Factors Affecting Bank Profitability in Pakistan

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The purpose of this research is to examine the relationship between bank-specific and macro-economic characteristics over bank profitability by using data of top fifteen Pakistani commercial banks over the period 2005-2009. This paper uses the pooled Ordinary Least Square (POLS) method to investigate the impact of assets, loans, equity, deposits, economic growth, inflation and market capitalization on major profitability indicators i.e., return on asset (ROA), return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM) separately. The empirical results have found strong evidence that both internal and external factors have a strong influence on the profitability. The results of the study are of value to both academics and policy makers.

Key words: *Financial Institutions, Banks, Profitability, Return on Assets, Correlation, Pooled OLS, Pakistan.*

JEL Classification: *G21*

1. Introduction

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The Banking sector acts as the life blood of modern trade and commerce to provide them with a major source of finance. This increasing phenomenon of globalization has made the concept of efficiency more important both for the non-financial and financial institutions and banks are the part of them. Banks largely depends on competitive marketing strategy that determines their success and growth. The modalities of the banking business have changed a lot in the new millennium compared to the way they used to be in the years bygone (Hussain and Bhatti, 2010).

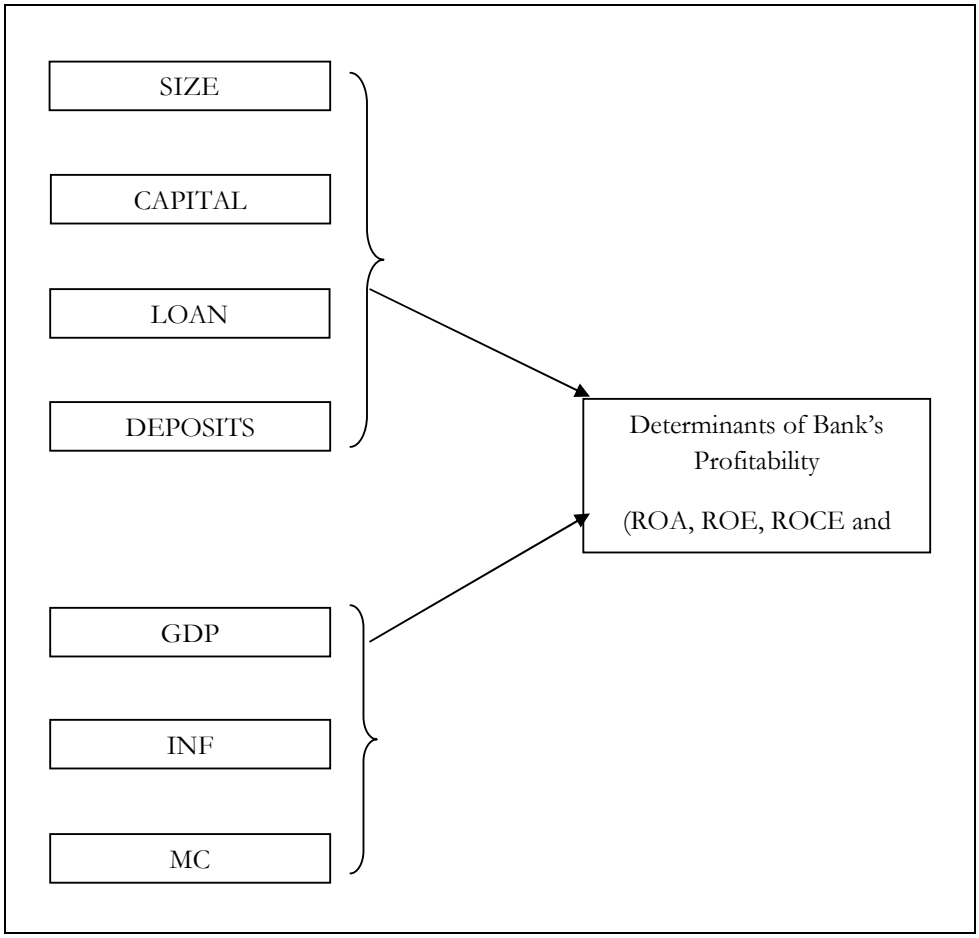
The financial system of Pakistan is dominated by the commercial banks. The financial history of the country significantly altered in early 1970s with nationalization of domestic banks and growth of public sector development finance institutions. By the end of 1980s, it became quite clear that the national socio-economic objectives could not be achieved by nationalization. The public sector in banking and non-bank financial institutions was liable for financial inefficiency, deteriorating quality of assets and growing threats of downfall of financial institutions. By the end of 1990, public sector's share in the banking industry was almost 90 percent in total assets, while the rest belonged to foreign banks, as domestic private banks did not exist at that time. Besides this high shares existed for deposits, advances and investments. The structure of banking system in Pakistan underwent significant changes after 1997 when the banking supervision process was aligned with international best practices. Privatization of public sector banks and the ongoing process of merger/consolidation brought visible changes in the ownership, structure, and concentration in the banking sector (State Bank of Pakistan, 2009).

