Malaysia	13		3	10
Total	64		14	50

3.3 Variables Construction

In the Panel framework this study investigates different internal factors effect on the IBs and CBs profitability from Pakistan, Bangladesh, and Malaysia. By following previous studies this study used different proxies to measure each variable. To measure the profitability of both IBs and CBs the proxies ROA) and ROE are used by following the study of (Fayed, 2013).

While independent variables are considered in the statistical models which previous studies found related with the profitability of CBs and IBs. These explanatory variables, including others, are selected by following the study of (Hamedian, 2013). The explanatory variables are Capital Adequacy ratio (Bank common equity divided by the bank assets), Loan/advances to deposits, Deposits to total assets,

loan/advances to assets, bank size, interest/mark-up income, non-interest/non-mark-up income and GDP. While the type of bank (Islamic or conventional) is dummy variable.

The variables in this study are measured by using different proxies by following previous studies. The complete explanation of each variable measurement and proxies is provided in the subsequent section.

Dependent Variables

For the measurement of performance in past researches, profitability is the most renowned and accepted performance indicator. It is necessary for all the bank stakeholders to understand that the banks are effectively managed and making sufficient profits (Fayed, 2013). These proxies show that how a bank is competent in allocating and utilizing resources and making profits.

Return on Assets (ROA)

The ROA is made of net profit divided by total assets of the bank. The higher is the ratio of ROA shows better performance of banks (Alkassim, 2005; Ramin et al., 2014). The ROA estimate indicate that on average how much is the bank earning on each dollar is invested in total assets. A higher ROA ratio indicate better utilization of assets and hence better performance. It is measured as net profit divided by total assets.

Return on Equity (ROE)

The net profit divided by total shareholders' equity is ROE. Equity or share capital is investment by the owners in a business. ROE indicate that on average how much a bank earns on the dollar investment in the owners of the bank. The higher return on the investment of stockholders indicate better allocation and utilization of resources and therefore, better performance (Hamedian, 2013).

Explanatory Variables

In this study eight explanatory variables are added. These variables are selected on the basis of past studies findings that these explanatory variables are correlated with the profitability of IBs and CBs. The complete description of each independent variable is given ahead.

Capital Adequacy Ratio (CAR)

Capital Adequacy ratio alternatively called core capital ratio is measured in this study by dividing bank equity on total assets, this measurement is in line with the past studies (See e.g. (Ikpefan, 2013; Almazari, 2013). Capital adequacy is the obligatory requirement on each bank from central bank to comply with to complete its financial obligations and protect against the unfavourable circumstances. A higher capital adequacy ratio show higher banks stability and therefore is better (Samad, 2004). Some previous studies find the capital adequacy ratio by dividing total deposits on total assets. The signs of capital adequacy ratio and bank size are expected to be negative. The reason behind the negative sing of capital adequacy is that when a bank is required to maintain more reserves with central bank, it discourages the bank lending power, which in turn reduce the bank return on assets and return on equity.

Deposits to Total Assets (DTA)

For banks stability Deposits over total assets ratio is used. That how stable are the banks itself and in comparison, IBs with CBs among the three sample Southeast Asian economies namely Bangladesh, Pakistan, and Malaysia. The deposits over total assets show that how much of the banks total assets are financed from stable sources.

Interest/Mark-up Income (LMI)

The Interest/Mark-up income of banks is measured by subtracting interest/mark-up income from interest/mark-up expenses. This value indicates a bank efficiency because it shows the banks earning ability to maximize the shareholder wealth. A study of (Fayed, 2013) argue that higher the LMI higher will be banks efficiency and hence higher ROA and ROE.

Loan/advances to Deposits Ratio (LTD)

The loan/advances to deposits is the ratio to be measured by dividing a bank total loan/advances on the bank total deposits. This measure indicates the banks liquidity position, that how a bank can payback the deposits to the customers. The lower loan/advances to deposits ratio indicate higher liquidity and lesser profitability of banks (Faizulayev, 2011). As the objective of a bank is to earn return on the amount loan/advance to the businesses, therefore, the higher the banks lend

the higher will they receive the return and vice versa.

Loan/advances to Assets Ratio (LA)

In current study for liquidity measurement net loan/advances to the total assets (LA) used. Most of the previous studies adopted this ratio for liquidity measurement. The ratio shows that how much value of fund a bank lend to the debtors as compared to the bank total assets. These ratios indicate the bank ability against the risk to deal with and fund any arising financial or contractual obligations. The higher of the ratio indicate a less bank liquidity and greater risk to bank (Hamedian, 2013). When banks lend more fund to the businesses as compared to the total investment in the assets, they will earn more return. But in parallel, the lending of higher amount on the banks assets put the bank into less liquid and more risky. Thus, higher the risk higher will be return and vice versa.

The term loan is used in the conventional banking system, where on the loan amount the commercial bank earns interest and get the principal amount at the end of the specified time. Contrary, the Islamic Sharia prohibit the interest, therefore, IBs used the word advances where the amount is provided to a business unit by Islamic bank and share the profit/loss but do not charge any fixed rate on the principal amount.

Bank Size (Size)

Bank size is measured by taking natural log of bank total assets. This measurement is very common in the empirical literature (Hamedian, 2013). Most of the previous studies suggest significant impact of size on bank performance. Second, the negative sign of bank size is because a larger bank has more long-term assets as compared to smaller banks, therefore, this higher investment in the long-term assets reduce the available funds to lend in the market, which resultantly diminishes a bank both return on assets and return on equity.

GDP (Economic Activity)

The aggregate economic activity (GDP) of each sample country namely; Pakistan, Malaysia, and Bangladesh are taken into consideration because the overall economic activity in each country can affect the performance of Islamic and conventional banks. The aggregate economic activity of each country is significantly

different, therefore, is selected as the only macroeconomic variable.

Dummy Variable (IB or CB)

For either Islamic or commercial bank dummy variable is used, where IBs are indicated by 1 and CBs by 0. The objective of this dummy variable is to differentiate between profitability of IBs and CBs in Pakistan, Malaysia, and Bangladesh in terms of liquidity, efficiency, stability, size and economic activity.

