



## Credit Risk and Profitability of Commercial Banks in Pakistan

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**Abstract** *Credit risk in the credit portfolio of financial institutions has dented their profitability. This study examines the relationship between credit risk and profitability of commercial banks in Pakistan. For this purpose three performance measures-ROA, ROE, and NIM are used by the study. To test the relationship and impact over the period 2006-2015 the study involved 28 commercial banks. During the period under investigation, the findings of the study reveal that credit risk, represented by loan loss provisions, has a meaningful effect on the profitability measures. The findings provide exciting insights into the influence of credit risk, besides other variables in the study, on the selected commercial banks' profitability inside Pakistan, for bank managers, and foremost for policymakers. The study also has policy relevance in the form of providing policymakers sufficient evidence related to the presence of credit risk in the loan portfolio of the banking sector and the ways to overcome this chronic problem.*

**Key Words:** Economic Growth, Corruption

**JEL Classification:** O47, L94

### Introduction

Failures of banks, regardless of size, around the globe, have raised an intense hue and cry from the concerned stakeholders and have convinced them to raise serious reservations related to the viability of a stable banking sector. The recent financial crisis invited the attention of policymakers to preclude and prevent the banking industry from further collapses in the form of imposing stringent regulatory prerequisites on banks. The liquidity risk, prima facie, and credit risk, to be specific, urged policymakers (in Bank for International Settlement, more specifically) to intervene with strict regulatory measures in the form of advisory reforms known as Basle III. The regulatory measures were narrowed down further, and some new measures were included with the objectives to safeguard the banking market from any further shocks. The crisis dented the profitability of the banking market around the world which later triggered unbearable social and economic losses.

The banking industry of Pakistan continues to play a pivotal role in credit expansion to the industrial units. The banking sector has experienced a significant rise in

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profitability (at around PKR 329 billion at the end of the year 2015) over the last several years. This growth in profitability was accomplished with considerable growth in deposits (at around 13 percent) and lending (at approximately 28 percent) to different sectors. Despite constant growth in deposits and lending, the credit risk has been wisely managed due to prudent risk management policies adopted by the banks under sagacious supervision of State Bank of Pakistan. Since the involvement of banks in imprudent lending to consumers, to increase credit portfolio and eventually earnings, SBP has strictly advised banks to develop objective and rigorous methods for assessing and, later, rating their borrowers not only at the time of establishing the relationship but after disbursement of loans to them regularly.

The credit risk is managed by following internationally adopted practices cascaded down from the Basel Committee on Banking Supervision (BCBS). The adoption of Basel Accords, under the direct supervision of SBP, has solidified and strengthened the standing of the banks operating in Pakistan. The Basel III framework was adopted by Pakistani banks in 2013, however, taking into account the local environment. Since the local banking business is not that much complex as the European banking sector, Basel III was considered to be easily implemented in Pakistan. A two-tier approach is employed by banks to evaluate borrowers; obligor rating, and financing rating.

Investigation of the influence of risk of the credit on Pakistan's commercial banks' profitability is of great importance for several reasons. Firstly, even though credit risk has dampened the profitability of Pakistan banks (commercial banks), and because credit quality is considered as the principal indicator of financial soundness and health of banks, provision of credit to businesses remained the primary business of the banks. Secondly, and conversely, the improvements in credit risk, despite the slight increase in non-performing loan ratio (NPLR), and infection ratios (at around 10 percent) urge to assess the effect of credit risk on the profitability of banks in Pakistan. Finally, since persistent credit risk is poised to challenge not merely banking sector stability, it challenges the stability of the economy. For this reason, it is of utmost significance to empirically investigate the credit risk effects on commercial banks' profitability operating here inside Pakistan.