The Pakistani banking system since it has a completely diversified banking structure presents an interesting case. A quick look at net income before tax over total assets of all banks (operating throughout the time period under study) yield very low profitability levels (Ramlall, 2009). The Figure1 shows the determinants of banks' profitability which are usually dichotomized into internal and external factors.

Internal factors focuses on bank specific features i.e., SIZE, CAPITAL, LOAN and DEPOSITS, while external factors consider macroeconomic factors i.e., GDP, INF and MC.

Figure 1

Determinants of Banks' Profitability



Source: Self extracted.

The objective of this study is to find out the relationship between internal and external factors on Bank's profitability in top 15 banks of Pakistan. Based on the objective, the present study seeks to test the following hypothesis:

H_1: There is a direct relationship between internal factors and bank's profitability. [Internal factors are more important for the performance of Banks].

H_{1a}: *There is a direct relationship between SIZE and bank's profitability.*

H_{1b}: *There is a direct relationship between CAPITAL and bank's profitability*

H^{1c} *: There is a direct relationship between LOAN and bank's profitability.*

H^{1d} *: There is a direct relationship between DEPOSITS and bank's profitability.*

H_2: There is a direct relationship between external factors and bank's profitability [External factors are more important for the performance of Banks].

H^{2a} *: There is a direct relationship between GDP and bank's profitability.*

H^{2b} *: There is a direct relationship between INF and bank's profitability*

H^{2c} *: There is a direct relationship between MC and bank's profitability.*

During the said period i.e., from 2005-2009 is very important in terms of mergers and acquisition in the banking industry. Therefore, this study focuses on the internal and external factors of bank's profitability. Future research will carried out with some more internal

and external factors on bank's profitability in Pakistan, which would assess the impact of South Asian Free Trade Agreements (SAFTA) and general globalization of markets on banking system. For this reason, top 15 banks have been selected for data collection in our research, as these banks covers almost 80% of the total asset base of overall banks in Pakistan. The factors considered for analysis include ROA, ROE, ROCE and NIM as dependent variables which each examine separately with same explanatory variables i.e., SIZE, CAPITAL, DEPOSITS, LOAN, GDP, INF and MC. The research resorts towards panel data approach under a holistic approach that caters for bank-specific factors, as well as macroeconomic factors.

The paper is organized as follows: after introduction which is provided in Section 1 above, literature review is carried out in Section 2. Data and Methodological framework is explained in Section 3. Results are shown in Section 4. Final section concludes the study.

2. Literature Review

The determinants of banks' profitability are usually assorted into internal and external factors. Some studies were country specific and few of them considered panel of countries for reviewing the determinants of profitability. Overall these studies propose that the determinants of profitability for bank can be divided into two groups; internal and external factors. These studies specify return on asset (ROA), return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM) as the dependent variables and considering the internal and external factors as independent variables.

Molyneux and Thornton (1992) examine the profitability of banking zone on different countries. They take about 18 European countries' data during the 1986-1989 periods. They found a significant positive association with the return on equity and the level of interest rates,

bank concentration and government ownership during their study. Molyneux and Forbes (1995) explain market structure and performance in 18 European countries for the four years period 1986-89, using pooled data. Their finding includes that anti-trust or regulatory policy should be designed at changing market structure in order to increase competition or the quality of bank performance. Increasing concentration in banking markets should not be restricted by antitrust or regulatory measures. Demirguc-Kunt and Maksimovic (1998) identified a positive relationship between size and profitability. They found that higher the funds can easily meet their rigid capitals so that they can have extra funds for giving loans to borrowers and thereby increase their profits and earning levels. Havrylchyk *et al.* (2006) finds a positive and direct relationship between capital and profits of banks. It implies that a more efficient bank should have higher profits since it is able to maximize on its net interest income.

