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Antecedents of Financial Performance of Banking Sector: Panel Analysis of Islamic, Conventional and Mix Banks in Pakistan

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ABSTRACT

Objective: This paper analyzes bank-specific, industry-specific and macroeconomic determinants of bank profitability on the sample of 25 banks, 161 observations on the Pakistani banking system in the period between 2006 and 2012. Our dependent variables include Return on Equity, Return on Assets and Earning per Share and independent variables consist of 'bank-specific determinants', industry-specific determinants', and 'macroeconomic determinants'. State Bank of Pakistan provides the data for internal factors on a yearly basis.

Methodology: Different statistical techniques are used step by step to empirically test the relationship between the variables and to draw conclusions from the results of the study. Firstly, to analyze the features of the profitability determinants descriptive statistics are used. Secondly, we examine the causal relationship between bank-specific, industry specific, macroeconomic variables and profitability variables, Pearson's coefficient of correlation is used. Panel data are used in this study so the technique used for regression is a panel regression technique which includes the pooled Ordinary Least Square, Random Effects Model and Fixed Effect Model. Hausman test is used to analyze that which technique for panel regression is more suitable for study.

Results: According to the obtained results, among internal factors of bank profitability, firm size are the most important factor. Profitability is influenced by liquidity, asset quality and leverage condition of the banks. Regarding the external variables, inflation and interest rate show significant effect on bank profitability. Islamic banks show significant positive relationship with commercial banks.

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1. Introduction

Financial system plays a significant role in the development of the economy of a country. Financial system represents a combination of diversified institutions comprising of Banks, Insurance Companies, Exchange Companies, Mutual Funds, Development Financial Institutions execute the process of depositing and lending funds in an economic system. Every sector of the economy needs funds for its proper operations and funds circulate in the economy through the banking system. This makes banking sector an important component of a country's economic cycle. One of the most important economic roles of the banking sector is to accelerate the economic cycle of the country by converting deposits into positive investments and in providing financial intermediation. In developed nations, financial markets work in harmony with the banking system to channel the flow of funds, whereas in developing countries the financial markets as well as the banking sector is in poor health or in some cases may be absent. These grounds make the study of banking sector performance more important in the context of developing countries like Pakistan.

During the last 30 years, crisis in banking and financial sector have occurred globally. Therefore, establishing banking system sustainability and designing macro-prudential structure for the financial system, is getting more and more attention recently by academics and policy makers. The financial sector's future strategy should be planned to deal with the up-coming international challenges. This can be achieved by amplification of the financial system fundamentals. Also, commercial banks infrastructure would have to pay attention on diversification of their products and services and innovating new ideas for their customer (Akhtar, 2007). The bank's efficiency and profitability to strengthen their financial performance has become one of the challenges to deal with risks that arise due to globalization. Banks' profitability should reflect the efficiency, quality of their management behavior with customers and shareholders and their risk management practices.

1.1. Profitability

Profitability is defined as "a bank's primary arrangement of defense against unpredicted losses, as it capital position becomes stronger and the investment of retained earnings improves its profitability in future" (European Central Bank, 2010). The words profit and ability constitute the word profitability. The term profit means benefit, advantage and financial gain and the capacity of a firm to earn profits is the term ability. Rose (1999) defined profitability as the net income after taxes paid by banks and is commonly measured by profitability ratios i.e. return on assets and return on equity. Profitability affects the leverage, asset quality and liquidity ratios of the banks. Establishing a balance between profitability and liquidity is very important for every company. In the same way, the profitability is also related to leverage and capital structure. The form of financing to be used by the company depends on the equity and debt position of the company. As stated by Modigliani and Miller (1963), levered firm has the same position as compared with unlevered firm. About to the capital condition of the firms in relationship with the profitability, the "Static Trade-off Theory" and "Pecking Order Theory" are used. In view of Static Trade off theory of capital structure the benefits of acquiring debt should offset the debt cost. Firms can get tax advantage up to the extent where benefits can offset the cost of financial distress. Pecking order theory prefers to raise finance internally rather than external costly finance. The non-compliance of a company for raising internal finance leads to debt on equity.

Beck et al (2010) also support this view and concluded in the study that performance of Islamic banks is relatively better than conventional banks during period of financial crisis because Islamic banks holds high capitalization and high level of liquidity reserves.

1.2. Determinants of Profitability

For accessing the performance of banks numerous financial and non-financial indicators are used. Financial indicators include the variables which are best measures of profitability while non-financial measures include the measures such as better service quality for customers, safety measures for

employees etc. Profitability ratios include return on assets (ROA) and return on equity (ROE). Return on assets refers to measure of shareholder value with the leverage effect considered and return on equity serves as a direct estimate of a shareholder's investment in terms of financial return. According to Sinkey (1983), the best measures for describing the financial performance of a banking firm are the profitability ratios comprising of return on assets and return on equity. The financial system stability is established by determining the determinants of profitability (Borio, 2003; Mörttinen et al., 2005). The banking system stability is maintained by sustainable and healthy profitability. Banks' profitability should reflect the efficiency, quality of their management behavior with shareholders and their risk management practices. The theoretical and empirical works depicts that bank's profitability is influenced by various firm specific, industry-specific and macroeconomic variables.

1.3. Bank-Specific, Industry Specific and Macroeconomic Factors

Several accounting-based studies for evaluating the performance of the banks in terms of profitability have utilized endogenous and exogenous factors including bank-specific, industry-specific and macroeconomic factors. Athanasoglou et al, (2006) report that endogenous and exogenous factors affect the profitability of the firms. The endogenous or internal factors are firm-specific and these factors are outcome of management's policies and decisions. Liquidity, asset quality ratios, efficiency, capital structure and profitability are examples of firm-specific factors. Ownership, stock market development, market concentration and macroeconomic factors constitute the exogenous factors.

Kosmidou, Tanna, and Pasiouras (2005) reported that internal factors determine the large segment of bank's profitability. Kosmidou et al., (2005) labeled the bank specific ratios of the endogenous factors as "management controllable factors". According to Ramlall, (2009) profitability of banks is also affected by the setting of market in which it operates. Besides bank-specific variables, bank's profitability also gets influenced by industry-specific and macroeconomic factors. Policy makers and academicians around the world are interested to study and investigate the banking sector competition and concentration of the market resultant from current acquisitions and mergers in the banking industry.

1.4. Commercial Banks Vs. Islamic Banks

Commercial banks transactions are performed on interest basis and the relationship between bank and its customer is of debtor and lender. Therefore, the difference between the rate of interest that has been charged to the borrowers of loan from banks and the rate of interest that has been paid to the depositors determines the profit of the commercial banks. Moreover, commercial banks also provide different types of financial transactions such as guarantees and letters of credit, traveler's cheque.

On the contrary, the Islamic mode of financing develops a relationship of partnership between the banks and the customer or depositor of money. As per partnership procedures both parties share the profit and loss on equal basis which let them to proceed in the trading process and acquiring physical goods. To avoid interest, which is undoubtedly prohibited in Islam, Islamic Banking system provides the services as Mudaraba, Musharaka, Muraqaba, Ijiraq, Bai Muajal and Bi slam as best alternative for interest (Fayed, 2013). Islamic Banking has not only proved to be the best way of financing in ideal economic conditions but also in times of economic and financial crisis. (Hasan and Dridi, 2010). Islamic banking system is consistent with Islamic laws and Shariah principles. Interest or Riba is prohibited in Islam hence it is also prohibited in Islamic banking operations. Islamic banking is more resilient to financial crisis and financial shocks making Islamic banking more popular than conventional banking nowadays. The resilience to financial shocks and crisis does not mean that it is not affected by financial crisis, however, Parashar and Venkatesh (2010) analyzed that Islamic banks are less likely to face financial crisis.

