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Factors impacting profitability of commercial banks in Pakistan for the period of (2009-2012)

Usman Dawood

MS Finance, University of Gujrat. Pakistan

Abstract- Commercial banks play the vital role in the economy of any country. My aim behind this study is to evaluate the profitability of the 23 commercial banks operating in Pakistan for the period of 2009 to 2012.There are internal and external factors that affect the profitability of commercial banks of any country. Internal factors or management factors include the management policies, capital ratios, Risk management etc and external factors include inflation, government policies etc. My study undertakes the only internal factors that impact on the profitability of the commercial banks in Pakistan .This study used the ordinary least square (OLS) method to look into the impact of cost efficiency, liquidity, capital adequacy, deposits and size of the bank on the profitability (ROA) of the commercial banks. I have used the Descriptive statistics that include mean, median, minimum, maximum and standard deviation. Other method includes correlation analysis, regression analysis and natural loghrathim of total assets technique. The empirical findings of my study is that cost efficiency, liquidity and capital adequacy are those variables in the check of management that decide the profitability of commercial banks operating in Pakistan. Other variables like deposits and size of the bank did not demonstrate any impact on profitability.

Index Terms- External factors, internal factors, Natural logarithm technique. OLS, Profitability.

I. Introduction

Banking sector is the backbone of any economy and plays its important role in the economic development of a country. The financial sector in Pakistan includes commercial banks, stock exchanges, insurance companies, or banking finance companies. Mobilization of the national savings to the productive sectors is possible only with the help of commercial banks that increases the economic growth rate of a country. Profitable commercial banks also stabilize the financial system of a country. Commercial banks perform major function of accepting the deposits from the general public and advances loans. In the past a lot of work has been done by the researchers on the profitability determinants of commercial banks. Some researchers have used only bank characteristics or internal factors in their study but some also used the macroeconomic factors or external factors in their study along with internal factors. Saira Javaid et.al (2011) Bank size or total assets does not lead any profitability of commercial banks but equity and deposits have a significant influence on the profitability of commercial banks.

The financial system of the Pakistan has been altered significantly by nationalization of banks in early 1970.It became clear by the end of 1980 that objectives of the commercial banks could not be achieved. The public sector was liable for inefficiency of the domestic banks and non-financial institutions. Share of public sector in total assets of the banking industry was 90 percent and remaining 10 percent relate to the foreign banks by the end of 1990.At that time there is no existence of private shares in banking industry. After 1997 there became significant change in the ownership of the banking sector and concentration in banking sector by privatization the banking industry.(State Bank of Pakistan)

My objective of writing this research paper is to analyze the profitability of 23 commercial banks operating in Pakistan for the period of 2009 to 2012. I have used only banks characteristics or internal factors in my study to check their impact on profitability of commercial banks. My dependant variable is ROA and independent variables are cost efficiency, liquidity, capital adequacy, deposits and size of bank. I have used regression analysis, descriptive analysis, correlation analysis and natural logarithm techniques in my study.

Factors impacting profitability of commercial banks in Pakistan for the period of 2009-2012 contribute to a lot in the literature review. I have worked on 23 commercial banks of Pakistan but the previous studies like Saira Javaid et.al (2011) have worked on the 10 commercial banks of Pakistan, Sehrish Gul, Faiza Irshad and Khalid Zaman (2011) have worked on the 15 commercial banks of Pakistan, Syeda anum bhukhari (2012) has worked on 11 commercial banks in Pakistan and Khizar ali et al (2011) have worked on 22 commercial banks in Pakistan. I have obtained all of my research data from the financial statements of commercial banks.

The remaining sections of the paper discuss the literature review in section 2.Section 3 describes the methodology that has been adopted to achieve the objectives of this paper. And the remaining three sections of this paper section 4 section 5 and section 6 relate to the summary of hypothesis, results and conclusion respectively.

II. LITERATURE REVIEW

This section of the research paper provides the overview of the previous studies related to the determinants of the bank profitability. The dependant variables in these studies have been mostly used like return on assets (ROA), return on equity (ROE) and net interest margin (NIM) and all the internal and external factors have been used as independent variables.

Syafri (2012) checked the profitability of the commercial banks of Indonesia listed in the stock exchange for the period of 2002 to 2011 using pooling data from commercial banks. He applied the pooling data regression model in which return on assets is dependant variable and internal and external determinants have been used as independent variables. He has said in his research that loan to total assets, total equity to total assets have positive effect on profitability while on the other hand bank size and cost to income ratio have negative effect and economic growth and non interest income to total assets have no effect.