TABLE 3.2: List of Selected Variables

Variables	Formulas	Notations	Expected Sign
Return on Assets	Net Operating Profit/ Total Assets	ROA	
Return on Equity	Net Operating Profit/ Total Equity	ROE	
Capital Adequacy Ratio	Owners' Equity/ Total Assets	CAR	-ve
Deposits over total Assets	Deposits/Total Assets	DTA	+ve
Loan/advances to Deposits Ratio	Total Loan/advances/ Total Deposits	LTD	+ve
Loan/advances to Assets Ratio	Net bank loan/advances/ Total Assets	LA	+ve
Bank Size	Log of Total Assets	Size	-ve
Interest/Mark-up Income	Interest/Mark-up income – Interest/Mark-up expenses	LMI	+ve
Non-Interest/Non-Mark-up Income	Non-Interest/Non-Mark-up Income – Non-interest/Non-Mark-up expenses	LNMI	+ve
Gross Domestic Product	C+G+I+NX (where C= consumption, govt spending, I=investment; NX=netexport)	GDP	+ve
Conventional or Islamic	Type of Bank 1=IB, 0=CB	Type	-ve or +ve

The signs of capital adequacy ratio and bank size are expected to be negative. The reason behind the negative sing of capital adequacy is that when a bank is required to maintain more reserves with central bank, it discourages the bank lending power, which in turn reduce the bank return on assets and return on equity. Second, the negative sign of bank size is because a larger bank has more long-term assets as compared to smaller banks, therefore, this higher investment in the long-term assets reduce the available funds to lend in the market, which resultantly diminishes a bank both return on assets and return on equity.

3.4 Estimation Method

The current study using panel framework providing the detail of all the econometrical models and the derived results from the statistical models. There are three methods, pooled OLS, fixed effect model FEM, and random effect model REM. The study examining first the effect of liquidity, efficiency, and size on performance of listed IBs from Bangladesh, Malaysia and Pakistan. Secondly, to compare efficiency, liquidity, size, and profitability of CBs with IBs, to find that whether IBs are significantly different from CBs or not. As the productivity of both IBs and CBs developed endogenously and with other characteristics and past benefits which is expected to affect the current attributes of the banks, therefore, the standard estimation may not represent the true picture and hence create completely biased one sided gauge. In short, the current attributes of the banks are based on previous attributes and therefore the standard estimation techniques do not accommodate to avoid the past information. Thus, the panel framework is the better option to use. As reported by previous studies that one of the biggest advantages of Panel methodology is that the use of small sample does not affect the results. But the standard statistical methods like regression results could be biased and inappropriate in case of small sample size while this is not the case when using panel data. Panel data do it by reducing the three-dimensional variable (Multi-collinearity). Further, the panel framework improves the data reliability when the number of years in the data are short (Jensen, 1993). In addition, to pool the

data it help to control the exogenous variables abnormal shocks, which called time effect. Furthermore, the panel framework helps to reduce the effect of omitted variable and the associated bias, which called unit effect. Thus, in short Panel methodology accommodate for both time and unit effects. The Panel data have two attributes one is the cross sectional and other is time series.

On the other hand, it is important to mention that as compare to the time series or the second one cross-sectional, the estimators of panel data are more complicated. As pools regression have the advantage to observe the homogenous behaviour of endogenous variable. Hence, the different estimates like fixed effect (FE) and random effect (RE) improve both the data validity and reliability.

Moreover, it is to be mentioned that pooled OLS estimation cannot be applied directly as the results could be inconsistent and biased, when there are some unobserved factors which are directly correlated with explanatory variables. This econometric problem in the data is addressed with the use of either random or fixed effect models. The decision of whether to use random effect model or fixed effect model is based on the results of Hauseman test. If the Hauseman test, reject to apply random effect model then it is in favour to use fixed effect model, while if it rejects to use fixed effect model then it suggesting to use random effect model (Gujarati, 2009).

The decision to be taken among three different models to use for data analysis. First is the common effect model, second, FE model, and third, RE model. To decide among the given three models, two statistical tests are applied. These tests are Redundancy and Hauseman tests. Therefore, in this study first Likelihood test (Redundancy test) is applied. If the coefficient of the Redundancy is significant the FE models are applied. However, if the resultant coefficient is insignificant then the common effect model is applied. Next, to decide the use between FE and RE model, Hauseman test is applied. If the coefficient of Hauseman test becomes significant the study uses FE model otherwise random effect model. Put it differently, if the Redundancy and Hauseman tests both coefficients are significant the FE model is better to use.

$$y_{i,t} = \alpha_0 + \beta_1 X_{i,t} + \mu_i + \varepsilon_{i,t} \quad (3.4)$$

In the given Equation (1.1) where $y_{i,t}$ is the dependent variable. In the equation α_0 given is the estimate for the constant. Moreover, β_1 is the coefficient attached to individual independent variable and explanatory variable I at time t is denoted by $X_{i,t}$. Further, μ_i explores panel individual effect. At last $\varepsilon_{i,t}$ is the equation disturbance term.

First, to check the effect of liquidity, size and efficiency on ROA the given statistical model is as given:

$$\text{ROA}_{i,t} = \alpha_0 + \beta_1 CAR_{i,t} + \beta_2 DTA_{i,t} + \beta_3 LMI_{i,t} + \beta_4 LTD_{i,t} + \beta_5 LA_{i,t} + \beta_6 Size_{i,t} + \beta_7 LNMI_{i,t} + \beta_8 GDP_{i,t} + \beta_9 dummy_{i,t} + \varepsilon_{i,t} \quad (3.5)$$

The specification of the Equation (3.2) is as follows. First the ROA, indicate ROA of IBs and CBs of I at time t. The α_0 in the equation is constant and β indicate each explanatory variable coefficient from β_1 to β_9. The term $CAR_{i,t}$ stands for capital adequacy ratio which is also some time pronounced as core capital ratio. Further, $DTA_{i,t}$ denotes Deposits to total asset. Followed by $LMI_{i,t}$ which is interest/mark-up income of each bank given I at time t and $LTD_{i,t}$ is the abbreviation for loan/advances to deposits of bank i at time t. The LMI which is interest/mark-up income and LNMI which is non-interest/non-mark-up income are measuring the efficiency of banks operating in the three sample countries. Moreover, $LA_{i,t}$ is the loan/advances to total assets of a given i bank at time. Both LTD and LA are the measures of banks liquidity. To measure the size of each bank for checking its impact on ROA log of assets given as $Size_{i,t}$. In addition, the dummy variable in the equation shows whether the bank is Islamic (interest-free) or conventional (Interest-based). Lastly, $\varepsilon_{i,t}$ in the equation is white noise term.