1.5. The Overview of The Pakistani Banking Sector

Pakistan's banking sector comprises of local, Islamic and foreign banks along with the public sector and specialized banks. Since independence of Pakistan, its banking sector has not witnessed many improvements in its growth and development because of shortage of resources and political uncertainty. For fulfilling the requirements of banking sector, State Bank of Pakistan was established on 1st July 1948. By enacting SBP ACT 1956, central bank made various regulatory amendments in the banking sector. Pakistan's Banking sector operates under the rules and regulations given by banking Companies Ordinance 1962. In 1974, performance of banking sector becomes progressively worse due to nationalization. During 1990s, privatization of banks occurs under the reform policy of SBP which motivated various foreign banks to start their operations in Pakistan (Ahmad, Malik, & Humayoun, 2010).

Thorne (1993) finds that the opening of foreign banks into a domestic market shows a positive effect on that domestic market because of foreign bank's spillover effect, its international expertise and know-how of different economies. Currently 44 scheduled banks are operating in Pakistan at the end of June 2012. The State Bank of Pakistan (SBP) was divided into three parts in 2001:

1. The State Bank of Pakistan (SBP), as central bank
2. SBP Banking Services Corporation;
3. National Institute of Banking and Finance (NIBAF).

Banks in Pakistan are performing almost all kinds of services to its customer such as Bank Overdraft facility, fixed deposit facility, Cash Credit, ATM Card facility, car loans facility, profit and loss saving account facility, running finance facility, housing finance, funds transferring facility, internet and mobile banking facility.

1.6. Islamic Banking in Pakistan

Islamic Banking is defined as banking system which is compatible with Islamic Laws and governed under the rules and regulations which are prescribed by Shariah in addition with the risk management and good governance techniques of conventional banking system. The process for Islamization of banking and financial system in Pakistan was started in 1977. Pakistan has pioneer position along with the three countries of the world which were aimed at the Interest Free banking in their countries.

In 1980s various measures including SBP Act 1956, Recovery Laws, BCO 1962, Companies Ordinance 1984 and Negotiable Instrument Act 1881 were revised to assist interest free banking in Pakistan. These amendments, however, could not generate the projected results as of Shariah compliance means and methods were not in place along with central bank's deficiency in proper homework for this system and facilitating financial institutions to such an abrupt change.

In 2001, Islamic banking was re-launched by taking in to consideration the results of previous efforts, and the Government decided to support the Islamic Banking System on a continuing basis and make it compatible with best international practices. Currently, in Pakistan we have dual banking system conventional and Islamic for the customers.

Therefore, Islamic Banking Department was established on 15th September 2003 at State Bank of Pakistan (central bank) with the mandate to strengthen and develop the Shariah compliance and regulatory framework for Islamic banking industry. The Islamic Banking Department is working day and night to promote Islamic Banking and make it comparable and compatible with the best international practices.

Islamic Banking System has tremendously progressed after its re-launch in 2001, yielding 30% more growth in its assets on yearly basis. At present, five full-fledged licensed Islamic banks and fifteen

conventional banks with Islamic windows are operating in country. Numerous measures have been taken to make Islamic Banking a best possible alternative to conventional banking in Pakistan. The Islamic Banking Department has been trying hard to build up the sound and stable Islamic Banking system and making system more progressive by developing Shariah-complaint banking system in accordance with best practices of the world. For strengthening the Shariah compliance and regulatory framework for the Islamic banking industry, the Islamic Banking Department is working on implementation and adoption of prudential standards issued by IFSB, Shariah and Accounting standards issued by AAOIFI. (www.sbp.org.pk)

1.7. Research Question

This research study is supposed to answer the following questions:

- a) Do bank specific, industry specific and macroeconomic factors impact the financial performance of the Conventional Banks?
- b) Do bank specific, industry specific and macroeconomic factors impact the financial performance of the Islamic Banks?
- c) Do bank specific, industry specific and macroeconomic factors impact the financial performance of the Mixed Banks?

This research study is divided into five parts. The first part of study includes introduction, the second part is the theoretical background of the study. The third part of study focuses on the methodology description and the fourth part presents the analysis and empirical findings of the data. Lastly, this research study concludes with conclusion.

2. Literature Review

Short (1979) and Bourke (1989) presents the primary studies on bank profitability with the application of the Efficient-Structure (ES) and Market-Power (MP) theories. The market power theory consists of Structure-Conduct-Performance and the Relative Market Power hypothesis. The Structure-Conduct-Performance states that banks acquire monopoly profits with the increase in market power. On the other hand, the Relative Market Power hypothesis posits that firms can earn comparatively more profits than their competitors and can exercise their market power when it has large market shares and have differentiated products than its competitors. Similarly, the X-efficiency version of Efficient-Structure (ESX) hypothesis asserts that superior managerial and scale efficiency direct towards higher concentration, consequently, higher profits (Athanasoglou et al, 2006). Afterward, several empirical studies were held to scrutinize the performance of banks and the determinants affecting the performance of banks. In today's literature, the bank profitability determinants are classified as internal and external determinants. Smirlock (1985) found that bank size has a positive effect on the profitability of banks. Some research studies found a positive relationship between profitability and bank size (Molyneux and Seth 1998; Ramlall 2009; Pilloff and Rhoades 2002), while some found empirically a negative relation between bank size and profitability (Koasmidou 2008; Spathis et al 2002). The bank's size is one of the most important variables for higher profitability and attaining a large market share because the allocation of fixed cost by large banks makes them pay less and earn more (Koasmidou, 2008).

Turen (1996) examined the Islamic banks profitability in Bahrain for the time from 1979-1989 and the results showed that Islamic banks offer higher returns as compared to conventional banks. Demirguc-Kunt and Huizinga (2001) analyzed that variation in net interest margins and bank profitability depicts a lot of determinants such as bank specific characteristics, financial structure, taxation, regulations, primary institutional and legal indicators and macroeconomic conditions. Siddique and Islam (2001) performed a research study for the time of 1980-1995 on the Bangladeshi commercial banks and their results revealed that commercial banks are contributing well to the economic growth and development

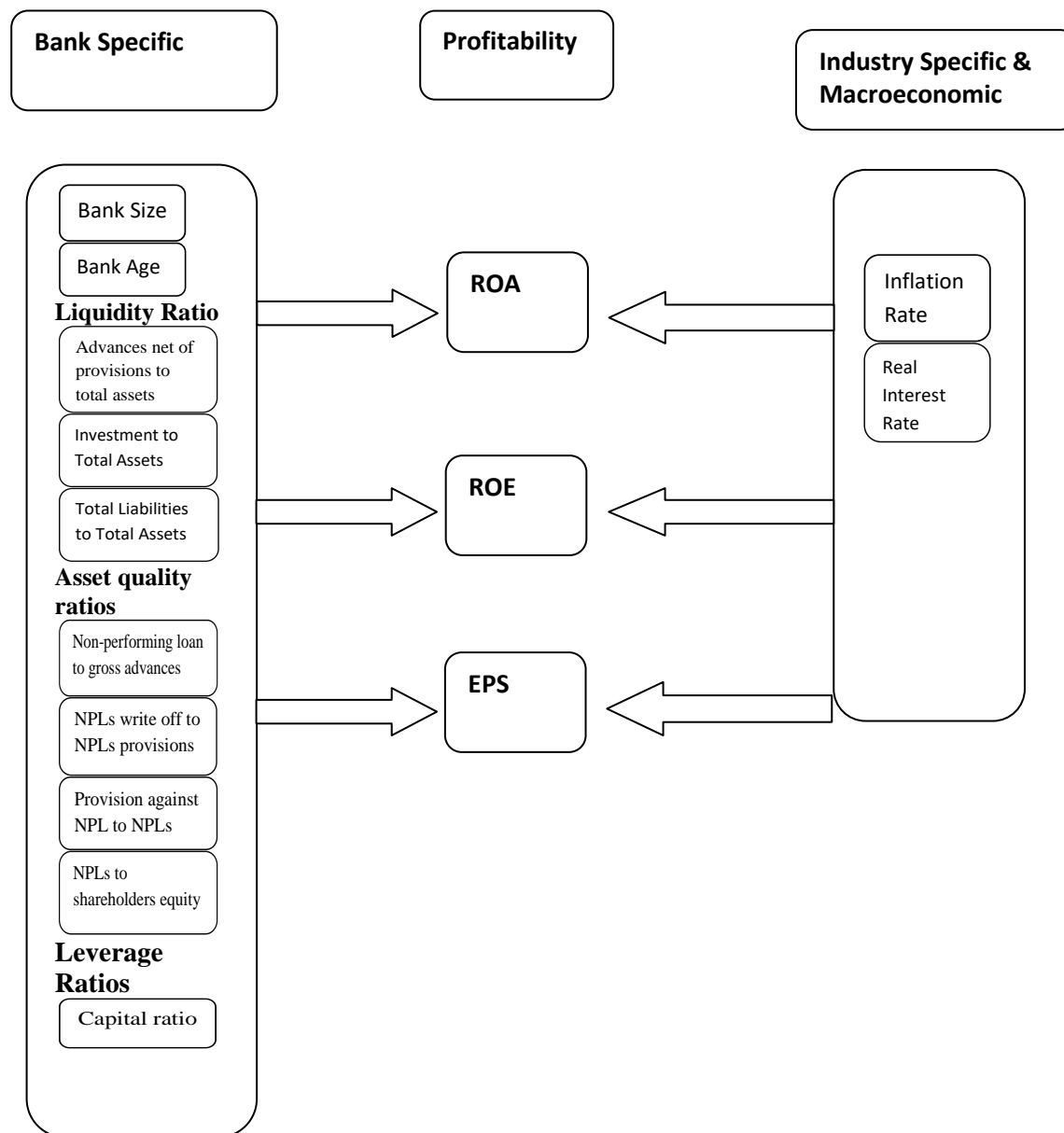
of the country. Hassoune, A. (2002) scrutinized the determinants of profitability for Islamic and conventional banks in three countries of Gulf Cooperation Council (GCC) region, Qatar, Kuwait and Saudi Arabia and compares the volatility of ROA and ROE for both conventional and Islamic banks.