Ani,W.U et.al (2012) investigated the determinants of profitability of commercial banks in Nigeria for the period of ten years from 2001 to 2010 including the observation of 147 banks. Pooled ordinary least square was used to estimate the coefficient. Study finds that bank size does not increase the profit of any commercial banks in Nigeria. Greater capital-asset ratio increases the profitability of banks.

Saira Javaid et.al (2011) examined the profitability of top 10 the commercial banks of Pakistan for the period of 2004-2008.Pooled ordinary least square has been used to check the impact of internal factors includes assets, loan, equity and deposits on the profitability of banks on dependant variable called return on asset (ROA).The study found that internal factors stated above effect the bank's profitability. Bank size or total assets does not lead any profitability of commercial banks but equity and deposits have a significant influence on the profitability of commercial banks.

Abdel karim Almumani (2013) analyzed the internal factors that impact on the profitability of the commercial banks listed in Amman Stock Exchange in Jordan for the duration of 2005-2011.The study constitutes that the cost-income ratio has a significant collide with the profitability of commercial banks in Jordan.

Imad Z.Ramadan et.al (2011) took apart the determinants of profitability of 10 Jordan banks for the period of 2001-2010.They have used return on equity (ROE) and return on assets (ROA) as dependant variables and internal and external factors have been used as an independent variables and the type of data of Jordan banks is penal data. Results designated that profitability of the Jordan banks depend upon the well capitalized banks, high loaning activities, less credit risk and cost management efficiency. Findings also expressed that size does not increase the profitability of Jordan banks.

Fadzlan Sufian et.al (2008) studied the profitability of the banks in Philippines for the period of 1990-2005.The outcome paint a picture that profitability factors have significantly impact on bank profitability. The study also suggests that if the expense related behavior and credit risk increases the profitability of the banks operating in Philippines decreases and the non-interest income and capitalization both have the positive relationship with bank's profitability. During the study undertaken the inflation increases the profit of the banks in Philippines decreases.

Sehrish Gul, Faiza Irshad and Khalid Zaman (2011) tried out the relationship between the bank specific characteristics and the profitability of the banks using the data of top fifteen commercial banks operating in the economy of Pakistan for the period of 2005-2009.This paper applies the Polled Ordinary Least Square method to look into the hit of assets, loans, equity, deposits, economic growth, inflation and market capitalization on major profitability blinkers like return on assets (ROA) ,return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM) one by one. The study constitute that both the internal and external factors have a solid influence on the banks profitability.

Paolo Saona Hoffmann (2011) tried out the determinants of profitability of the banks operating in US for the period of 1995-2007.The study undertakes the internal and external factors affecting the profitability of banks in US economy. The study found that there is a negative relationship between the capital ratio and profitability which affirms the believe that banks are working most carefully and dismissing potentially profitable trading chances. The cost advantages due to the bank size do not impact on the profitability of the banking industry of US.

Syeda Anum Javed Bukhari (2012) analyzed the internal and external factors that affect on the profitability of 11 commercial banks operating in Pakistan for the period of 2005-2009.The study uses the regression analysis to implicate the result with the hypothesis. The findings from this research paper are that internal factors impact the profitability of the commercial banks whereas external factors do not impact.

Khizar Ali et.al (2011) analyzed the profitability factors impacting on the profit of the 22 commercial banks both public and private working in Pakistan for the period of 2006-2009.The study used the descriptive statistics, correlation and regression analysis. Return on assets (ROA) and return on equity (ROE) have been used as dependant variables and on the other hand internal and external factors have been used as independent variables. The results show that when the economic growth increases the profitability increases. And on the other side when the credit risk increases the profitability decreases.

Deger Alper (2011) probed the internal and external factors of banks profitability of Turkey for the period of 2002-2010.In this study the return on assets (ROA) and return on equity (ROE) both are the dependant variables and the function of internal and external factors. Profitability increases when the non interest income and asset size increases. And real interest rate in the external factors has positive effect on profitability.

Dr. Srinivas Madishetti et.al (2013) analyzed the profitability determinants of Tanzania commercial banks for the period of 2006-2012.Internal determinants use the variables like liquidity risk, credit risk, operating efficiency, business assets and capital adequacy and external determinants use the variables GDP growth rate and inflation rate. All of these variables are independent. The study found that internal variables determine the bank's profitability whereas external factors do not influence the profitability of commercial banks.

Abuzar (2013) studied the determinants of profitability of Islamic banks operating in Sudan. This study found that only the internal factors have the substantial impact on the profitability of the commercial banks. Cost, liquidity and the size of the banks have the positive relationship with the bank profitability. Macroeconomic or external factors have no substantial impact on profitability.