To explore the effect of credit risk on the commercial banks' profitability in Pakistan is, therefore, is the prime objective of this study. For successful completion of the study annual audited accounts of the respective banks are taken into account for the years 2006 through 2015. Furthermore, to accomplish precision three different measures, namely ROA, ROE, and NIM, are employed to investigate the influence of credit risk on the profitability of banks operating in Pakistan. Credit risk is proxied by loan loss provisions because higher provisions against disbursed loans leave less space for banks to lend further or it may force banks to lend at higher rates. The findings of the study indicate that credit risk negatively affects commercial banks' profitability operating within the national geographical boundaries. The study has important policy implications. For instance, firstly, banks are required to mitigate credit risk since it is negatively influencing banking sector ROA, ROE, and NIM, although to varying levels. Secondly, and finally, the persistent credit risk, proxied by loan loss provisions, is identified as a major challenge for banks in the medium to long term period because credit risk remained a mainstay in lower profitability earned by the banks.

The rest of the paper is structured as follows. The next section briefly explains the capital regime in Pakistan banking sector and the risk management principles imposed

on banks by the country's central bank. Section three details literature related to credit risk and its influence on commercial banks' profitability. Section four discusses and explains econometric specification and data sources. Section five discusses the results of the study. Section six concludes and provides the policy implications of the study.

### **Capital Regime and Risk Management Practices- An Overview.**

Risk management has become a chief concern in attaining both financial and economic stability for economies ([Ferguson, 2003](#)). The Basel Committee on Banking Supervision (BCBS hereafter) intervened and prevented capital standards of banks from further erosions and increased efforts to achieve convergence whilst measuring capital adequacy. Resultantly, a consensus on the common weighted approach was reached whilst quantifying both on the balance sheet and off-balance sheet risk ([Basel, 2013](#)). The Basel accord during its early period aimed to serve two imperative roles. Firstly, it aimed to improve the financial soundness and health of the banking system around the globe by encouraging banks to improve and enhance their capital standards. Secondly, and more importantly, it intended to encourage fair competition among banks ([Jackson et al, 1999](#)). Basle I addressed credit risk present in banks' assets. Additionally, it had two-tier capitals. A group of G10 agreed to apply Tier I capital to internationally active banks whereas Tier II was designed to address the domestic banking industry ([Maurice, 2004](#)). The accord required banks to maintain 8 percent capital against risk-weighted assets.

The regulatory measures are undertaken by State Bank of Pakistan comply with internationally recognized regulatory practices from the time when the state triggered massive privatization of banks in the 1990s. After the denationalization initiative in the 1990s, the banking sector experienced a dramatic increase in the number of both domestic and foreign banks. To ensure effective management of credit risk, SBP issued its first instructions related to the implementation of the Basle Accord in 1997. SBP has advised banks to implement two sorts of capital standards; minimum capital requirements (MCR) and Capital Adequacy Ratio (CAR). No bank is permitted to commence its banking operation in the country unless it meets minimum capital requirements as imposed by the banking sector regulator. To commence banking operations banks are required to hold PKR 10 billion as MCR. Additionally, banks are required to maintain CAR equal to 10 percent regularly.

To comply with international capital standard practices SBP developed a Roadmap to implement Basle Accords in the banking market of the country by taking on board all concerned stakeholders. Before the implementation of Basle II, for example, SBP surveyed whether banks have the capacities to meet the capital requirement during the planned time. The SBP also conducted QIS (Quantitative Impact Study) of Basle II and subjected the banks to uniform capital requirements whilst calculating credit risk for reason that the absence of external ratings may attract 100 percent risk weightage due to 'unrated claims'. The banking sector of Pakistan employs a Basic/standardized approach to calculate credit risk whilst they enjoy discretionary power related to the employment of Advance approaches for calculation of credit risk.

Apart from these compliances SBP in 2013, in the wake of the financial crisis, issued instructions related to the implementation of Basle III in the banking sector of the country. The instructions aimed to incorporate necessary Basle III measures related to core capital, leverage, and conservation buffers into the local banking market. Cognizant

of the banking environment of the country and due to the absence of hybrid capital instruments, as common in globally active banks, the relevant measures of Basle III were taken into consideration by the country's central bank. The full implementation plan is shown in Table 1.