An analysis on the profitability determinants of Islamic banks have been studied by Hassan and Bashir (2003) for a sample of Islamic banks from 21 countries during 1994-2001. It is found that high profitability is result of high capitalization and high loan to asset ratio. Gungor (2007) stated that internal determinants of bank's profitability are related to operations and management of bank. Internal determinants are also termed as micro or bank specific determinants while the external determinants reflect the legal and fiscal policies, economic and political conditions which influence the operation and performance of the banks and in turn affect the profitability. Ghazali (2008) studied the impact of GDP and inflation on the sample of 60 Islamic banks doing operations in 18 countries. The results showed that profitability of banks is positively influenced by the GDP and inflation. Sufian and Habibullah (2009) analyzed the Chinese banking sector performance by using multivariate regression analysis technique from the period of 2000-2005. The profitability of state owned commercial banks has positive relationship with credit risk, capitalization and liquidity risk.

Sufian (2011) investigates the impact of GDP and inflation on ROA utilizing sample of Korean commercial banks for the period of 1992-2003. Result findings of linear regression show that inflation has a positive impact on ROA, while GDP shows negative impact on ROA. Damena (2011) studied the Ethiopian commercial banks profitability determinants using 10 years data of seven leading Ethiopian banks and empirically proved that profitability has a positive impact of interest rate and inflation. Ali, Akhtar and Ahmed (2011) analyzed that profitability of commercial banks in Pakistan are significantly influenced by asset management, capital adequacy ratio and operating efficiency. Kouser and Saba (2012) analyzed the performance of Pakistan's banking sector including Islamic and conventional banks using CAMEL model for five years' period. The results of the study revealed that Islamic banks have strong asset quality, higher earnings and competent management as compared to conventional banks.

Literature review provides several studies which analyzed the determinants of profitability of banks, even though the researches on a group of countries represent the whole region but the research study of countries like Pakistan is comparatively few. Moreover, literature regarding Islamic Banks performance is also limited. This research study is investigating the factors which affect more in particular category of banks and evaluates the differences among the profitability measures across the three bank types.

Conceptual Framework



Hypothesis of Study

Proposed hypotheses are

H1: Bank specific, industry specific and macroeconomic factors significantly impact the financial performance of the conventional banks.

H2: Bank specific, industry specific and macroeconomic factors significantly impact the financial performance of the mixed banks.

H3: Bank specific, industry specific and macroeconomic factors significantly impact the financial performance of the Islamic banks.

3. Research Methodology

3.1. Research Design:

This study examines the impact of bank specific, industry specific and macroeconomic variables on the financial performance of the Islamic, Mix and Conventional Banks. The panel analysis method is used for the analysis of the data. Our dependent variables include Return on Equity, Return on Assets and Earning per Share and independent variables consist of ‘bank-specific determinants’, industry-specific determinants’, and ‘macroeconomic determinants’. State Bank of Pakistan provides the data for internal factors. State bank of Pakistan publishes balance sheet data of all the banks on yearly basis. The independent variables are Bank Size, Bank Firm Age, Total liabilities to total assets, Advances net of provisions to total assets, Investment to total assets, Non-performing loan to gross advances, NPLs write off to NPLs provisions, NPLs to shareholders equity, Provision against NPL to NPLs, Capital ratio, Inflation Rate, and Interest Rate. Pakistan’s financial sector is a well-developed combination of diversified institutions which includes Banks, Insurance Companies, Investment Banks, Exchange Companies, Leasing Companies, Development Financial Institutions, Modaraba Companies, Mutual Funds, Housing Finance and Venture. This research study uses the 25 Islamic, Mix and Conventional banks performance indicators for the period of 2006-2012. To analyze the sample characteristics, descriptive statistics is calculated. After removing the outliers from the data then regression will be estimated based on panel econometrical methods. The list of banks which are included in this study is given in table 3.1.

Table-3.1: Banks available for sampling

Mix Banks	Islamic Banks	Conventional Banks
NATIONAL BANK OF PAKISTAN	• ALBARAKA	• ALLIED BANK LIMITED
ASKARI BANK LIMITED	(PAKISTAN) LIMITED	• JS BANK
BANK AL-HABIB LIMITED	• BANK ISLAMI	• KASB BANK LIMITED
BANK ALFALAH LIMITED	PAKISTAN LIMITED	• NIB BANK LIMITED
FAYSAL BANK LIMITED	• BURJ BANK LIMITED	• FIRST WOMEN BANK
HABIB BANK LIMITED	• DUBAI ISLAMIC BANK	LIMITED
HABIB METROPOLITAN	PAKISTAN LIMITED	
BANK LIMITED	• MEEZAN BANK	
MCB BANK LIMITED	LIMITED	
SILKBANK LIMITED		
SONERI BANK LIMITED		
STANDARD CHARTERED BANK		
SUMMIT BANK LIMITED		
UNITED BANK LIMITED		
THE BANK OF PUNJAB		

3.2. Dependent Variables

3.2. a. Profitability

Profitability ratios include return on assets (ROA) and return on equity (ROE). Return on equity refers to measure of shareholder value with the leverage effect considered and return on equity serves as a direct estimate of a shareholder’s investment in terms of financial return. ROA reflects the profit to be earned per dollar of assets and represents the management capability of generating profit by utilizing the bank’s financial resources (Hassan and Bashir, 2003). Profitability of bank is measured best by ROA as ROA shows the best measure of the firm ability to generate financial returns on its portfolio of assets

and ROA is not get distorted by high

multipliers of equity (Rivard and Thomas 1997). On the other hand, ROE reflects that how effective is bank management in utilizing its shareholder equity. EPS is referred as earning per share and it is the only financial ratio that is required by firms from GAAP to be disclosing in income statement. The assets of the corporation consist of both equity and debt.