Miller and Noulas (1997) find a negative relationship between credit risk and profitability. It shows that whenever there is negative relationship between them, then it signify that greater risk linked with loans, higher the level of loan loss supplies which thereby and create a trouble at the profit-maximizing strength of a bank. Demirguc-Kunt & Huizinga (2001) and Bikker and Hu (2002) find a negative relationship between stock market capitalization and banks' profitability, it means that equity and bank financing acts as substitutes rather than complements. In case of the industry-specific factors, the Structure-Conduct-Performance premise point out that growing market power enhances the profitability (income) of banks. As a matter of reality, Molyneux and Thornton (1992) mentioned that monopolistic profits follow out of major deflections from aggressive market structures.

Findings on the determinants of bank's interest margin and profitability have paying attention whether on a particular country (Berger, 1995; Barajas et al., 1999; Naceur and Goaied, 2001) and on a group of countries (Abreu and Mendes, 2002; Demerguç-Kunt and Huizingha, 1999). Naceur and Goaied (2001) find out the factors that

affects the Tunisian bank's performances during the period 1980-1995. They determine that the best developing banks are those who have effort to get better labor and capital productivity, those who have balanced a high level of deposit accounts comparative to their assets and finally, those who have been able to strengthen their equity for the banks performance. Chirwa (2003) determines the relationship between market structure and profitability of commercial banks in Malawi by using time series data during1970 and 1994. He finds a long-run relationship between profitability and concentration, capital-asset ratio, loan-asset ratio and demand deposits-deposits ratio.

Bank efficiency has come out as a multi-dimensional concept, which has been discussed widely in the literature. The efficiency of financial service firms and the approach being followed by them is largely mused in the information condensed in their financial statements. There exists a large amount of literature about the bank efficiency across the globe. Numerous scholars and assimilators have used the Data Envelopment Analysis (DEA) to examine the performance and activities of banks across the world. However, there exists a dissimilarity of choice among variables being used as inputs or outputs. Chen and Yeh (1998) examine the efficiency of 33 banks in Taiwan. Applying the DEA approach, they used variables like loan services, portfolio investment, Interest income and non-interest income as the output of banks in Taiwan, while the number of staff employed, bank assets, the number of bank branches, operating costs, and deposits were used as the input variables in their studies regarding the Taiwan's banks. Abreu and Mendes (2002) evaluated the determinants of bank's interest margins and profitability for some European countries. They find that well capitalized banks face lower expected bankruptcy costs and this benefit interprets into better profitability. Although with a negative mark in all regressions, the unemployment rate is relevant in explanation of bank's profitability. The inflation rate is also related with it.

Although, a lot of work has been carried out for the evolution of commercial banks efficiency in the world but very little work has been carried out on the banking sector of Pakistan. There are few studies which evaluate the performance of banking sectors in Pakistan. Bashir (2000) analyzes the factors of Islamic bank's performance across eight Middle Eastern countries for 1993-1998 periods. A various number of internal and external determinants were used to forecast the profitability and efficiencies. Controlling for macroeconomic environment, financial market situation and taxation, the consequences show that higher leverage and large loans to asset ratios, lead to higher profitability. He also reports that foreign-owned banks are more profitable that the domestic one. There is also evidence that taxation impacts negatively bank profitability. Finally, macroeconomic setting and stock market development put a positive impact on profitability. Ataullah et al. (2004) made a comparative analysis of commercial banks in India and Pakistan during 1988-1998. They found that the efficiency score in loan based model was much higher as compared to the income based model. Both countries banks have needed to improve their efficiency. Burki and Niazi (2006) analyzed the impact of financial reforms on the efficiency of state, private and foreign banks of Pakistan by using data of 40 banks for the period 1991-2000. They found a positive impact of banks size, interest income to earning assets and loans to deposit ratio on estimated efficiency scores.