State Bank of Pakistan, as banking sector supervisor, and banking industry, under the supervision of SBP, therefore, comply with Basle Accords. The banking sector regulator, however, is still pondering the relevance of other regulatory measures of Basle Accords to the country's banking market. For mitigation of credit risk and to ensure the active supervision of borrower's banks have developed separate credit departments manned by professionals at branches and divisions/ regional offices of the respective banks. The credit policies require banks to conduct onsite inspections before disbursement of loans and during the course of business as and when required regularly.

## **Literature Review**

The problems of credit risk arising from failures to pay loans are mostly faced by financial institutions in the financial sector ([Kargi, 2011](#)). Similarly, commercial banks around the world play a significant role as financial intermediaries in supplying credit to different sectors operating in an economy ([Shanmugan & Bourde, 1990](#); [Campbell et al., 1993](#); Greuning & Bratanovic, 2003; [Sufian & Parman, 2009](#)). Besides playing an important role as a liquidity provider and in facilitating both borrowers and lenders ([Kashyap et al., 1999](#)), banks regularly evaluate risk at the time of lending to improve the performance of their loans ([Amidu, 2014](#)). A large stock of literature suggests different factors for problems faced by banks ([Chijoriga, 1997](#); [Brownbridge & Gockel, 1998](#)). The study of [Liuksila \(1996\)](#) cites asymmetry for the poor quality of the loans for reason that the information the existence of information asymmetry cannot distinguish good and bad borrowers which, eventually, results in piles of NPL (Patti & Gobbi, 2003).

Credit risk management has been deeply discussed in Basle II. Basle II has developed and devised appropriate methods to deal with risk emerging from the credit portfolios of the financial institutions. Effective management of risk related to credit portfolio not only enable banks to attain higher profitability from their business activities, they, more importantly, play a significant role in ensuring systemic stability as well as efficient allocation capital ([Psillaki et al., 2010](#))

The management of credit risk, to accomplish optimal profitability, has remained as a chief concern for banks because proper risk management enables financial institutions to allocate resources based on the tradeoff between risks of credit and return ([Ogboi and Unuafe, 2013](#)). The mismanagement of credit risk and imprudent credit policies contribute negatively to the profitability of the banks. Prudent management of credit portfolio, therefore, remains an issue of great importance not only for banks' managers but for the policymakers. Greuning and Bratanovic (2003) suggest sound processing at the time of disbursing the loan, maintenance of adequate and appropriate credit administration backed by sound and strong monitoring, and control over credit risk as important factors in credit risk management. Additionally, Heffernan (1996) and [Derban et al. \(2005\)](#) suggest banks need to strengthen and adopt strong credit scoring techniques and screening procedures, respectively and that the credit scoring, if valid and meaningful, must show changes occurring as a result of loan losses ([Santomero, 1997](#)).

[Cecchetti and Schoenholtz \(2011\)](#) identify six different financial risks faced by banks during their business activities, they are; risks emerging from massive withdrawals by depositors (known as liquidity risk), risk arising from the inability of the borrowers to honor their obligations (credit risk, in other words), risk related to interest rate (interest rate risk) and finally, risk related to operations of the bank (or operational risk). However, because banks derive their profitability from the loans they disburse to investors on interest rates, because both these are directly connected ([Drehman et al., 2008](#) in [Kolapo et al., 2012](#)).

Among these, a higher proportion of NPL, later resulting in credit risk, contributes most to bank failure. For instance, the study of [Umoh \(1994\)](#) indicates that the presence of a high proportion of NPL (or bad loans) leads to ineffective and mismanagement of credit policy which subsequently negatively influences the profitability of the banks. The findings are supported by the study of [Stuart \(2005\)](#) which finds that the bad debts on balance sheets of Nigerian Commercial Banks were as high as 35 percent.