Second, to check the effect of liquidity, efficiency, capital adequacy, size, on the ROE of IBs and CBs the statistical equation is the following.

$$\text{ROE}_{i,t} = \alpha_0 + \alpha_1 CAR_{i,t} + \alpha_2 DTA_{i,t} + \alpha_3 LMI_{i,t} + \alpha_4 LTD_{i,t} + \alpha_5 LA_{i,t} + \alpha_6 Size_{i,t} + \alpha_7 LNMI_{i,t} + \alpha_8 GDP_{i,t} + \alpha_9 dummy_{i,t} + \varepsilon_{i,t} \ (3.6)$$

In the equation (3.3) starting from $\text{ROE}_{i,t}$ which denotes ROE of bank i at a given time t is the dependent variable. Next, in the equation α_0 indicates the equation constant term. Moreover, α_1 to α_9 are the coefficients associate to each explanatory variable. As mentioned in the previous equation CAR stands for capital adequacy, DTA is deposits to total assets, LMI is interest/mark-up income, LTD is the loan/advances to deposits, LA in the equation is the proxy for size and calculated by taking log of assets, LNMI is non-interest/non-mark-up income, GDP is the gross domestic product and lastly the dummy variable express whether a banks is Islamic or conventional.

Chapter 4

Data Analysis and Discussion

The chapter provides the statistical analysis and its interpretation as for the methodology provided in previous section. In the first section the data is comprehensively studies through descriptive statistics to ensure that the data is free from outliers and ready to run empirical results. In second section, the variables association is examined through the correlation matrix. The third section, deals with the impact of liquidity, risk, efficiency, size and economic activity on ROA of 64 banks operating in Pakistan, Bangladesh, and Malaysia. The fourth section provide the impact of efficiency, liquidity, risk, and size on ROE of three Southeast Asian economies. Thereafter, the fifth section is the examination of comparative performance of IBs and CBs. The sixth section the country-wise analysis of IBs and CBs.

4.1   Descriptive Statistics

Before the application of econometric analysis, a number of descriptive statistics are computed to ensure that the data does not suffer from outliers or any other major issues which possibly affect the subsequent analysis. These descriptive statistics covers the mean which is the from the central tendency measures, from dispersion measures the standard deviation is included, for the range of the sample data minimum and maximum are taken.

The mean value indicates the centre of the data and standard deviation show the dispersion from the central value. In addition, the range of the data is shown by minimum and maximum, where all the values fall within the range of maximum and minimum values.

TABLE 4.1: Descriptive Statistics of All, Islamic and Conventional Banks

Variables	All Banks				Conventional Banks				Islamic Banks			
	Mean	Std	Min.	Max.	Mean	Std	Min.	Max.	Mean	Std	Min.	Max.
ROA	0.04	0.02	-0.13	0.19	0.03	0.02	-0.13	0.19	0.06	0.02	-0.11	0.08
ROE	0.16	0.59	-14.74	2.35	0.15	0.67	-2.74	2.35	0.12	0.09	-0.17	0.46
CAR	0.08	0.13	-0.96	2.05	0.09	0.07	-0.03	0.88	0.04	0.25	-0.96	2.05
DTA	0.76	0.42	0.01	8.24	0.76	0.47	0.01	4.62	0.77	0.15	0.01	1.01
LTD	1.13	0.76	0.22	13.47	1.15	0.68	0.39	13.47	1.09	0.99	0.22	13.07
LA	0.85	0.92	0.12	23.02	0.81	0.14	0.12	1.56	1.06	1.29	0.17	7.02
Size	9.57	1.53	6.97	12.21	11.63	2.55	6.17	15.78	7.34	4.36	5.87	14.4
LMI	8.26	2.22	3.23	14.57	7.22	2.26	5.23	18.57	8.42	3.08	6.07	13.01
LNMI	7.62	2.02	4.28	13.39	12.65	2.13	7.32	17.39	7.41	3.34	7.28	19.94

ROA=return on assets,

ROE=return on equity,

CAR=capital adequacy ratio,

DTA=deposits to total assets,

LTD=loan/advances to deposits,

LA=loan/advances to assets,

LMI=interest/mark-up income,

LNMI=non-interest/non-mark-up income, and GDP=gross domestic product.

A general behaviour for the sample data is provided in Table 4.1. The first section of the table which consist of all banks from three Southeast Asian nations namely; Pakistan, Malaysia, and Bangladesh. Where there are total 704 observations of 11 years data ranging from 2008 to 2018 make 64 banks, some of these banks are IB's and others CB's.

The firs variable in the table ROA which central value is 4%, the dispersion is recorded as 0.02, and the average ROA is ranging from -0.13 to 0.19.

The second dependent variable return on equity (ROE) also have 704 observations (64 banks). As per the mean coefficient the banks operating in Pakistan, Bangladesh, and Malaysia on average earn 16% return, while in these returns 59% variations are noted as per the coefficient of total variations. Moreover, the range of these returns is from -14.74 to 2.34 for all the sample banks.

The first explanatory variable capital adequacy ratio (CAR) analysis is based on 704 observations. Where the central value is 0.08 and the dispersion from the mean value is 0.13.

The minimum value of capital adequacy ratio is -0.96 and the maximum value is 2.05. The second independent variable deposits over total assets (measuring stability of banks) carries central value of 0.76 and deviations from the central value is reported as 0.42.

Similarly, the two extremes of the data are 0.01 and 8.20. The third explanatory variable is loan to deposits (measuring banks efficiency) are analysed on 704 observations.

The descriptive shows the mean value 0.01, standard deviation 0.02, and minimum

estimate -0.01, and maximum value 0.16. The fourth independent variable is deposits to assets (measuring banks efficiency) central value is 1.13 and the shortest value is 0.22 and the highest values is 13.47, while the dispersion from the central value is 0.76.

The variable size has the standard deviation value of 1.53 and the central value of 9.57 while the data is in between 6.97 and 12.21. The variable LMI is net mark-up income which carries the mean value of 8.26, the value of the total risk is 2.22 and the data is ranging between 3.23 and 14.57.

Lastly, the LNMI variable has 7.62 mean value and 2.02 dispersion value while the LNMI variable largest value is 13.39 and the available smallest is 4.28.

Now in the middle of the table descriptive statistics of commerical banks are reported. These are the listed commercial banks operating in Malaysia, Pakistan, and Bangladesh. These are total of 50 interest-based banks.

The ROA of CBs is about 3% and the deviation from the average return is 2%. The highest loss on assets during the sample period is 13%. On the contrary, the highest ROA of conventional banks during the sample timeframe is 19%.

The second endogenous variable ROE shows that commercial banks in three Southeast Asian economies on average earn 15% return on their equity investment. This ROE deviate up to 67% during the 11 years sample period. The highest loss on equity is observed to be -2.74 and highest return is about 2.35.

The capital adequacy ratio minimum value is -0.03, average value 0.09, maximum value 0.88, and total dispersion is 0.07. The descriptive statistics of Deposits to total assets exhibit that on average 76% of the bank assets are financed by the deposits collected from customers. These deposits over total assets dispersed up to 47%.

The minimum deposits to total assets are 0.01 and maximum DTA ratio is 4.20. The efficiency measure DTA of banks also have 550 observations, where central value is 1.15, range is from 0.39 to 13.47, and the dispersion estimate is 0.68. The loan/advances to assets of commercial banks (LA) central value is 0.81 and dispersion is 0.14.