The above discussion confirms a strong linkage between internal and external factors on bank's profitability. The paper addresses the gap in the literature by using challenging econometric techniques to testify the bank's profitability in terms of the individual country assessment case like Pakistan. In this study, country related specific shocks are absorbed and data are refined accordingly. According to the nature and purpose of each study mentioned in literature review, a number of explanatory variables have been proposed for internal and external determinants of bank's profitability. We have taken bank loans to total

assets (LOAN); equity capital to total assets (CAPITAL); Natural log of total assets (SIZE) and total deposits to total assets (DEPOSITS) with return on asset (ROA); return on equity (ROE); return on capital employed (ROCE) and net interest margin (NIM) separately.

3. Data Source and Methodological Framework

The panel data set covers a 5-year period from 2005 to 2009, with a sample of 15 top banks of Pakistan (see appendix). The data were taken from the central bank of the country i.e., State bank of Pakistan, various reports. Economic Growth (GDP), Consumer Price Index (INF) and Market Capitalization (MC) data were obtained from the World Bank (WDI, 2009). All financial data is nominated in terms of Pakistani rupees (millions). The basic estimation strategy is to pool the observations across banks and apply the regression analysis on the pooled sample. That is, a pooled OLS (POLS) equation will be estimated in the form of:

$$Y_{it} = \beta_0 + \beta_1 X1_{it} + \beta_2 X2_{it} + \beta_3 X3_{it} + \beta_4 X4_{it} + \beta_5 X5_{it} + \beta_6 X6_{it} + \beta_7 X7_{it} + u_{it} \quad (1)$$

Where;

- Y_{it} represents Return on Asset (ROA), Return on Equity (ROE); Return on Capital Employed (ROCE) and Net Interest Margin (NIM) for bank *i* at time *t*.
- $X1_{it}$ represents natural logarithm of Total Asset (SIZE) for bank *i* at time *t*
- $X2_{it}$ represents ratio of Equity Capital to Total Asset (CAPITAL) for bank *i* at time *t*
- $X3_{it}$ represents ratio of Total Loans to Total Asset (LOAN) for bank *i* at time *t*

- $X4_{it}$ represent ratio of Total Deposits to Total Assets (DEPOSITS) for bank *i* at time *t*
- $X5_{it}$ represents Gross Domestic Product (GDP) for bank *i* at time *t*
- $X6_{it}$ represents Consumer Price Index (INF) for bank *i* at time *t*
- $X7_{it}$ represents Market Capitalization (MC) for bank *i* at time *t*
- *i = 1 to 15 banks*
- *t = 2005-2009*
- u_{it} = Error term.

The advantage of pooling is that more reliable estimates of the parameters in the model can be obtained. It is a valid procedure where the relationship between the variables is stable across cross-section units. Our data set gives evidence that Pakistani banks show similar response to cyclical movements. Therefore, we believed that the relationship between profitability and assets are stable across banks and that is why we decided to apply pooled OLS estimation method.

This paper does not include all dimensions of the internal & external factors on the profitability but limited to the following variables:

- **ROA** is a ratio calculated by dividing the net income over total assets. ROA have been used in most of the studies for the measurement the profitability of the banks. ROA measures the profit earned per dollar of assets and reflect how well bank management uses the bank's real investments resources to generate profits [(see, Naceur (2003) and Alkassim (2005)].
- **ROE** measures the rate of return on the ownership interest (shareholders' equity) of the common stock owners. It measures a firm's efficiency at generating profits from every unit of

shareholders' equity (also known as net assets or assets minus liabilities). ROE shows how well a company uses investment funds to generate earnings growth. ROEs between 15% and 20% are considered desirable. Return on equity (ROE) is the ratio of net income to total equity (see, Fraker, 2006).