3.2. b. Independent Variables

3.2. b. Bank-Specific Determinants

- **Bank Size (FS)**

Bank size is recognized as an important determinant of bank's performance in existing literature but the way how it influences the bank's performance is still a question. Bank size is symbolized as taking natural logarithm of total assets. Smirlock 1985 found that bank size has a positive effect on the profitability of banks. Some research studies found a positive relationship between profitability and bank size (Molyneux and Seth 1998; Ramlall 2009; Pilloff and Rhoades 2002), while some found empirically a negative relation between bank size and profitability (Koasmidou 2008; Spathis et al 2002). The bank's size is one of the most important variables for higher profitability and attaining a large market share because the allocation of fixed cost by large banks makes them pay less and earn more (Koasmidou, 2008). Bank size is recognized as an important determinant of bank's performance in existing literature but the way how it influences the bank's performance is still a question. Bank size is symbolized as taking natural logarithm of total assets.

- **Bank Firm Age(FA)**

Bank Firm Age is the period from which it is incorporated till the present date. Conventional and mix banks incorporated in Pakistan have more age than the pure Islamic banks.

- **Liquidity Ratios**

Liquidity refers to the probable inability of the firms to pay off its liabilities or to increase its funds. Liquidity is one of the most important indicators for measuring the profitability of banks. Banks liquidity position determines the banks incapability to decrease its liabilities and the funds on the assets side of the balance sheet show no increase. For reducing risk in their firms, financial institutions raise their liquid holdings and diversify their investment portfolio. Bourke (1989) analyzed that there is positive relationship between profitability of banks and their liquidity position while Molyneux and Thornton (1992) concluded a significant negative relationship between the profitability of banks and their level of liquidity. Regarding liquidity three ratios are used: Total liabilities to total assets (TA/TL), Investment to total assets (I/TA), Advances net of provisions to total assets (ANP/TA). Higher these ratios are the more liquid the banks are. Bank economic failure and bankruptcy are results of insufficient liquidity; however, banks may choose to raise their level of liquidity in times of crisis to mitigate risk. The results from the previous studies regarding liquidity are mixed. Molyneux and Thorton (1992) in their results of the study found significant negative relationship between liquidity and profitability. Along with Molyneux and Thorton (1992), Guru et al (1999) also concluded negative relation between the profitability of banks and the liquidity position of the banks. However, Bourke (1989) analyzed that there is positive relationship between bank profits and liquidity. Kosmidou and Pasiouras (2005) also found that profitability is positively related to liquidity.

- **Asset quality ratios**

The ratios of Non-performing loans to gross advances (NPL/GA), NPLs to shareholders equity (NPL/S.H. E), NPLs write off to NPLs provisions (WO/PR), Provision against NPL to NPLs (PR/NPLs) are used in this study under the head of asset quality ratio. Bank asset quality is always an important

element for the evaluations of bank rating and management. Marshall (1999) found that one of the main features that the best community banks hold is good quality assets Demirguc-Kunt, 1989; Whalen, 1991; and Barr and Siems, 1994).

- **Leverage Ratios**

Leverage is also the firm specific factor affecting profitability and it can be measured by using different financial ratios. Leverage is defined by the Ross (2002) as the financial ratio of firms, total debts to firm's total equity (total debt/total equity), and can also be defined as the total debt/total assets, which is used to measure the leverage variable. Excessive firm's resources are required by the larger debts for the repayment of these debts. This will reduce the funds of the firm for the investment purpose. Therefore, we expect profitability is negatively affected by leverage of firm.

Leverage of firms can be determined by various financial ratios. This research study is using Capital ratio to measure leverage of the banks. Leverage is expected to influence profitability of banks negatively as the higher values of debt ratios of a firm requires more resources to repay its debt obligation resulting in reduction of investment funds. In accordance with existing literature, mixed results regarding leverage and profitability are found. Hurdle (1974) analyzed that profitability is positively influenced by leverage while (Hall and Weiss 1967, Gale 1972) reported negative relationship between leverage and profitability of banks.

3.2. b. II Industry Specific and Macroeconomic Independent Variables

Profitability of banks seems to be influenced by macroeconomic factors. In the existing literature, macroeconomic variables such as GDP growth rate, inflation rate and real interest rate are generally used. In this research study inflation rate and real interest rate are used.

- **Annual inflation rate**

Annual inflation rate measures the overall percentage increase in all the goods and services. The actual value of costs and revenues are affected by inflation. Perry (1992) analyzed that the relationship between the profitability and inflation can be positive and negative and it depends upon whether inflation is anticipated or unanticipated. With reference to previous studies in the existing literature (Bourke, 1989; Molyneux and Thorton 1992; Abreu and Mendes 2002; Hassan and Bashir 2003; Kosmidou, 2006; Atasoy 2007) analyzed positive relationship between inflation rate and the profitability of banks.

- **Real interest rate**

Real interest rate is calculated by using Fisher equation. According to the existing literature, significant positive relationship is found between banks performance and real interest rate (Samuelson 1945). The dependent variables, independent variables and their measures are given below in table 3.2.

Table-3.2: List of Variables

<i>Profitability</i>	<i>Bank Specific</i>	<i>Macroeconomic and Industry Specific</i>
ROA =after tax income/ Avg. Assets ROE =after tax income/S.H.E Earnings per Share(EPS) =Net Profit After Taxes/No. of Ordinary Shares	Bank Size (LNTA) Bank Firm Age Liquidity Ratios Total liabilities to total assets(TL/TA) Investment to total assets (I/TA) Advances net of provisions to total assets(ANP/TA) Asset quality ratios Non-performing loan to gross advances(NPL/GA) NPLs to shareholders equity(NPL/S.H.E) NPLs write off to NPLs provisions(WO/PR) Provision against NPL to NPLs(PR/NPLs) Leverage Ratios Capital ratio (CR)	<ul style="list-style-type: none"> • Inflation Rate • Interest Rate

3.3. Research Equations

$$ROA_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 FA_{it} + \beta_3 (TL/TA)_{it} + \beta_4 (I/TA)_{it} + \beta_5 (ANP/TA)_{it} + \beta_6 (NPL/GA)_{it} + \beta_7 (NPL/S.H.E)_{it} + \beta_8 (WO/PR)_{it} + \beta_9 (PR/NPLs)_{it} + \beta_{10} (CR)_{it} + \beta_{11} IF + \beta_{12} IR + \beta_{13} DI_{it} + \beta_{14} DM_{it} + \varepsilon_{it}$$

β_0 is the constant parameter, β_1 - β_{14} are model coefficients and ROA is the dependent variable. Where FS is Firm size, FA is Firm age, TL/TA is Total liabilities to total assets, I/TA is Investment to total assets, ANP/TA is Advances net of provisions to total assets, NPL/GA is Non-performing loan to gross advances, NPL/S.H.E is NPLs to shareholders equity, WO/PR is NPLs write off to NPLs provisions, PR/NPLs is Provision against NPL to NPLs, CR is Capital ratio, IF is Inflation Rate, IR is Interest Rate, DI is dummy for Islamic banks and DM is dummy used for mix banks.

$$ROE_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 FA_{it} + \beta_3 (TL/TA)_{it} + \beta_4 (I/TA)_{it} + \beta_5 (ANP/TA)_{it} + \beta_6 (NPL/GA)_{it} + \beta_7 (NPL/S.H.E)_{it} + \beta_8 (WO/PR)_{it} + \beta_9 (PR/NPLs)_{it} + \beta_{10} (CR)_{it} + \beta_{11} IF + \beta_{12} IR + \beta_{13} DI_{it} + \beta_{14} DM_{it} + \varepsilon_{it}$$

β_0 is the constant parameter, β_1 - β_{14} are model coefficients and ROE is the dependent variable. Where FS is Firm size, FA is Firm age, TL/TA is Total liabilities to total assets, I/TA is Investment to total assets, ANP/TA is Advances net of provisions to total assets, NPL/GA is Non-performing loan to gross advances, NPL/S.H.E is NPLs to shareholders equity, WO/PR is NPLs write off to NPLs provisions, PR/NPLs is Provision against NPL to NPLs, CR is Capital ratio, IF is Inflation Rate, IR is Interest Rate, DI is dummy for Islamic banks and DM is dummy used for mix banks.