Alkassim (2005) examined the profitability of Islamic and conventional banks in GCC countries for the period of 1997-2004.He analyzed both the internal and external factors impacting on the profitability of Islamic and conventional banks. This study showed that asset quality of the conventional banks is better than others. Interest free lending impact on the profitability

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of the Islamic bank and total expenditures impact on the profitability of the conventional banks operating in the GCC countries negatively.

Alpera and Anbar (2011) analyzed the internal and external factors of the commercial banks of Turkey for the period of 2002-2010.The study shows that non interest income and bank size have the positive impact on the bank profitability. And on the side of the macroeconomic or external factors only the real interest rates impact on the profitability of the commercial banks positively.

Vong and chan (2006) analyzed the impact of internal and external factors on the profitability of Macao banking industry for the period of 15 years. This study found that high capitalization leads to the high profitability and size of the bank increases the profitability its mean banks are enjoying the benefit of economies of scale. And on the other hand loan loss provision impact on the profitability of the Macao banking industry unfavorably.

The discussion I have written in the literature review affirms a strong relationship between the bank's profitability and the internal and external factors impacting the profitability of the banks. My research paper covers the gap in the literature by testifying the profitability of the commercial banks operating in Pakistan. In the literature review different independent variables have been used in each study but I have used cost efficiency, liquidity, capital adequacy, deposits and size of the bank as independent variables.

III. METHODOLOGY

My penal data covers the period of 4 years from 2009 to 2012 of 23 commercial banks operating in Pakistan (see appendix).All the data has been extracted from the financial statements of the commercial banks. My study looked into the relationship between the profitability and the internal factors impacting on profitability of the bank. For this aim I have used descriptive analysis (mean, median, minimum, maximum and standard deviation) Pearson correlation analysis and regression analysis to test the hypothesis.

3.1 VARIABLES

Explanation of dependant variable (ROA) and independent variables are as follows:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon \quad \text{......... (1)}$$

Whereas:
Y presents Return on Asset
X_1 Presents cost efficiency
X_2 Presents liquidity
X_3 Presents Capital adequacy
X_4 Presents deposits
X_5 Presents size of the bank
ε = Error term.

My research paper does not cover all the profitability internal factors but limited to the followings:

Return on Assets: Return on assets shows the earning of single asset in rupees. For the measurement of the profitability ROA has been used in many studies. Return on assets can be easily calculated by the above formula. Return on assets shows the efficiency of the management to generate income. It is useful for comparing the companies in the same industry.Net profit in the formula of ROA is the profit after tax.

Return on assets = Net profit/Total assets

Cost efficiency: Cost efficiency means the per unit income generated. Cost efficiency measures that how much it is expensive for the bank operating in Pakistan to produce per unit of output. High total cost to total income ratio causes the lower profitability for the banks and low of the ratio shows the increase in the profit. It has been used as an independent variable in my study and can be calculated by the following formula.

Cost efficiency = Total cost/Total income

Liquidity: Liquidity can be used in the measurement of the profitability and can be calculated by the following equation. Liquidity is the amount of short term responsibilities that could be met with the amount of liquid assets.

Liquidity = Liquid assets/Customer deposits + Short term borrowed fund

Capital adequacy: This is another internal factor for the measurement of the profitability and the amount retained by the bank to meet the unexpected loss and danger involved. High of this ratio shows the high profitability and lower ratio causes in the decrease of the profitability. Capital adequacy can be calculated with the help of the following equation.

Capital adequacy = Total equity/Total assets

Deposits to assets: Deposit is another profitability blinker considered as liability. Deposits are the main source of the banks funding and has the important place in the profitability of the commercial banks. High deposits show high profit whereas low deposits show low profitability.

Deposits to assets = Total Deposits/Total Assets

Size of bank: Size shows the natural logarithm of total assets and has been used in many studies as an independent variable. Size of the bank shows the economies and diseconomies of scale. It would be beneficiary to take the natural logarithm of total assets before including in the modal.

Size of bank = Natural logarithm of Total assets

3.2 HYPOTHESIS

This study tries to test the following hypothesis:

H1: Negative relationship exists between cost efficiency and profitability.
H2: Negative relationship exists between liquidity and profitability.
H3: Positive relationship exists between capital adequacy and profitability.
H4: Positive relationship exists between deposits and profitability.

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H5: Positive relationship exists between size of the bank and profitability.

IV. RESULTS

This section deals with the results of research paper like descriptive analysis, Pearson correlation analysis and regression analysis.