- **ROCE** compares earnings with capital invested in the company. It is similar to Return on Assets (ROA), but takes into account sources of financing. ROCE is the ratio of non markup income to capital employed (see, Fogelberg and Griffith, 2000).
- **NIM** is a measure of the difference between the interest income generated by banks or other financial institutions and the amount of interest paid out to their lenders (for example, deposits), relative to the amount of their (interest-earning) assets. It is similar to the gross margin of non-financial companies. It is usually expressed as a percentage of what the financial institution earns on loans in a time period and other assets minus the interest paid on borrowed funds divided by the average amount of the assets on which it earned income in that time period (the average earning assets). The NIM variable is defined as the net interest income divided by total assets. NIM is focused on the profit earned on interest activities (Berger, 1995; Barajas et al., 1999 and Naceur and Goaied, 2001).
- **SIZE** is used to capture the fact that larger banks are better placed than smaller banks in harnessing economies of scale in transactions to the plain effect that they will tend to enjoy a higher level of profits. Consequently, a positive relationship is expected between size and profits. Molyneux and Thornton (1992), Bikker and Hu (2002) and Goddard et al. (2004) find size has a positively related to profitability. The size of the bank is also included as an independent variable to account for size related economies and diseconomies of scale. In most of the

finance literature, the total assets of the banks are used as a proxy for bank size.

- **CAPITAL** is taken as the ratio of equity capital to total assets. It's interesting to note that higher the capital level breeds higher profitability level since by having more capital, a bank can easily adhere to regulatory capital standards so that excess capital can be provided as loans (see, Berger, 1995)..

- **LOAN** is the main source of income and is expected to have a positive impact on bank performance. Other things constant, the more deposits are transformed into loans, the higher the interest margin and profits. However, if a bank needs to increase risk to have a higher loan-to-asset ratio, then profits may decrease. In addition, as bank loans are the principal source of income, we expect that non interest bearing assets impact negatively on profits. We also expect that the higher equity-to-asset ratio, the lower the need to external funding and therefore higher profitability. It is also a sign that well capitalized bank face lower costs of going bankrupt and then cost of funding is reduced.

- **DEPOSITS** are the ratio of total deposits to total assets which is another liquidity indicator but is considered as a liability. Deposits are the main source of bank funding and hence it has an impact on the profitability of the banks. Deposits to total assets ratio is included as an independent variable in this study.

- **GDP**: Demirguc-Kunt and Huizinga (1999) show that rapid economic growth increase profitability for a large number of countries. Technically speaking, GDP captures upswings and downswings manifesting in the business cycles. Consequently, movements in general activity level are expected to generate direct impacts on profitability of banks. The empirical literature usually resorts towards two versions of GDP. First, there is cyclical output which basically reflects the deviation of GDP

from an HP-Filtered GDP. Second, there is the use of GDP per capita to cater for the level of economic development.

- **INF:** The importance of inflation on the performance of banks was heavily discussed in the literature, primarily due to the influence of inflation on the sources and users of banks' financial resources. In particular, inflation affects companies' pricing behavior. For instance, if companies expect general inflation to be higher in the future, they may believe that they can increase their prices without suffering a drop in demand for their output (Driver and Windram 2007, 2009). In this scenario, upon the condition that expected inflation will be equal to actual inflation, there will be no decrease in business activities and no negative effect on banks' performance.
- **Stock Market Capitalization (MC):** Modigliani and Miller (1958) points out that under perfect market conditions, debt and equity financing acts as perfect substitutes. In that respect, in case firms resort more towards equity financing, this will trigger a negative effect on banks' profits. However, in case of developed capital markets, banks derive more information about customers so that information asymmetry problem is curtailed to thereby enhance banks' profits. Hence, whether the substitution effect or the complementary effect predominates hinges on the sign of the effect. Empirical evidence from Demirgüç-Kunt and Huizinga (1999, 2001), Bashir (2000) and Naceur (2003) show that banks have greater profit opportunities in countries having well-developed stock markets, providing endorsement for the complementary effects.

4. Results of the Models

This section deals with the results of the study which include the descriptive statistics, econometric results and tests for multi-collinearity which is relevant for the study. Due to the diversity in operations and regulations, four of the local banks were not considered for analysis, as their services were restricted to specialized areas. These include Zarai Taraqiati Bank of Pakistan, Small Medium Enterprise Bank, Industrial Development Bank of Pakistan and Punjab Provincial Co-operative Bank. The descriptive statistics are calculated and presented in Table 1 for ready reference.