$$EPS_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 FA_{it} + \beta_3 (TL/TA)_{it} + \beta_4 (I/TA)_{it} + \beta_5 (ANP/TA)_{it} + \beta_6 (NPL/GA)_{it} + \beta_7 (NPL/S.H.E)_{it} + \beta_8 (WO/PR)_{it} + \beta_9 (PR/NPLs)_{it} + \beta_{10} (CR)_{it} + \beta_{11} IF + \beta_{12} IR + \beta_{13} DI_{it} + \beta_{14} DM_{it} + \varepsilon_{it}$$

β_0 is the constant parameter, β_1 - β_{14} are model coefficients and EPS is the dependent variable. Where FS is Firm size, FA is Firm age, TL/TA is Total liabilities to total assets, I/TA is Investment to total assets, ANP/TA is Advances net of provisions to total assets NPL/GA Non-performing loan to gross advances, NPL/S.H.E is NPLs to shareholders equity, WO/PR is NPLs write off to NPLs provisions, PR/NPLs is Provision against NPL to NPLs, CR is Capital ratio, IF is Inflation Rate, IR is Interest Rate, DI is dummy for Islamic banks and DM is dummy used for mix banks.

4. Analysis and Discussion

Various statistical packages can be used to conduct analysis. The results of the analysis can be obtained from Eviews, Minitab, Gretl and SPSS. The relationship between dependent and independent variables can be found using regression analysis. Therefore, this study is using regression analysis to check out the impact of bank-specific, industry-specific and macroeconomic factors on the financial performance of the conventional, mix and Islamic banks. The study is using 25 banks in total for the period of 2006-2012. 161 observations are used in this study.

Different statistical techniques are used step by step to empirically test the relationship between the variables and to draw conclusions from the results of the study. Firstly, to analyze the features of the profitability determinants descriptive statistics is used. Secondly, to examine the casual relationship between bank-specific, industry specific, macroeconomic variables and profitability variables Pearson's coefficient of correlation is used. Third step of the analysis used the regression technique to test the relationship between dependent and independent variables in the proposed hypothesis. Panel data is used in this study so the technique used for regression is panel regression technique which includes the pooled Ordinary Least Square, Random Effects Model and Fixed Effect Model. Hausman test is used to analyze that which technique for panel regression is more suitable for study.

4.1. Descriptive Statistics

Descriptive statistics is very useful to explain the data characteristic. It is used to compare the data of the study. Descriptive statistics includes the mean, mode, median, range and standard deviation to compare the banking firms used in the analysis. The descriptive statistics are shown in table 4.1.

Table 4.1: Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
ROA	161	6.73	-2.00	4.73	.0004	1.00017	1.000
ROE	161	9.69	-8.01	1.68	.0006	1.00011	1.000
EPS	161	6.82	-4.44	2.38	.0002	1.00005	1.000
Bank Size	119	64.00	1.00	65.00	25.1765	21.84524	477.214
Bank Age	119	2.45	6.76	9.21	8.2857	.46863	.220
Total Liabilities to Total Assets	119	.47	.11	.58	.2900	.10328	.011
Investment to Total Assets	119	.58	.13	.71	.4862	.10211	.010
Advances Net of Provision to Total Assets	119	.52	.46	.98	.8992	.06789	.005
Nonperforming Loan to Gross Advances	119	.48	.00	.48	.1215	.10429	.011

Nonperforming Loan to Shareholders Equity	119	71.45	-11.06	60.39	1.3350	5.92449	35.100
NPLs Write Off To NPLs Provisions	119	71.45	-11.06	60.39	1.3818	5.92176	35.067
Provision Against NPL to NPLs	119	5.30	-.55	4.75	.3548	.50194	.252
Capital Ratio	119	794.18	.00	794.18	17.5387	104.92660	11009.592
Inflation rate	119	12.69	7.60	20.29	12.1354	4.09144	16.740
Real Interest Rate	119	3.50	10.50	14.00	13.0329	1.12362	1.263

The mean value of ROA is 0.0004 with standard deviation of 1.00017; ROE have mean value of 0.006 with standard deviation of 1.00011; EPS have mean value of 0.0002 and standard deviation is 1.00005.

4.2 Correlation Coefficient

Pearson's Correlation is used to test the relationship between the variables. Correlation coefficient measures the extent of change in the dependent variable due to changes in the independent variables. If the correlation between the variables is +1, there is strong positive relationship between the variables, however, if the correlation between the variables is -1, significant negative relationship exists between the variables. The significant correlation results show (**correlation is significant at the 0.01) that independent variables (bank-specific, industry-specific and macroeconomic factors), and dependent variable (ROE, ROA & EPS) are significantly & positively correlated with each other. ROE have highly significant positive relationship with firm age with the value of .233***. The correlation coefficient of capital ratio with value of .181** is in positive relationship with ROE. Return on assets is in significant positive relationship with nonperforming loans to gross advances with value of .284**, investment to total assets with the value of .211** is positively associated with return on assets. Earnings per share shows positive relationship with capital ratio with the value of .227**, bank firm age with the value of .101** is in positive relationship with earnings per share.

		ROE	ROA	EPS	BA	BS	ITA	ANPTA	TLTA	NPLG A	NPLS HE	NPL WO	NPLS	CR	IF	IR
ROE	Pearson Correlation	1	.474 (**)	.280 (**)	.194	.176	.043	-.021	-.158	-.357 (**)	-.947 (**)	.000	.038	.170	-.078	.044
	Sig. (2-tailed)		.000	.005	.056	.084	.675	.841	.121	.000	.000	.996	.708	.095	.446	.718
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
ROA	Pearson Correlation	.474 (**)	1	.775 (**)	.520 (**)	.265 (**)	.154	-.206 (*)	-.320 (**)	-.606 (**)	-.415 (**)	-.084	.137	.210 (*)	-.256(*)	.056
	Sig. (2-tailed)	.000		.000	.000	.008	.129	.042	.001	.000	.000	.412	.177	.038	.011	.646
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
EPS	Pearson Correlation	.280 (**)	.775 (**)	1	.768 (**)	.404 (**)	.182	-.191	-.222 (*)	-.468 (**)	-.236 (*)	-.037	.261 (**)	.069	-.179	.047
	Sig. (2-tailed)	.005	.000		.000	.000	.074	.059	.028	.000	.019	.715	.010	.500	.078	.701
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
BA	Pearson Correlation	.194	.520 (**)	.768 (**)	1	.598 (**)	.132	-.095	-.063	-.247 (*)	-.138	.014	.290 (**)	-.072	.012	-.055
	Sig. (2-tailed)	.056	.000	.000		.000	.196	.353	.537	.014	.174	.893	.004	.480	.905	.653
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
BS	Pearson Correlation	.176	.265 (**)	.404 (**)	.598 (**)	1	-.017	.049	.187	-.253 (*)	-.044	.118	.213 (*)	-.253 (*)	.150	.298 (*)
	Sig. (2-tailed)	.084	.008	.000	.000		.868	.633	.065	.012	.664	.248	.035	.012	.140	.012
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
ITA	Pearson Correlation	.043	.154	.182	.132	-.017	1	-.791 (**)	.040	.008	-.072	-.232 (*)	-.100	-.127	-.160	-.374 (**)
	Sig. (2-tailed)	.675	.129	.074	.196	.868		.000	.697	.935	.478	.022	.327	.213	.115	.001
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
ANPTA	Pearson Correlation	-.021	-.206 (*)	-.191	-.095	.049	-.791 (**)	1	.289 (**)	-.060	.057	.270 (**)	.025	-.191	.246(*)	.341 (**)
	Sig. (2-tailed)	.841	.042	.059	.353	.633	.000		.004	.555	.579	.007	.808	.060	.015	.004
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
TLTA	Pearson Correlation	-.158	-.320 (**)	-.222 (*)	-.063	.187	.040	.289 (**)	1	.241 (*)	.149	.096	-.105	-.883 (**)	.103	-.110
	Sig. (2-tailed)	.121	.001	.028	.537	.065	.697	.004		.017	.142	.346	.301	.000	.314	.366
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
NPLGA	Pearson	-.357	-.606	-.468	-	-.253	.008	-.060	.241	1	.230	-.112	-.204	-.186	.079	-.163