As for the size of conventional banks, the mean value is 11.63 from this average

size the deviation is recorded as 2.55 and the upper limit is 15.78 and lower limit is 6.17.

The LMI in 2.26 deviation carry 7.22 mean value where the minimum value of the commercial banks net mark-up income is 5.23 and the largest value is 18.57. Finally, the LNMI mean estimate is 12.65 and std is 2.13 while the upper value is 17.39 and the smallest value is recorded as 7.32.

First in Table 4.1 all included banks descriptive statistics were provided. Second the summary statistics of 50 CBs are reported. Now the descriptive statistics of 14 IBs from the three sample countries are reported. The observations for the IBs are 154 covering 11 years (154/11), so made 14 IBs.

The ROA mean estimate indicate that on average Islamic banks operating in Bangladesh, Malaysia and Pakistan on average earn 6% return on their investment. The highest loss is observed to be 11% and highest gain is noted 8%. The average returns of IBs deviate up to 2% during the sample period of 11 years.

The second dependent variable ROE shows that on average listed Islamic banks of Malaysia, Pakistan, Bangladesh earn 12% on their equity investment. Where this ROE ranges from -0.17 to 0.46.

The other independent variables mean values, deviations, and data ranges are subsequently provided.

In short, Table 4.1, a short risk and return comparison of all, IBs and CBs are made. The results exhibit IBs on average earns 3% more on assets than CBs while the risk associated to ROA is same between IBs and CBs while the average return of all banks on ROA is 4%.

Second, on ROE basis, IBs earns 3% less than CBs while the ROE of all banks is more than the separate banking sectors. But conventional banks taking very higher risk for this ROE, as ROE deviate up to 67% indicated by the estimate of standard deviation.

In short, Islamic banks have higher ROA and CBs have higher ROE. Further, IBs are confronted with less risk as compared to CBs. As for the size CBs is larger when compare to IBs. Moreover, the traditional banks had less Mark-up income and more non-mark-up income as compared to Islamic banks.

TABLE 4.2: Country-Wise Descriptive Statistics

Variables	Bangladesh		Pakistan		Malaysia	
	Mean	STD	Mean	STD	Mean	STD
ROA	0.094	0.015	0.07	0.024	0.081	0.003
ROE	0.14	0.072	0.12	1.007	0.136	0.056
CAR	0.062	0.174	0.098	0.101	0.083	0.022
DTA	0.772	0.163	0.812	0.656	0.654	0.233
LTD	1.095	0.165	1.161	0.603	1	0.256
LA	0.94	1.318	0.841	0.193	0.684	0.115
Size	8.14	0.341	8.431	0.505	8.003	0.432
LMI	4.173	2.454	16.856	2.176	12.024	1.049
LNMI	5.582	0.778	23.006	0.1	12.227	1.043
GDP	6.408	0.763	3.811	1.363	4.812	1.381

The descriptive statistics in Table 7 indicate the descriptive statistics of Bangladesh, Pakistan and Malaysia. The descriptive statistics are the mean, standard deviation. The average ROA of Bangladesh, Pakistan, and Malaysian banks is 0.09, 0.07, and 0.08 respectively. The average ROE for each Bangladesh. Pakistan, and Malaysia is 0.14, 12, and 13 respectively.

4.2 Correlation Metrices

The association between the variables is explained via the Pearson correlation. The correlation coefficient ranging from -1 to 0 and to +1. The correlation estimates is equal to 1 indicate that the relationship between two variables is perfect and positive. The coefficient equal to -1 shows that the relationship between the variables is perfect and negative. The positive correlation tells that two variables move together while negative correlation answer that two variables in the inverse relationship. If the coefficient of correlation is zero it means that there is no correlation.

The correlation coefficient tells about two things one is the direction (positive or negative) and other is the magnitude (that how strong the association is). Moreover, the correlation among the independent variables show the Multicollinearity. When a higher correlation >0.90 between the two independent variables is observed, it indicates the problem of Multicollinearity. The strong association between two explanatory variables (Multicollinearity) means that both variables are overlapping (covering the same aspect). ROA=return

TABLE 4.3: Correlation Matrix of All Banks

Variables	ROE	ROA	LTD	Size	LA	DTA	CAR	LMI	LNMI	GDP
ROE	1									
ROA	0.2	1								
LTD	-0.01	-0.02	1							
Size	0.07	0.09	0	1						
LA	0	0.17	0	0.04	1					
DTA	0.02	0.49	-0.17	0.03	-0.1	1				
CAR	0	0.47	0.03	-0.11	0.54	0.2	1			
LMI	-0.01	-0.02	-0.01	-0.41	0.01	0.09	0.05	1		
LNMI	-0.01	-0.05	0.01	-0.34	0	0.09	0.04	0.97	1	
GDP	0.08	0.09	-0.01	0.69	0.05	-0.02	-0.13	-0.45	-0.43	1

on assets, ROE=return on equity, CAR=capital adequacy ratio, DTA=deposits to total assets, LTD=loan/advances to deposits, LA=loan/advances to assets, LMI= interest/mark-up income, LNMI= non-interest/ non-mark-up income, and GDP=gross domestic product.

The correlation coefficient of all variables for 64 banks are presented in Table 4.3. The results show association between ROA and ROE is positive, which means that both ROA and ROE move in one direction. The loan/advances to deposits (LTD) have a positive association with Log of total assets (size), net bank loan/advances divide by total assets (LA), and CAR. However, LTD is oppositely associated to Deposits to total assets (DTA) and no relationship is noted between LTD (loan/advances to deposits).

Moreover, size (log of total assets) is positively correlation with LA and DTA while negatively correlated with CAR. In short, there is no such case of strong correlation between either of two explanatory variables, thus, the problem of Multicollinearity in the data do not exist which can biased further statistical analysis. In the next section the correlation matrix of Islamic banks is reported followed by the correlation matrix of conventional banks.