Table 1

Descriptive Statistics

	ROA	ROE	ROCE	NIM	SIZE	CAPITAL	LOAN	DEPOSITS	GDP	INF	MC
Mean	1.03	12.24	27.17	0.072	18.44	0.113	0.51	0.798	5.46	9.94	8.74
Median	1.30	15.02	28.04	0.080	18.74	0.100	0.52	0.807	6.10	7.90	8.95
Std. Deviation	1.84	16.58	17.76	0.021	1.31	0.068	0.11	0.047	1.47	5.41	0.21
Minimum	-7.81	-73.2	-0.61	0.02	15.80	0.03	0.23	0.895	2.70	4.80	8.34
Maximum	3.72	37.59	56.73	0.12	20.67	0.49	0.69	0.689	6.60	20.30	9.15

Table 1 shows descriptive statistics for all the variables. ROA, ROE, ROCE and NIM all have a positive mean value which ranges from a low of 0.072 to 27.17. Besides, the sample includes banks with very different sizes and business mixes. Standard Deviation of NIM is 0.021 which indicates that observations in a data set are more close to

the mean. It means that almost all banks are applying relatively consistent interest rate on all kinds of finances and there is only few variations seen in NIM. Thus their net interest income is almost constant. The highest standard deviation for ROCE and ROE is 17.76 and 16.58 respectively. There is greater variation in the data set of ROCE and ROE because of the size difference of banks taken for study. Some of the banks are well established since long period and thus they have big size and they employ higher capital and equity which increases bank's ROE and ROCE. Rests of the banks are newly established banks, which have small size and thus small capital and equity. Therefore they possess low ROCE and ROE ratio values. All the other variables have low S.D values which show the consistency of the data set. Their values are close to their mean values. The relationships among the study variables depicted in the model were tested using correlation with ROA, ROE, ROCE and NIM separately with internal and external determinants of the Bank's profitability which is presented in Table 2, 3, 4 and 5 respectively.

Table 2

Correlation Matrix -ROA

	ROA	SIZE	CAPITAL	LOAN	DEPOSITS	GDP	INF	MC
ROA	1							
SIZE	0.379	1						
CAPITAL	-0.151	0.104	1					
LOAN	0.250	0.291	-0.031	1				
DEPOSITS	0.387	0.342	0.287	0.187	1			
GDP	0.387	-0.169	-0.081	0.269	0.148	1		
INF	0.251	0.178	0.006	-0.241	0.042	-0.880	1	

MC	-0.387	0.421	0.287	0.002	0.174	0.201	-0.131	1

The correlation analysis shows that SIZE, LOAN, DEPOSITS, INF and GDP have a positive relationship with ROA, while CAPITAL and MC have a negative relationship with ROA. It depicts that the larger banks are better placed than smaller banks in harnessing economies of scale in transactions to the plain effect that they will tend to enjoy a higher level of profits. The result is consistent to previous findings of Molyneux and Thornton (1992), Bikker and Hu (2002) and Goddard et al. (2004). Table 3 shows correlation matrix between ROE and explanatory variables.

Table 3

Correlation Matrix -ROE

	ROE	SIZE	CAPITAL	LOAN	DEPOSITS	GDP	INF	MC
ROE	1							
SIZE	0.379	1						
CAPITAL	-0.265	0.104	1					
LOAN	0.259	0.292	-0.031	1				
DEPOSITS	0.187	0.312	0.284	0.181	1			
GDP	0.336	-0.169	-0.081	0.260	0.145	1		
INF	0.302	0.178	0.006	-0.240	0.040	-0.880	1	
MC	-0.345	0.420	0.285	0.002	0.171	0.201	-0.131	1

The correlation analysis in Table 3 shows almost the same results as per we finds with ROA. The reason is that ROE is also the profitability measure and their relationship is almost same with internal and external factors over the bank's profitability. Table 4 shows correlation matrix between ROCE and explanatory variables.