Because the impact of credit risk, in contrast to other associated risks, is considerable for it poses direct solvency problems for the financial institutions ([Richard et al., 2008](#); [Chijoriga, 2011](#)), the presence of high-risk loans leaves banks with large stocks of unpaid loans, besides negatively affecting the profitability of the financial institutions ([Miller & Noulas, 1997](#)). Similarly, any variation in the performance of banks is contingent on credit risk variation and the subsequent change in the credit portfolio health ([Cooper et al., 2003](#)). A study on Indonesia, Malaysia, Japan, Thailand, and Mexico by [Ahmad and Ariff \(2007\)](#) state that the presence of high proportions of NPLs resulted in the closure of many financial institutions in Indonesia and Thailand.

Investigating the joint influence of liquidity and credit risks, respectively, on the largest banks' profitability in Indonesia by [Ruziqa \(2013\)](#), confirmed that risk of the credit, contrary to the risk of liquidity, negatively influence the profitability of the stated country largest banks. Moreover, by exploring the credit risk and profitability nexus of banks, [Felix and Claudine \(2008\)](#), confirmed in their respective research study that the two profitability measures i.e. ROA and ROE negatively impact the NPL ratio of the banks, thereby leading to lower profitability. Simultaneously, a growth of 100 percent in NPL reduces ROA of banks in Nigeria to 6.2 percent ([Kolapo et al., 2012](#)). The study further indicates a reduction in profitability of banks to around 0.65 percent when the provision grows at 100 percent, but an increase in profitability of around 9.6 percent is experienced when total loans and advances grow at 100 percent. A similar study by [Kodithuwakku \(2015\)](#) on Sri Lankan banks also shows interesting findings. For example, the study finds that the ROA of banks is reduced to around 13.75 percent and 1.01 percent when the NPL and provisions against NPL, at the same time, grow at 1 percent respectively. The findings also show that the ratio of provisions to a total asset is positively related to the profitability of banks. by showing an increase in ROA at around 0.103 percent when the provisions increased by 1 percent mark.

## **Methodology and Econometric Specification**

The prime aim of this research paper is to empirically examine the nexus between credit risk and the selected banks' profitability in the context of Pakistan. To realize the set objectives the study takes into account annual audited balance sheets and the income statements accounts extracted from annual reports published on the official websites of the respective banks(selected Pakistan commercial banks) and, where necessary, the

State Bank of Pakistan official website and Business Recorder has been accessed. The study spans over ten years, from 2006 through 2015, and 28 banks are considered for analysis. The period is very appropriate for testing the relationship because the banking sector experienced major ups and downs in the credit portfolio during this period. To achieve greater precision in the relationship, the relationship will be examined from three different perspectives, by employing three different profitability measures- ROA, ROE, and NIM, respectively. The risk of credit risk is measured by Loan Loss Provisions (LLP). The explanatory variables show the influence or impact on dependent variables and include LLP, deposits, capital ratio, loan ratio, and bank size (proxied by total assets of the respective bank).

### Econometric Model

Inspired by the analysis of Menicucci et al. (2016) this study follows the model of Menicucci et al. (2016). A set of dependent variables and independent variables represents the econometric model divided into three equations replaced by three performance measures. The three equations follow:

$$ROA_{it} = \alpha_1 LLP_{it} + \alpha_2 CR_{it} + \alpha_3 LR_{it} + \alpha_4 DPR_{it} + \alpha_5 SZ_{it} + \varepsilon_{it} \quad (1)$$

$$ROE_{it} = \beta_1 LLP_{it} + \beta_2 CR_{it} + \beta_3 LR_{it} + \beta_4 DPR_{it} + \beta_5 SZ_{it} + \varepsilon_{it} \quad (2)$$

$$NIM_{it} = \gamma_1 LLP_{it} + \gamma_2 CR_{it} + \gamma_3 LR_{it} + \gamma_4 DPR_{it} + \gamma_5 SZ_{it} + \varepsilon_{it} \quad (3)$$