TABLE 4.4: Correlation Matrix of Islamic Banks

Variables	ROA	ROE	LTD	Size	LA	DTA	CAR	LMI	LNMI	GDP
ROA	1									
ROE	0.56	1								
LTD	0.03	0.06	1							
Size	-0.23	-0.27	0.13	1						
LA	0.36	0.06	0.01	0.23	1					
DTA	0.22	-0.11	0.46	0.39	0.51	1				
CAR	-0.66	-0.04	0.33	-0.13	0.65	-0.42	1			
LMI	0.08	0.5	0.26	-0.23	0.11	0.12	0.18	1		
LNMI	0	0.44	0.18	-0.14	0.25	0.14	0.09	0.61	1	
GDP	0.01	0.28	0.13	0.68	0.07	0.09	-0.19	0.35	0.32	1

TABLE 4.5: Correlation Matrix of Conventional Banks

Correlation	ROE	ROA	LTD	Size	LA	DTA	CAR	LMI	LNMI	GDP
ROE	1									
ROA	0.32	1								
LTD	0.21	-0.05	1							
Size	-0.18	-0.19	-0.06	1						
LA	0.22	0.58	0.58	0.32	1					
DTA	0.36	0.62	0.36	0.04	0.26	1				
CAR	-0.61	-0.37	-0.23	0.17	-0.34	0.6	1			
LMI	0.38	0.52	0.14	-0.46	0.14	0.09	-0.04	1		
LNMI	0.11	0.47	0.03	-0.31	0.19	0.21	-0.61	0.53	1	
GDP	0.08	0.11	-0.01	0.71	0.43	-0.13	-0.24	0.47	0.42	1

Now the correlation coefficient of conventional banks is calculated and reported in Table 4.5. The correlation coefficient of ROA and ROE is 0.32 suggesting variables are moving in parallel. The association between ROA and ROE of IBs is stronger than the CBs. As anticipated, the association of ROE with CAR and Size is negative and positive with remaining variables, thus, confirming the expected signs.

Likewise, the association of ROA with Size, CAR and LTD is negative suggesting that the increase in these variables discourage the ROA of conventional banks. Further all the variables carry expected signs and do not show any strong correlation. Therefore, the data do not have any problem of Multicollinearity and have good indication of the expected signs.

4.3 Results of Estimated Regression

4.3.1 Regression Results for All Banks in Three Countries

Now the Regression result of dependent variable ROE is reported. To start with the discussion, the results show that the effect of LMI is significant and carries expected sign indicating that the banks with higher interest/mark-up income have more return on their equity investments. In contrast to the expectation the coefficient associated to LTD is negative and significant which shows that the banks operating in these three countries with greater loan/advances to deposit ratio tend to earn less ROE. The positive and significant coefficient attached to LTD show that the higher the deposits to total assets the higher will be ROE of the banks in the three sample economies. To move ahead, the results show that the larger banks earns less ROE and vice versa. Lastly, the coefficient associated to GDP is positive and significant demonstrating that the higher economic activity in the country expands the ROE of the banking sector. In short, all the effects are in line with the economic theory expect that of LTD.

Lastly, the estimate of R-square is 0.773 which indicate that independent variables in the model explain 77% of the total change in ROE of the three Southeast Asian nations banking sector. Next, the F-stat. coefficient is 7.945 which is significant, suggesting that the overall model is fit.

The coefficient estimates of fixed effect model of ROA of IBs are presented in Table 4.12. The findings show significant and positive impact of interest/mark-up income (LMI) on the ROA of IBs. Likewise, the effect of non-interest/non-mark-up income is also favourably significant. Thus, the IBs with higher interest/mark-up

income and non-interest/non-mark-up income have high ROA. Contrary to the expectation the effect of LTD is negative and significant indicating that a higher loan/advances to deposits in IBs have lesser ROA. The impact of loan/advances to assets (LA) is positive and significant demonstrating that the IBs with higher lending ability have higher ROA. The effect of CAR is as expected negative and significant indicating that the banks with the lesser risk have lesser ROA. Moreover, the larger the banks and the greater economic activity in the country expands the IBs' ability to have more ROA.

The R^2 suggest that the included explanatory variables explains 81% changes in the ROA of IBs after taking into account the seasonal adjustments. Lastly the significant F-stat. indicate the overall fitness of the model. It is to be mentioned that the fixed effect model is applied because both the Redundancy and Hausman test coefficients were significant suggesting the applicability of fixed effect model. The coefficient estimates of random effect model of IBs ROE are reported in Table 13. The impact of LMI and LNMI are both positive and significant suggesting that the higher efficiency result in to higher ROE. The coefficient associated with LA is also positive and significant demonstrating that the IBs with loan/advances to assets have higher ROE. On the other hand, the CAR is negatively associated with ROE indicating that the increasing CAR tend to reduce the ROE. Interestingly, the larger the IBs have the larger ROE. At last the economic activity in the country expanding the ROE of IBs operating in three sample countries. Looking at the effect of size on both ROA and ROE are significant indicating that the larger IBs have higher profitability.

Moreover, R-square estimate is 0.79, implying that the model explains 79% variation in the ROE of IBs. Likewise, as per the significant coefficient of F-stat. the model is appropriate. Furthermore, these results belong to the random effect model since the coefficient of Hausman test is insignificant.

It is to be mentioned that the difference between the R-square of Islamic and conventional banks is evident. Overall, the Islamic banks R-square estimate in both models (ROA and ROE) is more than the conventional banks models. This higher R-square could be the reason of smaller sample of Islamic banks which affected

the R-square value of Islamic banks.

4.4 Factors Effecting the Profitability of Islamic Banks

The current section covers impact of liquidity, efficiency, risk, size and economic activity on profitability of IBs operating in Pakistan, Malaysia, and Bangladesh. The effect is first examined on the ROA of IBs and second the impact on ROE.

4.4.1 Fixed Effect Model of ROA (Islamic Banks)

The coefficient estimates of fixed effect model of ROA associated to IBs. The findings show significant and positive impact of interest/mark-up income (LMI) on ROA of IBs. Likewise, the effect of non-interest/non-mark-up income is also favourably significant. Thus, the IBs with higher LMI and LNMI have high ROA. Contrary to the expectation the effect of LTD is negative and significant indicating that a higher loan/advances to deposits in IBs have lesser ROA. The impact of loan/advances to assets (LA) is positive and significant demonstrating that the IBs with higher lending ability have higher ROA. The effect of CAR is as expected negative and significant indicating that the banks with the lesser risk have lesser ROA. Moreover, the larger the banks and the greater economic activity in the country expands the IBs' ability to have more ROA.

The R^2 suggest that the included explanatory variables explains 81% changes in the ROA of IBs after taking into account the seasonal adjustments. Lastly as F-stat. is significant, therefore, indicating the overall fitness of optimum model. It is to be mentioned that FE model is applied because both Redundancy and Hausman test coefficients were significant suggesting the applicability of FE model.

4.4.2   Random Effect Model of ROE (Islamic Banks)

The coefficient estimates of random effect model of IBs ROE are reported. The impact of LMI and LNMI are both positive and significant suggesting that the higher efficiency result in to higher ROE. The coefficient associated with LA is also positive and significant demonstrating that the IBs with loan/advances to assets have higher ROE. On the other hand, the CAR is negatively associated with ROE indicating that the increasing CAR tend to reduce the ROE. Interestingly, the larger the IBs have the larger ROE. At last the economic activity in the country expanding the ROE of IBs operating in three sample countries. Looking at the effect of size on both ROA and ROE are significant indicating that the larger IBs have higher profitability.