Table 4

Correlation Matrix -ROCE

	ROCE	SIZE	CAPITAL	LOAN	DEPOSITS	GDP	INF	MC
ROCE	1							
SIZE	-0.119	1						
CAPITAL	-0.558	0.104	1					
LOAN	-0.248	0.292	-0.031	1				
DEPOSITS	-0.124	0.312	0.284	0.181	1			
GDP	0.102	-0.169	-0.081	0.260	0.145	1		
INF	0.114	0.178	0.006	-0.240	0.040	-0.880	1	
MC	-0.145	0.420	0.285	0.002	0.171	0.201	-0.131	1

The correlation matrix in Table 4 with ROCE shows that SIZE, CAPITAL, LOANS, DEPOSITS and MC have a negative relationship with ROCE, while GDP and INF has a positive relationship with ROCE which means that bigger banks have lower ROCE. The result is consistent to previous findings of Athanasoglou et al. (2006). Total Loans to Total Assets has a negative correlation with ROCE, this suggests that an increase in bank loans will decrease the ROCE. Similarly, Total Deposits to Total Assets shows a negative correlation with ROCE which shows that banks that rely on deposits for their

funding are also less profitable. It is consistent with previous findings of Abreu et al. (2002), Wong and Fong (2006) and Alkassim (2005). In Table 5, correlation matrix has been presented with NIM and explanatory variables.

Table 5

Correlation Matrix -NIM

	NIM	SIZE	CAPITAL	LOAN	DEPOSITS	GDP	INF	MC
NIM	1							
SIZE	-0.202	1						
CAPITAL	-0.041	0.104	1					
LOAN	-0.060	0.292	-0.031	1				
DEPOSITS	-0.024	0.312	0.284	0.181	1			
GDP	-0.329	-0.169	-0.081	0.260	0.145	1		
INF	0.330	0.178	0.006	-0.240	0.040	-0.880	1	
MC	0.145	0.420	0.285	0.002	0.171	0.201	-0.131	1

The correlation matrix in Table 5 with NIM shows that SIZE, CAPITAL, LOAN, DEPOSITS and GDP have a negative relationship with NIM, while INF and MC has a positive relationship with NIM which means that bigger banks have lower NIM. This is because with increase in inflation in the economy, the banks interest rate on all kinds of advances would increase and in this way the bank's interest earnings would show significant increase.

The model for the bank's profitability is selected on the basis of strong diagnostics and high value for the R-squared. The results are

represented in Table 6 (Table 6.1, 6.2 and 6.3 with different profitability indicators i.e., ROE, ROCE and NIM with same explanatory variables, see in appendix).

Table 6

Pooled Least Square

Dependent Variable = ROA

Variables	Coefficients
Constant	-12.79*
SIZE	0.641 *
CAPITAL	-4.560
LOAN	0.234*
DEPOSITS	0.141**
GDP	0.445*
INF	0.161**
MC	-.016
R-square	0.63
Adjusted R-squared	.542
F-statistics	4.481*

* and ** shows correlation is significant at the 0.01 and 0.05 level.

The value for the R-squared adjusted in the model is 0.54 which endorses that 54% of the variation in the dependent variable is explained by the independent variables of the model. The 46% variation in the dependent variable remains unexplained by the independent variables of the study. The value for the F-statistic is 4.481 and is significant endorsing the validity and stability of the model relevant for the study.

The results of other diagnostics suggest that the SIZE have significant positive relation with ROA, where total assets indicate the size of the bank. This positive relationship shows that the size of the bank have significant positive impact on profitability. It suggests that larger banks

achieve a higher ROA. Same results have been found by Molyneux and Thornton (1992) and Bikker and Hu (2002).

Deposits to total assets (DEPOSITS) also have the positive and significant impact on the profitability of the bank. This result is consistent with the results of previous research [(e.g., Alkassim (2005)]. It shows that deposits have positive impact on profitability and banks depending on deposits for funds can achieve better return on assets. LOANS show positive and significant relationship with ROA. This indicates that with more loans the chances of return on assets will be high. This result is consistent with the study of Athanasoglou et al. (2006). GDP find direct and significant impact on ROA. It shows that rapid economic growth increase profitability in Pakistan. Basically, GDP captures upswings and downswings manifesting in the business cycles. Consequently, movements in general activity level are expected to generate direct impacts on profitability of banks. This result is consistent with the results of previous research [(e.g., Demirguc-Kunt and Huizinga (1999)]. Another variable is inflation (INF) which shows the direct relationship with ROA. It means that if banks expect general inflation to be higher in the future, they may believe that they can increase their prices without suffering a drop in demand for their output. In this scenario, upon the condition that expected inflation will be equal to actual inflation, there will be no decrease in business activities and no negative effect on banks' performance (see, Driver and Windram, 2009). Capital ratio and MC shows an insignificant impact on ROA, which means that well-capitalized banks experience negative returns but as the relationship is insignificant, the relation is not conclusive.