	Correlation	(**)	(**)	(**)	.247 (*)	(*)			(*)		(*)		(*)			
	Sig. (2-tailed)	.000	.000	.000	.014	.012	.935	.555	.017		.023	.271	.044	.067	.437	.178
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	70
NPLSHE	Pearson Correlation	-.947 (**)	-.415 (**)	-.236 (*)	- .138	-.044	-.072	.057	.149	.230 (*)	1	.027	-.039	-.137	.081	-.028
	Sig. (2-tailed)	.000	.000	.019	.174	.664	.478	.579	.142	.023		.789	.706	.179	.428	.820
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	70
NPLWO	Pearson Correlation	.000	-.084	-.037	.014	.118	-.232 (*)	.270 (**)	.096	-.112	.027	1	-.038	-.104	.065	.288 (*)
	Sig. (2-tailed)	.996	.412	.715	.893	.248	.022	.007	.346	.271	.789		.711	.307	.522	.015
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	70
NPLS	Pearson Correlation	.038	.137	.261 (**)	.290 (**)	.213 (*)	-.100	.025	-.105	-.204 (*)	-.039	-.038	1	.043	.208 (*)	.042
	Sig. (2-tailed)	.708	.177	.010	.004	.035	.327	.808	.301	.044	.706	.711		.674	.040	.732
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	70
CR	Pearson Correlation	.170	.210 (*)	.069	- .072	-.253 (*)	-.127	-.191	-.883 (**)	-.186	-.137	-.104	.043	1	-.040	.087
	Sig. (2-tailed)	.095	.038	.500	.480	.012	.213	.060	.000	.067	.179	.307	.674		.698	.472
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	70
IF	Pearson Correlation	-.078	-.256 (*)	-.179	.012	.150	-.160	.246(*)	.103	.079	.081	.065	.208 (*)	-.040	1	.338 (**)
	Sig. (2-tailed)	.446	.011	.078	.905	.140	.115	.015	.314	.437	.428	.522	.040	.698		.004
	N	98	98	98	98	98	98	98	98	98	98	98	98	98	98	70
IR	Pearson Correlation	.044	.056	.047	- .055	.298 (*)	-.374 (**)	.341 (**)	-.110	-.163	-.028	.288 (*)	.042	.087	.338 (**)	1
	Sig. (2-tailed)	.718	.646	.701	.653	.012	.001	.004	.366	.178	.820	.015	.732	.472	.004	
	N	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70

4.3. Regression Analysis

Despite the significant values and the relationship between the dependent and the explanatory variables, this research study has also conducted the regression analysis to check the impact of independent variables on the dependent variables in shape of valuation models mathematically expressed in equation 1-3. It is mentioned earlier that one of the panel regression technique is used to analyze the data and that technique is determined from the Hausman test. The Hausman test is the standard and classical test to check whether the random effect model or fixed effect model is used for data analysis. If the p value of Hausman test is less than .05, then fixed effects model will be used and if the value is greater than .05 analyses will be carried out through random effects model. Based on Hausman test, fixed effect model is used as the p value of the model is significant.

Model 1

$$ROA_{it} = \beta_0 + \beta_1 FA_{it} + \beta_2 FS_{it} + \beta_3 (I/TA)_{it} + \beta_4 (ANP/TA)_{it} + \beta_5 (TL/TA)_{it} + \beta_6 (NPL/GA)_{it} + \beta_7 (NPL/S.H.E)_{it} + \beta_8 (WO/PR)_{it} + \beta_9 (PR/NPLs)_{it} + \beta_{10} (CR)_{it} + \beta_{11} IF + \beta_{12} IR + \beta_{13} DI_{it} + \beta_{14} DM_{it} + \epsilon_{it}$$

Table 4.3 Model 1: Fixed-effects, using 161 observations
Included 7 cross-sectional units
Time-series length = 23
Dependent variable: ROA

	<i>Coefficient</i>	<i>p-value</i>	
Constant	0.0595067	0.00013	***
FA	0.000133613	0.00431	***
FS	0.00478982	0.00031	***
I/TA	0.0135295	0.00012	***
ANP/TA	-0.0287505	0.22224	
TL/TA	0.0232207	0.27537	
NPL/GA	-0.0918048	<0.00001	***
NPL/S.H.E	-0.000390693	0.18884	
WO/PR	-0.000479921	0.26859	
PR/NPLs	-0.00604621	0.04096	**
CR	7.37376e-05	0.00721	***
IF	-0.0170134	0.13508	
IR	0.0288919	0.05366	*
DI	0.0424311	0.00002	***
DM	-0.00679164	0.00076	***
R-squared	0.488204	Adjusted R-squared	0.415090
P-value(F)	1.62e-12		

Return on assets shows the significant positive relationship with bank firm age, bank size, and investment to total assets, total liabilities to total assets, capital ratio and interest rate. The positive value of bank size positively impacts the profitability because banks with large firm size attains a larger market share and their allocation of fixed cost also facilitate to earn higher profit. The positive relationship of total assets to total liabilities with the return on assets imply that banking firms are efficiently utilizing their resources to meet their short term and long-term obligations leading towards the increasing financial performance. This positive relationship between the liquidity ratios and the

profitability shows that the banks have enough liquidity to meet their financial obligations. Advances net of provision to total assets, NPLs to gross advances, NPLs to shareholders equity, NPLs write off to NPLs provisions, Provision against NPL to NPLs and inflation shows the negative relationship with ROA. The 0.488204 value of R-squared determines the variation in return on assets due to all these independent variables. The Islamic banks shows significant positive relationship with commercial banks which is considered as base dummy and significant negative relationship is found between conventional and mix banks. All the differential intercepts are statistically significant, as their p values are quite low, therefore, there are significant differences among the performance of conventional banks as compared to Islamic and mix banks.

Model 2

$$ROE_{it} = \beta_0 + \beta_1 FA_{it} + \beta_2 FS_{it} + \beta_3 (I/TA)_{it} + \beta_4 (ANP/TA)_{it} + \beta_5 (TL/TA)_{it} + \beta_6 (NPL/GA)_{it} + \beta_7 (NPL/S.H.E)_{it} + \beta_8 (WO/PR)_{it} + \beta_9 (PR/NPLs)_{it} + \beta_{10} (CR)_{it} + \beta_{11} IF + \beta_{12} IR + \beta_{13} DI_{it} + \beta_{14} DM_{it} + \epsilon_{it}$$

Table 4.4 Model 2: Fixed-effects, using 161 observations
Included 7 cross-sectional units
Time-series length = 23
Dependent variable: ROE

	<i>Coefficient</i>	<i>p-value</i>	
Constant	0.419812	0.00070	***
FA	0.00132158	0.00052	***
FS	0.0776533	0.00009	***
I/TA	0.0910765	0.00012	***
ANP/TA	0.271935	0.00004	***
TL/TA	-0.121833	0.78616	
NPL/GA	-1.01149	0.00001	***
NPL/S.H.E	-0.00101927	0.87077	
WO/PR	-0.221518	<0.00001	***
PR/NPLs	0.0219085	0.00066	**
CR	0.000615332	0.00002	***
IF	-0.0674392	0.77846	
IR	0.261218	0.03263	**
DI	0.691333	0.00010	***
DM	-0.792855	0.00713	***

R-squared	0.918415	Adjusted R-squared	0.906760
P-value(F)	6.29e-66		

Return on equity shows the significant positive relationship with bank firm age, bank size, investment to total assets, advances net of provision to total assets, Provision against NPL to NPLs, capital ratio and interest rate. The positive value of bank size positively impacts the profitability because banks with large firm size attains a larger market share and their allocation of fixed cost also facilitate to earn higher profit. The positive relationship of total assets to total liabilities with the return on equity imply that banking firms are efficiently utilizing their resources to meet their short term and long-term obligations leading towards the increasing financial performance. This positive relationship between the liquidity

ratios and profitability shows that the banks have enough liquidity to meet their financial obligations. Total liabilities to total assets, NPLs to gross advances, NPLs to shareholders equity, NPLs write off to NPLs provisions, and inflation shows the negative relationship with ROE. The 0.918415 value of R-squared determines the variation in return on equity due to all these independent variables. The Islamic banks shows significant positive relationship with commercial banks which is considered as base dummy and significant negative relationship is found between conventional and mix banks. All the differential intercepts are statistically significant, as their p values are quite low, therefore, there are significant differences among the performance of conventional banks as compared to Islamic and mix banks.