4.5   Factors Effecting the Profitability of Conventional Banks

In the next section the impact of liquidity, efficiency, and size on the ROA of the conventional banks.

4.5.1   Random Effect Model of Return on Assets (Conventional Banks)

The results shows that the LMI has a significant and positive coefficient predicting that the higher the CBs interest/mark-up income the higher have their ROA and vice versa. On the contrary, the non-interest/non-mark-up income (LNMI) carries negative and significant coefficient exhibiting that the commercial banks with more LNMI have less ROA. The deposits to total assets when on increasing expands the commercial banks ROA since the coefficient attached to DTA is significant and positive. The size and CAR both as expected carries significant and negative coefficients show that the commercial banks with higher risk and size have less ROA and vice versa. The effect of loan/advances to deposits and GDP is as

anticipate positive and significant demonstrating that commercial banks earns more ROA when they have higher LTD and economic activity in the country.

The goodness-of-fit test R-square coefficient is 0.44, suggesting that 44% variation in ROA is explained by the model under consideration. The model is appropriate since the coefficient of F-stat. is significant. Moreover, the Redundancy test coefficient is significant and Hausman test coefficient is insignificant, thus, the random effect model is applied.

4.5.2 Fixed Effect Model of Return on Equity (Conventional Banks)

Now the effects of different factors specific is explored on ROE of CBs and the results show that the coefficient of LMI is positive and LNMI negative demonstrating that the higher interest/mark-up income increase and non-interest/non-mark-up income decrease the ROE of CBs. It is to be mentioned that both of the coefficients are significant at 5% significance level. The coefficients associated to CAR and Size are also significant and negative exhibiting that the larger commercial banks and high CAR tend to have lesser ROE as compared to those banks with smaller size and low CAR ratio. On the contrary, the impact of deposits to total assets and loan/advances to deposits is significant and positive which suggest that the banks with more deposits collection and more lending ability will more maximize the shareholder wealth.

Lastly, the coefficient associated to GDP is also positive and significant which show that the rising economic activity in the sample countries expands the commercial banks ROE.

The measure of goodness of fit Adj. R^2 estimate is 0.70, suggesting that current model explain 70% of the variation in ROE of CBs. Similarly, the significant F-stat. also show that model is good to be applied.

*=5% significance level, ROA=return on assets, ROE=return on equity, CAR=capital adequacy ratio, DTA=deposits to total assets, LTD=loan/advances to deposits, LA=loan/advances to assets, LMI= non-interest/mark-up income, LNMI= non-interest/non-mark-up income, and GDP=gross domestic product.

TABLE 4.6: Comparison of All, Islamic and Conventional Banks

Variables	All Banks		Islamic Banks		Conventional Banks	
	ROA	ROE	ROA	ROE	ROA	ROE
	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients
Constant	-0.026*	-0.237	0.05	0.032	-0.02	-2.83
LMI	0.063*	1.219*	0.340*	0.174*	0.16*	3.33*
LNMI	0.034*	0.137	0.230*	0.314*	-0.24*	-0.53*
LTD	0.083	-0.061*	-0.031*	-0.011	0.08*	0.03*
DTA	0.027*	0.203*	0.005	0.097*	0.08	0.36*
LA	0.124	-0.007	0.081*	0.022*	0.12*	0.17
CAR	-0.054*	0.075	-0.061*	-0.185*	-0.71*	-2.39*
Size	-0.13*	-0.034*	0.524*	0.073*	-0.24*	-0.5
GDP	0.161	0.08*	0.263*	0.080*	0.12*	0.73*
R^2	0.7	0.77	0.833	0.79	0.75	0.6
Adj. R^2	0.69	0.75	0.809	0.77	0.73	0.59
F-stat.	78.45	7.95	35.16	3.31	71.82	2.23
Prob(F-stat.)	0	0.06	0	0	0	0
Redundancy Test			176*	104*	273*	116*
Hausman Test			137**	10.47	9.98	72.9*

4.6 Comparison of Islamic and Conventional Banks

Now the comparison of Islamic and CBs is done. The findings show that net Interest/mark-up income enhance the ROA and ROE of both Islamic and CBs. Further non-interest/non-mark-up income increase the profitability (ROA and ROE) of IBs while decrease the profitability (ROA and ROE) of CBs. On the contrary, loan/advances to deposits (LTD) increase the profitability of CBs while discourage the profitability of IBs.

The effect of deposits to total assets is significant and positive on the ROE of both Islamic and CBs while insignificant on ROA. Moreover, loan/advances to assets (LA) expands the profitability of both the conventional and IBs.

Similarly, capital adequacy ratio (CAR) reduce the profitability of both Islamic and CBs. Interestingly, the impact of size on the profitability of IBs is positive and for CBs is negative, indicating that the higher the size the more is the return of IBs. Lastly, the economic activity (GDP) helps to increase the profitability of both IBs and CBs.

The Likelihood and Hausman tests show the suitability of fixed effect model for ROA model in IBs and random effect model for ROE. In contrast, in the CBs the Likelihood and Hausman tests indicate the suitability of random effect Model.

4.7 Country-Wise Profitability Analysis of Bank

4.7.1 Factors Effecting the Profitability of Bangladeshi Banks

Now the country-wise analysis of banks is performed, started from the factors effecting the profitability of Bangladeshi banks. The results in Table 1 show the effect of various bank specific and GDP effect on the ROA of banks operating in

Bangladesh.

The coefficient associated to capital adequacy ratio (CAR) is negative and significant suggesting that higher requirement to maintain capital for the banks discourage the ROA of the banks in Bangladesh. Conversely, the higher loan/advances to assets ratio (LA) expands the ROA of Bangladeshi banks, since the coefficient attached to LA is significant and positive.

Moreover, the higher the size the lesser is the ROA of banks operating in Bangladesh, indicated by the significant and negative coefficient of Size. It means that the utilization of assets in the larger banks is lesser than the smaller banks in Bangladesh. As predicted the impact of interest/mark-up income (LMI) on the ROA is also significant and positive, demonstrating that the higher the net return the higher ROA and vice versa.

In the diagnostic statistics, R-square estimate is 0.813 showing that the model explains 81% variation in the ROA of banks operating in Bangladesh. The significant estimate of F-stat. expresses the overall fitness of the model. Further, before the application of the model two tests were performed namely, Redundancy test and Hausman test, the significant coefficients conclude that the fixed effect model is more appropriate to be applied.