The test to detect multicollinearity (variance inflation factor) is also performed to support the validity of the regression results. In case of VIF, if the result is below the 10 and Tolerance near to zero suggest no multicollinearity (Gujrati, 2003). In Table 7 results of VIF and tolerance factor is reasonably good. The values of variance inflation factor for the variables in the model ranges from 1.201 to 4.873 for

SIZE to GDP suggesting the absence of multicollinearity among the variables of the model.

Table 7

Values of Tolerance and Variance Inflation Factor (VIF) for ROA

Variables	Tolerance	Variance Inflation Factor
SIZE	0.833	1.201
CAPITAL	0.764	1.309
LOAN	0.822	1.216
DEPOSITS	0.850	1.177
GDP	0.712	4.873
INF	0.845	4.145
MC	0.709	2.254

Robustness test: *(Incremental regression)*

The incremental regression is performed by removing individual independent variables from the model and by checking the effect on the value of R-squared. Among all the variables removed, SIZE has altered the value of R-squared to a highest degree (21% decreases in the portion of the dependent variable explained by independent variables) as the value for the R-squared changes from 63% to 42%. This substantial decrease in the value of the R-squared shows the importance of SIZE in the model. This importance is also highlighted in the regression result as the value of coefficient of the variable (0.641) is highest among all the variables. The result is presented in

Table 8

Results of Incremental Regression removing SIZE

Models	R-value
R-squared (Original)	0.63
R-squared (after the removal)	0.42

5. Conclusion

This study investigates the impact of bank-specific characteristics and macroeconomic indicators on bank's profitability in the Pakistan's banks for the 2005-2009 periods. Individual bank characteristics (internal and external factors) are considered as determinants of bank profitability in Pakistan. Banks with more equity capital, Total Assets, Loans, Deposits and macro factors i.e., economic growth, inflation and stock market capitalization are perceived to have more safety and such an advantage can be translated into higher profitability. For this purpose, two hypotheses have been developed for analyzing bank's profitability over specific determinants i.e., Hypothesis 1 states that microeconomic factors have significant impact on profitability. Whereas, hypothesis 2 states that external factors of the banks have significant impact on the profitability. The result shows that both hypotheses have accepted and have a significant impact on profitability of the Bank's in Pakistan.

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Appendix

A List of Scheduled Banks

S. No	Name of Banks
1	National Bank Of Pakistan
2	Habib Bank Limited
3	Habib Metropolitan Bank Limited
4	Muslim Commercial Bank
5	Faysal Bank
6	First Women Bank Limited
7	Bank Of Khyber
8	KASB Bank
9	Meezan Bank
10	NIB
11	Bank Alfalah
12	United Bank
13	Allied Bank
14	Bank of Punjab
15	Askari Bank

Table 6.1

Pooled Least Square

Dependent Variable = ROE

Variables	Coefficients
Constant	-102.310*
SIZE	0.485 *
CAPITAL	-0.297**
LOAN	-0.001
DEPOSITS	0.024**
GDP	0.245*
INF	0.062**
MC	-.025*
Adjusted R-squared	.419
F-statistics	3.912*

* and ** shows correlation is significant at the 0.01 and 0.05 level.

Table 6.2

Pooled Least Square

Dependent Variable = ROCE

Variables	Coefficients
Constant	69.666*
SIZE	0.079*
CAPITAL	-0.579*
LOAN	-0.331*
DEPOSITS	0.145
GDP	-0.114
INF	0.025
MC	-0.040**
Adjusted R-squared	0.485
F-statistics	3.912*

* and ** shows correlation is significant at the 0.01 and 0.05 level

Table 6.3

Pooled Least Square

Dependent Variable = NIM

Variables	Coefficients
Constant	0.150
SIZE	-0.320
CAPITAL	-0.412**
LOAN	0.085*
DEPOSITS	0.145
GDP	-0.098**
INF	0.337*
MC	0.125
Adjusted R-squared	0.385
F-statistics	2.912**

* and ** shows correlation is significant at the 0.01 and 0.05 level