4.1 DESCRIPTIVE STATISTICS

Table.1 shows the descriptive analysis of the 23 commercial banks operating in Pakistan. Descriptive analysis includes mean, median, minimum, maximum and standard deviation.

Table 1.Descriptive analysis of the dependant variable and all the independent variables.

Rupees in millions

	Y (Return on assets)	X_1 (Cost efficiency)	X_2 (Liquidity)	X_3 (Capital adequacy)	X_4 (Deposits)	X_5 (Size of bank)
Mean	0.008131	0.679291	0.205065	0.138149	0.722864	11.80246
Median	0.008939	0.602791	0.116729	0.105469	0.776188	11.97486
Maximum	0.053020	2.087927	1.762712	0.613910	0.893124	14.29194
Minimum	-0.058989	0.265136	0.051592	0.050931	0.237228	9.020632
Std. Dev.	0.014268	0.331183	0.289851	0.108323	0.147393	1.411804
Observations	92	92	92	92	92	92

The mean and median of Y (ROA) are 0.008131 and 0.008939 respectively for the Pakistanis commercial banks for the study period undertaken. Minimum value is -0.058989 and 0.053020 is the maximum value in the data set. The data set has the standard deviation of 0.014268 which is low and indicates that there is very low variation in the data set and more close to the mean and there is possibility to increase profitability in future.

It is clear cut from the above table that X1 (cost efficiency) have the mean and median 0.679291 and 0.602791 respectively for the study period. Minimum value of the cost efficiency is 0.265136 and 2.087927 is the maximum value of the given data set. The data set has showed the standard deviation equal to 0.331183.The increase in cost efficiency means the increase in operating expenses go through by the commercial banks.

X2 (liquidity) of the commercial banks has showed the mean and median for the given data set 0.205065 and 0.116729 respectively. Liquidity shows the minimum value equal to 0.051592 and 1.762712 is maximum value over the study period and given data set. My data set of liquidity has experienced standard deviation equal to 0.289851 which is minimum and closes to the mean value.

The mean and median of X3 (capital adequacy) are 0.138149 and 0.105469 respectively for the Pakistanis commercial banks for the study period undertaken. Minimum value is 0.050931 and 0.613910 is the maximum value in the data set. The data set has the standard deviation of 0.108323 which is low and also close to mean value. Achieving high level of the capital adequacy ratio is the sign of having more capital to hedge against the risk.

Table 1 shows the mean and median values of X4 (deposits) equal to 0.722864 and 0.776188 respectively. Deposits show the minimum value equal to 0.237228 and 0.893124 is maximum value over the study period and given data set. My data set of deposits has experienced standard deviation equal to 0.147393 which is not closely to mean value in given data set.

X5 (size of bank) has showed the values of mean and median equal to 11.80246 and 11.97486 respectively.14.29194 is the maximum value in the given data set and 9.020632 is the minimum value in the study period undertaken. Standard deviation has registered the value equal to 1.411804 which is far from the value of mean that indicates that our data set is highly dispersed from mean. This is due to the fact that I have taken in my study various size of bank.

4.2 CORRELATION ANALYSIS

Correlation analysis was used in this study to find out the relationship between variables.

Table 2.Correlation Matrix

Rupees in millions

	Y (Return on assets)	X_1 (Cost efficiency)	X_2 (Liquidity)	X_3 (Capital adequacy)	X_4 (Deposits)	X_5 (Size of bank)
Y (Return on assets)	1.000000					
X_1 (Cost efficiency)	-0.786265	1.000000				
X_2 (Liquidity)	0.079586	-0.018396	1.000000			
X_3 (Capital adequacy)	0.068807	0.096491	0.878731	1.000000		
X_4 (Deposits)	-0.052498	-0.056350	-0.675934	-0.842304	1.000000	
X_5 Size of bank)	0.287635	-0.465592	-0.499699	-0.590277	0.439796	1.000000

Cost efficiency (X_1) has the strong negative relationship with return on assets (Y) and liquidity (X_2), capital adequacy (X_3) both have weak positive correlation with return on assets (Y).And on the other hand deposits (X_4) has the weak negative relationship with the return on assets (Y) and size of the bank (X_5) has the weak positive relationship with the bank profitability or return on assets (Y).