Secondly, the effect of different factors on the ROE of Bangladeshi banks are determined. As expected, the effect of CAR is significant and positive, suggesting that banks with higher capital adequacy earns less ROE. The effect of loan/advances to deposits ratio (LTD) is also significant and positive, indicating that the higher the banks lend from the deposits collected the higher they earn ROE.

Contrary to the anticipation, the LA coefficient is negative and significant, demonstrating that the higher ratio of loan/advances to assets contract the ROE of the banks in Bangladesh. The effect of size on the ROE is negative and significant, indicating that the larger banks earn less ROE than small banks in Bangladesh.

The effect of LMI is significant and positive, indicating that the higher the interest/mark-up income the higher the ROE. Lastly, the effect of GDP is significant and positive which is in accordance with the economic theory which postulates that the higher

economic activity in a country encourage the growth and profitability of the businesses.

The estimate of Adj. R^2 indicates that the independent variables in the model explains 39% variations in ROE of the banking sector in Bangladesh. Further the significant F-stat. show the appropriateness of the overall model. The significant estimates of Redundancy and Hausman tests suggested the application of fixed effect model.

4.7.2 Factors Effecting the Profitability of Pakistani Banks

In the second stage of country-wise analysis the effect of bank specific and GDP effect on the profitability of banks operating in Pakistan is explored. In Table 3 the effect of DTA (deposits to total assets) is significant and positive, demonstrating that the banks who collect higher deposits on the assets in operation earn higher ROA.

In simple words, the bank's ability to collect higher deposits on the investment in assets are able to earn higher ROA. Moreover, the effect of LMI is positive and significant, indicating that banks earns higher ROA having higher interest/mark-up income.

The model explains 58% changes in the ROA as indicated by the coefficient of R-square. The fitness of the model is shown by the significant estimate of F-stat.. The significant estimate of Redundancy test weigh high the fixed effect model than the common effect model while the insignificant effect of Hausman test indicate the preference of random effect model over the fixed effect model.

Now the effect of various factors on the ROE of Pakistani banks is examined. The results show that the effect of CAR is negative and significant, suggesting that the higher capital adequacy requirements from the regulator discourage the ROE of banks operating in Pakistan.

The deposits to total assets (DTA) coefficient indicate that the banks with greater ability to collect deposits on the assets in investment earn greater ROE. Further the larger the banks the lesser is their ROE indicated by the negative significant estimate of size. The effect of LMI on ROE is positive and significant, suggesting

that the banks with higher interest/mark-up income have higher ROE.

The coefficient of determination, R-Square, carrying 0.62 coefficient suggesting that 62% of the changes in ROE of banks in Pakistan is due to the independent variables in the model. The model appropriateness is indicated by the significant coefficient of F-stat.. The significant estimates of Redundancy and Hausman test suggest the suitability of fixed effect model over the random effect model.

4.7.3 Factors Effecting the Profitability of Malaysian Banks

In the third stage of the country-wise analysis the effect of various factors on the profitability on Malaysian banks is examined. The results in Table 05 shows the impact of CAR on ROA is negative and significant, demonstrating that the banks with higher capital adequacy earns less ROA. On the other hand, the banks with higher deposits over total assets earns higher ROA as compared to the ones with lesser DTA.

Likewise, banks with higher loan/advances to deposits earns higher ROA, indicated by the positive and significant estimate of LTD. The effect of size on the ROA of Malaysian banks is negative and significant, demonstrating that the larger banks earns less ROA than smaller banks. The LMI carries significant and positive estimate suggesting the banks with higher interest/mark-up have higher ROA. The effect of economic activity (GDP) on ROA is also positive and significant, expressing the higher economic activity in Malaysia expands the ROA of banks.

The coefficient of determination show that the model explains 52% changes in the ROA. The fitness of the model is shown by the significant F-stat. estimate. The significant coefficient of Redundancy test and insignificant estimate of Hausman test suggested the application of Random effect model. The results of the different factors affecting the ROE of Malaysian banks are reported in Table 06.

The coefficient of CAR is negative and significant, suggesting that the higher requirement for the capital maintenance from the regulatory body discourage the ROE of banks operating in Malaysia. The deposits to total assets ratio (DTA) carries significant and positive estimate demonstrating that the higher deposits on

the banks investments in assets enhance their ROE. As expected, the effect of size on ROE is negative and significant.

Conversely, the significant and positive estimate of LMI indicate that the banks with higher interest/mark-up income earns more ROE. Lastly, the effect of economic activity, GDP, on the ROE of Malaysian banks is positive and significant, expressing that the higher the economic activity in Malaysia the higher will be the ROE for the banks.

The variation in ROE by the independent variables is 52% indicated by the coefficient of determination, R-square. The estimate of F-stat. is significant demonstrating the overall fitness of the model. The significant likelihood test and insignificant estimate of Hausman test support the application of random effect model.

The country-wise analysis of banks is performed in Table 4.7. The results show that CAR has a significant and negative impact on the profitability (ROA and ROE) of banks operating in Bangladesh, Pakistan, and Malaysia. The results indicate that deposits to total assets increase the profitability of Pakistani and Malaysian banks while does not affect the profitability of Bangladeshi banks.

Moreover, loan/advances to deposits has a significant positive effect on the ROE of Bangladeshi and ROA of Malaysian banks while do not carry any significant coefficient in Pakistani context. The effect of size on all three sample countries profitability is negative and significant suggesting that the larger banks earn less than the smaller banks.

However, the interest/mark-up income has a positive and significant effect on the profitability of all sample countries banks. In short, the size reduce and interest/mark-up increase the profitability of three countries sample banks while non-interest/non-mark-up income does not carry any significant coefficient. Lastly the effect of GDP is only significant and positive in Malaysia indicating that increasing economic activity in Malaysia increase the profitability of the banking sector in terms of ROA and ROE.

In nutshell, the analyses covered the comparative performance of Islamic and conventional banks; and country-wise performance of banks. While the comparative performance of Islamic and conventional banks in each sample country is not taken

into account. The reason was that the sample of Islamic banks was very limited. First, we only included the complete Islamic banks, did not included the banks with Islamic window operations, which reduces the sample of Islamic banks. When the Islamic banks from the three sample countries were accumulated the sample was sufficient to run the statistical results.