Model 3

$$EPS_{it} = \beta_0 + \beta_1 FA_{it} + \beta_2 FS_{it} + \beta_3 (I/TA)_{it} + \beta_4 (ANP/TA)_{it} + \beta_5 (TL/TA)_{it} + \beta_6 (NPL/GA)_{it} + \beta_7 (NPL/S.H.E)_{it} + \beta_8 (WO/PR)_{it} + \beta_9 (PR/NPLs)_{it} + \beta_{10} (CR)_{it} + \beta_{11} IF + \beta_{12} IR + \beta_{13} DI_{it} + \beta_{14} DM_{it} + \varepsilon_{it}$$

Table 4.5 Model 3: Fixed-effects, using 161 observations
Included 7 cross-sectional units
Time-series length = 23, Dependent variable: EPS

	<i>Coefficient</i>	<i>p-value</i>	
Constant	25.8836	0.00412	***
FA	0.176767	<0.00001	***
FS	2.50614	0.00531	***
I/TA	4.58973	0.00091	***
ANP/TA	9.90823	0.06371	*
TL/TA	-4.22117	0.38007	
NPL/GA	-20.2785	<0.00001	***
NPL/S.H.E	-0.113853	0.09095	*
WO/PR	-0.028116	0.77390	
PR/NPLs	-0.469063	0.48015	
CR	0.0269791	0.00002	***
IF	-9.45957	0.00031	***
IR	16.0393	<0.00001	***
DI	24.8768	0.00051	***
DM	-5.9169	0.05877	*
R-squared	0.749507	Adjusted R-squared	0.713723
P-value(F)	1.32e-32		

Earnings per share shows the significant positive relationship with bank firm age, bank size, investment to total assets, advances net of provision to total assets, capital ratio and interest rate. The positive value of bank size positively impacts the profitability because banks with large firm size attains a larger market share and their allocation of fixed cost also facilitate to earn higher profit. The positive relationship of total assets to total liabilities with the earnings per share imply that banking firms are efficiently utilizing their resources to meet their short term and long-term obligations leading towards the increasing financial performance. This positive relationship between the liquidity ratios and the profitability shows that the banks have enough liquidity to meet their financial obligations. Total liabilities to total assets, NPLs to gross advances, NPLs to shareholders equity, provision against NPL to NPLs, NPLs write off to NPLs provisions, and inflation shows the negative relationship with EPS. The 0.749507 value of R-squared determines the variation in earnings per share due to all these independent

variables. The Islamic banks shows significant positive relationship with commercial banks which is considered as base dummy and significant negative relationship is found between conventional and mix banks. All the differential intercepts are statistically significant, as their p values are quite low, therefore, there are significant differences among the performance of conventional banks as compared to Islamic and mix banks.

5. Conclusion

This research study is analyzing the financial performance of banking sector of Pakistan by using the bank-specific, industry specific and macroeconomics variables. Based on the panel data of 25 banking companies of Pakistan, this paper answers the question is there any impact of bank specific factors on the financial performance of the banking sector of Pakistan. Secondly, this paper examines the impact of industry specific and macroeconomic variables on the financial performance of the banking sector of Pakistan. By applying a regression analysis, the determinants of profitability for Islamic and Mix banks were compared with conventional banks. In addition, the study of profitability followed previous studies such as Bourke (1989), Molyneux and Thornton (1992), BenNaceur (2003), and Bashir and Hassan (2004). The variables in the regression reacted differently to profitability indicators for Islamic, Mix and conventional banking. The empirical results of the study show that estimated beta coefficient of firm size shows the significant positive relationship with return on assets, return on equity and earnings per share. The positive value of bank size positively impacts the profitability because banks with large firm size attains a larger market share and their allocation of fixed cost also facilitate to earn higher profit as supported by previous studies (Molyneux and Seth 1998; Ramlall 2009; Pilloff and Rhoades 2002). Bank firm age, investment to total assets, advances net of provision to total assets, provision against NPL to NPLs, capital ratio and interest rate shows the positive relationship with profitability. This positive relationship between the liquidity ratios and the profitability shows that the banks have enough liquidity to meet their financial obligations (Kosmidou & Pasiouras 2005). The positive relationship of total assets to total liabilities with the profitability implies that banking firms are efficiently utilizing their resources to meet their short term and long-term obligations. The results of this study are in accordance with the previous studies in the existing literature (Bourke, 1989; Molyneux and Thorton 1992; Abreu and Mendes 2002; Hassan and Bashir 2003; Kosmidou, 2006; Atasoy 2007) which states the positive relationship between interest rate and the profitability of banks. Islamic banks show significant positive relationship with commercial banks which is considered as base dummy and significant negative relationship is found between conventional and mix banks. All the differential intercepts are statistically significant, as their p values are quite low, therefore, there are significant differences among the performance of conventional banks as compared to Islamic and mix banks. Moreover, the study on Islamic banks gives a different image of financial intermediation. Even though there is some variation in Islamic and conventional banking activities, profitability terms are still similar. In addition, Islamic banking should not be viewed as a religious movement but as a superior system to conventional banking in the Pakistan.

Practical implications

This research is empirically tested in a country where commercial banks dominate the financial sector; the findings of this study can be helpful for developing countries with same economic scenarios. The research findings of the study are of great importance for regulatory bodies and for policy makers to review their policies. The banking sector of Pakistan is facing major changes including privatization, nationalization and introduction of foreign and Islamic banks. Therefore, State Bank of Pakistan is implementing various policies to facilitate the operations of Islamic and Foreign banks in Pakistan. The results of the theory suggest that managers in banks need to keep a special eye on credit-enquiring effectiveness. Although more thorough credit-enquiring activities consume more costs to identify the credit of the accommodators in advance, it can reduce the non-value-added activities of coping with

many trouble loans afterwards. The study recommends that banks management and shareholders can attain higher profitability and an above average performance can be achieved by keeping a moderate level of risk by using Islamic way of banking as compared to interest based conventional banks.

Future research implications

Like all research studies; this research study has also certain limitation. Firstly, the result findings of this study are not generable to other industries because of the sample limitation. Secondly, analysis for profitability is quantitative in nature; the qualitative aspect of a firm performance is ignored in this respect. Profitability does not include the demand and supply of the products, business cycle of the product and the managerial efficiency and skills are not taken in to account to measure the profitability of the banks. In the future work, depending on the availability of more detailed data, the challenge is to broaden the set of explanatory variables, use more adequate proxies for part of the variables and perform the analysis for longer period.