4.3 REGRESSION ANALYSIS
Dependant Variable: ROA
Method: Least Squares
Included Observations: 92

Table 3: Regression Analysis

Rupees in millions

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X_1 (Cost efficiency)	-0.036168	0.003219	-11.23529	0.0000
X_2 (Liquidity)	-0.016913	0.006843	-2.471536	0.0154
X_3 (Capital adequacy)	0.078203	0.026112	2.994954	0.0036
X_4 (Deposits)	0.016182	0.011707	1.382240	0.1705
X_5 (Size of bank)	2.04E-05	0.000915	0.022303	0.9823
C	0.013426	0.017453	0.769244	0.4439
R-Squared		**0.67**		

Adjusted R-Squared	0.65
F	34.20
Sig. Prob (F-Statistic)	0.000
Durbin-Watson	1.99

I have selected my model for the bank's profitability on the basis of high value of R-Squared. Above mentioned table 3 represents the result of regression analysis. The value of **R-Squared** is **0.67** in my model which shows that 67% variation in the dependant variable or ROA is described by the independent variables of the commercial banks of Pakistan and 33% variation is not explained by the independent variables or internal factors. The value of **F=34.20** and is significant supporting the model relevant to the study. The value of **Durbin Watson** is **1.99** which shows that there is no autocorrelation in residuals. The other results suggest that cost efficiency has the negative significant relationship with the ROA .This negative relationship shows that when the cost efficiency ratio increases profitability of the commercial banks decreases. Syafri (2012) has showed the same result in case of cost efficiency. Liquidity shows the significant negative relationship with the dependant variable which shows high loan loss or high cost of intermediation. Inconsistent result has been found by the Ritab al Khouri (2012).Equity of the commercial banks establishes the significant positive relationship with dependant variable which means banks with high capitalization shows high profitability. Saira javaid et al (2012) has showed the same result. Total deposits are the part of my study and have been used as independent variable in my research. Deposits depict the positive relationship in my research. The same result has been showed by the Sehrish Gul, Faiza Irshad and Khalid Zaman (2011). Size of the bank shows the natural logarithm of total assets and demonstrates insignificant positive relationship with the profitability of commercial banks which means that the size of the bank does not lead any type of profitability for the commercial banks either bank is small or large. Advantage of the economies of scale is not available for the banks operating in Pakistan. The same result has been found by the Ani,W.U et.al (2012).

V. SUMMARY OF HYPOTHESIS

H1: Negative relationship exists between cost efficiency and profitability. Accepted
H2: Negative relationship exists between liquidity and profitability. Accepted
H3: Positive relationship exists between capital adequacy and profitability. Accepted
H4: Positive relationship exists between deposits and profitability. Rejected
H5: Positive relationship exists between size of the bank and profitability. Rejected

VI. CONCLUSION

In my study I have analyzed the impact of internal or managerial factors on the profitability of the commercial banks operating in Pakistan for the period of 2009 to 2012.My findings in this regards are:

- High cost efficiency (X_1) leads lower profitability. The negative value of the coefficient indicates this that negative relationship exists between cost efficiency and profitability. Its mean when profitability increases cost efficiency decreases.
- Liquidity (X_2) and profitability of the commercial banks develop the negative relationship which is clear from the negative value of the coefficient and this relationship also significant. High liquidity mean that banks have less deposits and short term borrowed fund.
- Capital adequacy (X_3) and deposits (X_4) both formulate the positive relationship with the profitability of commercial banks as clear from the values of coefficient but only capital adequacy develops the significant relationship while on the other hand deposits develop insignificant relationship which means that deposits do not lead any type of profitability for commercial banks.
- Size of the bank (X_5) and profitability (Y) show insignificant positive relationship which means that size does not lead any type of profitability for the commercial banks or banks are not attaining the advantage of economies of scale.
- Overall it is resolved that cost efficiency, liquidity, capital adequacy, deposits and size are the major internal determinants of profitability of commercial banks in Pakistan.

Further research can be done in this field by including more internal factors like loans, credit risk and bank charges and external factors as well.

APPENDIX

S.No	Banks Name
1	Habib Bank Limited
2	National Bank of Pakistan
3	United Bank Limited
4	MCB Bank Limited
5	Allied Bank Limited
6	Bank Alfalah Limited
7	Bank Al-Habib Limited
8	Standard Chartered Bank Limited

9	Askari Bank Limited
10	Bank of Punjab
11	Habib Metropolitan Bank Limited
12	Meezan Bank Limited
13	NIB Bank Limited
14	Soneri Bank Limited
15	JS Bank Limited
16	The Bank of Khyber
17	Bank Islami Pakistan Limited
18	Albaraka Bank Limited
19	Dubai Islamic Bank Limited
20	HSBC Middle East Limited
21	Samba Bank Limited
22	First Women Bank Limited
23	Bank of Tokoyo Mitsubishi

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AUTHORS

First Author – Usman Dawood ,MS Finance,University of Gujrat.Pakistan., Email.uali6529@gmail.com, +92-304-620-5466