TABLE 4.7: Country-Wise Comparative Analysis of Banks (Add All Banks)

	Bangladesh		Pakistan		Malaysia	
Variable	ROA	ROE	ROA	ROE	ROA	ROE
Constant	0.143	1.205	-0.274	-10.663	0.028	0.583
CAR	-0.059*	-0.200*	0.091	-7.004*	-0.084*	-1.446*
DTA	0.004	-0.02	0.025*	0.571*	0.025*	0.058*
LTD	0.003	0.054*	0.282	0.059	0.270*	-0.008
LA	0.008*	-0.028*	-0.004	-0.007	-0.001	-0.062
Size	-0.013*	-0.074*	0.158*	-1.262*	-0.005*	-0.062*
LMI	0.620*	0.023*	0.117*	0.089*	0.252*	0.118*
LNMI	0.213	0.072*	0.05	1.304	0.002	0.001
GDP	0.031	-0.017	0.321	-0.061	0.056*	0.066*
R^2	0.813	0.465	0.586	0.631	0.523	0.524
Adj. R^2	0.789	0.397	0.572	0.625	0.515	0.509
F-stat.	34.112	6.811	41.303	2.181	9.005	12.325
Prob(F-stat.)	0.000	0.000	0.000	0.001	0.000	0.000
Red. Test	314**	74.97**	68.58**	47.98**	106.83**	96.62**
Hausman Test	413**	21.14**	1.31	30.24**	0.091	0.068

ROA=return on assets, ROE=ROE, CAR=capital adequacy ratio, DTA=deposits to total assets, LTD=loan/advances to deposits, LA=loan/advances to assets, LMI= non-interest/mark-up income, LNMI= non-interest/non-mark-up income,

and GDP=gross domestic product.

But was insufficient to do the comparative analysis of Islamic and conventional banks. As the objective of this study was to examine the comparative performance of Islamic and conventional banks from three sample countries as a whole, therefore, the individual country Islamic and conventional banks performance comparison was not conducted.

Chapter 5

Discussion and Policy Implication

5.1 Discussion

The Islamic financial system debate began, across the globe, particularly after the 2008 financial crisis. When the crisis abruptly shocks the conventional financial system (Fakhfekh et al., 2016; Trabelsi, 2011). The crisis destabilized all the financial system and the world economies were crippled while the Islamic financial system holds its sustainability and functioning (Ftiti et al., 2013; Mat Rahim & Zakaria, 2013). After the financial crises the concerns were raised on the conventional financial systems and many researchers argue the need for structural changes in the existing banking system (Chapra, 2008; Kayed & Hassan, 2011). Meanwhile, the Islamic financial system took the concentration and becomes as a remedy for the system which failed to function effectively (Dridi & Hasan, 2010). The survival of IBs in the crisis absorb the attention of many stakeholders (Trad et al., 2017).

To compare the conventional and Islamic financial system, the basic underlying feature of Islamic finance is that it is governed by the divine rules of Sharia (Islamic Law). The Islamic financial system has a more regulatory power, as the system should realize justice, the financial system including IBs have to operate as per the rules and guidelines of Sharia Law. Islamic banking is guided by sharia compliance and the interest (riba) is forbidden, the money not to be treated as a

commodity, the justice is there, and the uncertainty (gharar) is prohibited (Hamdan, 2009).

Many empirical studies in the past were conducted to compare and contrast the Islamic and non-Islamic banking and its financial performance. These studies found a number of performance indicators where some are positively and others are negatively associated with IBs and CBs. But one thing is clear that the performance of Islamic and CBs is somewhat different.

There are some features of Islamic banking literature that is briefly discussed here. First, on bank efficiency, there is mixed evidence as some found IBs to be more efficient than CBs while others show not much difference between the two types of banks. Second, generally the relatively smaller IBs tend to be more stable and are able to mitigate risks better. Third, IBs are characterised by better asset quality and are found to be at less risk failure compared to CBs.

The objective of this study is to first comparatively examine the impact of liquidity, efficiency, and size on the profitability of Islamic and CBs. Second, to examine the impact of liquidity, efficiency, and size on the profitability of three sample countries namely; Pakistan, Bangladesh, and Malaysia. By following the literature, the profitability is measured through two proxies ROA (ROA) and ROE (ROE).

In current study the panel data was used where there are 64 cross-sections (banks) and time period from 2008-2018. The sample banks are from three Southeast Asian economies namely; Pakistan, Malaysia, and Bangladesh. Before the application of random and fixed effect model the descriptive analysis and correlation analysis were performed. The decision to whether use fixed or random effect model the two tests were applied namely; Redundancy test and Hausman Test. All the variables are in the ration form except LMI, LNMI and Size.

The results show that interest/Mark-up income enhance the ROA and ROE of both Islamic and CBs. Further non-interest/non-mark-up income increase the profitability (ROA and ROE) of IBs while decrease the profitability (ROA and ROE) of CBs. On the contrary, loan/advances to deposits (LTD) increase the

profitability of CBs while discourage the profitability of IBs. The effect of deposits to total assets is significant and positive on the ROE of both Islamic and CBs while insignificant on ROA. Moreover, loan/advances to assets (LA) expands and capital adequacy ratio (CAR) reduce the profitability of both Islamic and CBs. Interestingly, the impact of size on the profitability of IBs is positive and for CBs is negative, indicating that the higher the size the more is the return of IBs. Lastly, the economic activity (GDP) helps to increase the profitability of both Islamic and CBs.

The country-wise analysis of banks show that CAR has a significant and negative impact on the profitability (ROA and ROE) of banks operating in Bangladesh, Pakistan, and Malaysia. The results indicate that deposits to total assets increase the profitability of Pakistani and Malaysian banks while does not affect the profitability of Bangladeshi banks. Moreover, loan/advances to deposits has a significant positive effect on the ROE of Bangladeshi and ROA of Malaysian banks while do not carry any significant coefficient in Pakistani context. The effect of size on all three sample countries profitability is negative and significant suggesting that the larger banks earn less than the smaller banks. However, the interest/mark-up income has a positive and significant effect on the profitability of all threee countries banks. In short, the size reduce and net mark-up increase the profitability of all three sample countries banks while non-interest/non-mark-up income does not carry any significant coefficient. Lastly the effect of GDP is only significant and positive in Malaysia indicating that increasing economic activity in Malaysia increase the profitability of the banking sector in terms of ROA and ROE.

5.2 Policy Implications

First the positive and significant impact of non-interest/non-markup income on the profitability of Islamic banks and negative impact on the profitability of CBs help the academicians to understand the difference between Islamic and CBs on the basis of efficency. Second, the findings show that larger IBs have higher

profitability than smaller banks and larger CBs have less profitability as compared to smaller banks is another area contributing to the existing body of knowledge. As the findings show significant differences in the profitability, efficiency and size of IBs and conventional banks, therefore, the policy makers can devise policies for each market separately by taking into consideration their different nature. Moreover, there are also differences in the profitability, efficiency and size of banks in Pakistan, Malaysia and Bangladesh which suggest that the banking sector of one country is different from another country. In addition, the lack of sharia governance in Islamic banking particularly in Bangladesh and Pakistan is important to support the emerging growth of the market.

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