References

- Abreu, M. & V. Mendes (2000). Commercial Bank Interest Margins and Profitability: Evidence for Some EU Countries. Presented on the 50th International Atlantic Economic Conference.
- Ahmad, A., Malik, M. I., & Humayoun, A. A. (2010). "Banking Developments in Pakistan: A Journey from Conventional to Islamic Banking". *European Journal of Social Sciences*, 12-17.
- Akhtar, S. (2007). Pakistan-Banking Sector Reforms: Performance and Challenges. *BIS Review*.
- Ali, K., Akhtar, M.F., and Ahmed, H.Z. (2011). Bank-Specific and Macroeconomic indicators of Profitability – Empirical Evidence from the commercial Banks of Pakistan. "International Journal of business and Social Science", 2(6), 235-242.
- Atasoy, H. (2007). Expenditure-Income Analysis in Turkish Banking Sector and Determinants of Profitability. Unpublished Dissertations of Senior Specialists, Central Bank of Turkey, Ankara.
- Athanasoglou, P. P., Delis, M. D., & Staikouras, C. K. (2006). Determinants of Bank Profitability in the South Eastern European Region. *Journal of Financial Decision Making*, 2, 1-17.
- Barr, R. S., & Siems, T. F. (1994). Predicting bank failure using DEA to quantify management quality (No. 94-1). Federal Reserve Bank of Dallas.
- Ben Naceur, S., Ghazouani, S., & Omran, M. (2008). Does stock market liberalization spur financial and economic development in the MENA region? *Journal of Comparative Economics*, 36(4), 673-693.
- Borio, C., 2003. Towards a macro prudential framework for financial supervision and regulation. *CESifo Economic Studies* 49 (2), 181–215.
- Bourke, P. (1989). Concentration and Other Determinants of Bank Profitability in Europe, North America and Australia. *Journal of Banking and Finance*, 13, 65- 79.
- Damena, B. H. (2011). Determinants of commercial banks profitability: an empirical study on Ethiopian Commercial banks. Addis Ababa University, Department of Accounting and Finance.
- Demirguc-Kunt, A. & Huizinga, H. (2001). Financial Structure and Bank Profitability. In *Financial Structure and Economic Growth: A Cross-Country Comparison of Banks, Markets, and Development*. Eds. A. Demirguc-Kunt and Levine R., Cambridge, MIT Press, 2001.
- Demirguc-Kunt, A. 1989, Deposit-institution failures: A review of the empirical literature. Federal Reserve Bank of Cleveland, *Economic Review*, Quarter 4.
- European Central Bank, 2010. Beyond ROE – How to measure bank performance In: Appendix to the Report on EU Banking Structures.
- Fayed, M. E. (2013). Comparative Performance Study of Conventional and Islamic Banking in Egypt. *Journal of Applied Finance & Banking*, 3(2), 1-14.
- Gale, B. T. (1972). Market share and rate of return. *The Review of Economics and Statistics*, 412-423.
- Ghazali, M. B. (2008). The bank-specific and macroeconomic determinants of Islamic bank

- profitability: some international evidence. Dissertation (M.B.A.), University of Malaya, Faculty of Business and Accountancy.
- Gungor, B. (2007). Türkiye’de Faaliyet Gösteren Yerel ve Yabancı Bankaların Karlılık Seviyelerini Etkileyen Faktörler: Panel Veri Analizi. *İktisat İşletme ve Finans*, 22(258), 40-63.
- Guru B.K., Staunton, J. & Balashanmugam, B. (1999). Determinants of Commercial Bank Profitability in Malaysia. 12th Annual Finance and Banking Conference, Sidney.
- Hall, M., & Weiss, L. (1967). Firm size and profitability. *The Review of Economics and Statistics*, 319-331.
- Hasan, M., Dridi, J., 2010. The Effects of the Global Crisis on Islamic and Conventional Banks: A Comparative Study. IMF Working Paper # WP/10/201.
- Hassan M K, Bashir A H M (2003). Determinants of Islamic banking profitability. Paper Presented at the 10th ERF Annual Conference, 16th–18th, December, Morocco
- Hassoune, A. (2002), ‘Islamic Banks Profitability in an Interest Rate Cycle’, *International Journal of Islamic Financial Services*, 4(2)
- Hurdle, G. J. (1974). Leverage, risk, market structure and profitability. *The Review of Economics and Statistics*, 478-485.
- Kosmidou K, Zopounidis C (2008). Measurement of bank performance in Greece, South Eastern Europe *Journal of Economics*, (1): 79–95
- Kosmidou, K., Pasiouras, F., Doumpos, M., Zopounidis, C. (2006b) Assessing Performance Factors in the UK Banking Sector: A Multi-criteria Approach, *Central European Journal of Operations Research*, 14(1), 25-44.
- Kosmidou, K., Tanna, S., Pasiouras, F. (2005). Determinants of profitability of UK domestic banks: panel evidence from the period 1995-2002. Coventry University Business School. Applied Research Working Paper Series 1-27.
- Kouser, R., & Saba, I. (2012). Gauging the Financial Performance of Banking Sector using CAMEL Model: Comparison of Conventional, Mixed and Pure Islamic Banks in Pakistan. *International Research Journal of Finance and Economics*, 1(82), 67-68.
- Marshall J. 1999, Building Performance Machines, *US Banker*, 51-61.
- Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: a correction. *The American economic review*, 53(3), 433-443.
- Molyneux, P. & Thornton, J. (1992). Determinants of European Bank Profitability: A Note. *Journal of Banking and Finance*, 16, 1173–1178.
- Molyneux, P., & Seth, R. (1998). Foreign banks, profits and commercial credit extension in the United States. *Applied Financial Economics*, 8(5), 533-539.
- Mörttinen, L., Poloni, P. Sandars, P., Vesala, J., (2005). Analyzing banking sector conditions: how to use macro-prudential indicators, ECB Occasional Paper.
- Parashar, S. P., & Venkatesh, J. (2010). How did Islamic banks do during global financial crisis. *Banks and Bank systems*, 5(4), 54-62.
- Pilloff, S. J., & Rhoades, S. A. (2002). Structure and profitability in banking markets. *Review of Industrial Organization*, 20(1), 81-98.
- Ramlall, I. (2009). Bank-specific, industry specific, and macroeconomic determinants of profitability in Taiwanese banking system: Panel Data Estimation *International Research Journal of Finance and Economics*, 34: 161-167.
- Rivard R J, Thomas C R (1997). The effect of interstate banking on large bank holding company profitability and risk. *Journal of Economics and Business*, 49: 61–76
- Rose, P. (1999). *Commercial bank management*. U.S: McGraw-Hill International.
- Samuelson, P. A. (1945). The effect of interest rate increases on the banking system. *The American Economic Review*, 16-27.
- Short, B. (1979). The Relationship between Commercial Bank Profit Rates and Banking Concentration

- in Canada, Western Europe and Japan. *Journal of Banking and Finance*, 3, 209-19.
- Siddique, S. H., & Islam, A. F. M. M. (2001). Banking Sector in Bangladesh: Its Contribution and Performance. *Journal of Business Research*, 3.
- Sinkey Jr., J.F., 1983. *Commercial Bank Financial Management*. McMillan, New York.
- Smirlock, M. (1985). Evidence on the (non) relationship between concentration and profitability in banking. *Journal of money, credit and Banking*, 69-83.
- Spathis, C., Kosmidoua, K., Doumposa, M., 2002. Assessing profitability factors in the Greek banking system: a multicriteria methodology. *International Transactions in Operational Research* 9, 517–530.
- Sufian, F. (2011). Profitability of The Korean Banking Sector: Panel Evidence on Bank-Specific And Macroeconomic Determinants. *Journal of Economics and Management*, 7(1), 43-72.
- Sufian, F., & Habibullah, M. S. (2009). Bank Specific and Macroeconomic Determinants of Bank Profitability: Empirical Evidence from the China Banking Sector. *Front. Econ. China*, 4 (2), 274-291.
- Thorne, A., 1993. Eastern Europe's experience with banking reform: Is there a role for banks in the transition? *Journal of Banking and Finance* 17, 959–1000.
- Turen, S. "Performance and risk analysis of the Islamic banks: the case of Bahrain Islamic bank." *Islamic Economics*, 7(1) (1995).
- Whalen, G., A Proportional Hazards Model of Bank Failure: An Examination of Its Usefulness as an Early Warning Tool, Federal Reserve Bank of Cleveland, *Economic Review, Quarter 1*. (1991)