The above, three equations measure the profitability of commercial banks in Pakistan. Hence the study based its analysis on three different models to empirically examine/measure the banks' performance in Pakistan. It is worth mentioning that each of the models comprises a different measure of profitability (dependent variable). Three indicators, namely, ROA (Return on Assets), ROE (Return on Equity) and NIM (Net Interest Margin), indicates three different performance measures, which are used to measure the performance of bank i in period t. On the other hand LLP, CR, LR, DPR, and SZ are Loan Loss Provisions, Capital Ratio, Loan Ratio, size and Deposit of the bank, are used as key determinants of banks profitability. The subscript i represents individual bank and t denotes time whereas the  $\varepsilon$  in all three equations denotes a normally distributed error term. The description of variables is provided in table 1.

**Table 1.** Variables Description

Description	Calculation
Return on Asset (ROA)	Net Income/Total Assets
Return on Equity (ROE)	Net Income/ Total Shareholders' Equity
Net Interest Margin (NIM)	Net Interest Income/ Earning Assets
Loan Loss Provisions (LLP)	Loan Loss Provisions/ Total Loans
Capital Ratio (CR)	Equity/Total Assets
Loan Ratio (LR)	Net Loan/Total Assets
Deposit Ratio (DPR)	Total Deposit/Total Assets
Bank size (SZ)	Log of Total Assets

## Results and Discussion

### Descriptive Statistics

Summary statistic of the variables employed in the study is given in table 2. For

exploring the association between credit risk and profitability of selected Pakistan commercial banks has taken into account two sets of variables, where ROA, ROE, and NIM are the dependent variables, and LLP, LR, DPR, CR, and SZ are the explanatory variables respectively. The descriptive statistics of all variables are explained with the help of Mean, Standard Deviation, Minimum, and Maximum. The data have been extracted from the respective banks' yearly audited reports, and for the analysis purpose, the extracted data have been expressed in Pakistani Rupees (PKR or Rs.).

Table 2 shows the average value of ROA, ROE and NIM as 0.6 percent, 3.6 percent, 3.5 percent, Standard Deviation at 0.018, 0.294, 0.017, with minimum value at -0.072, -2.7, -0.016 and maximum value at 0.053, 0.463 and 0.140 respectively. The negative values of the performance measures indicate commercial banks experienced massive losses during the period of analysis. Another possible reason for the existence of wide variations in minimum and maximum is the presence of the largest banks on the sampled data set. The table shows that the average value of LLP during the period under review remained at 2 percent with as low as -0.053 and as maximum as 0.2. Further, the average LR remained at 44 percent which manifests the presence of a huge loan portfolio on banks' balance sheets, showing the presence of credit risk in the banking sector. The minimum value and maximum value of LR remained at 0.135 and 0.73, respectively. The high average value of deposit ratio at 71 percent shows that banks hold huge liabilities to their depositors. This high ratio also suggests that banks are either reluctant to utilize their deposits or they are unable to invest them due to unfavorable external environment. The average capital ratio at 13 percent indicates that banks in contrast to total assets held around 13 percent in equity. This ratio remained as low as 1.2 percent and as a maximum of 59 percent. Banks' total assets are taken into account to represent the bank size, The mean value of size during the period of analysis remained at 11.8 percent with the lowest value at 8.3 percent and the highest value at 14.6 percent, respectively.

**Table 2.** Descriptive Statistics.

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
ROA	0.006	0.018	-0.072	0.053
ROE	0.036	0.294	-2.688	0.463
NIM	0.035	0.017	-0.016	0.139
LLP	0.018	0.030	-0.053	0.197
LR	0.436	0.117	0.135	0.728
DPR	0.712	0.168	0.015	0.908
CAPR	0.129	0.097	0.012	0.588
SIZ LOG	11.815	1.343	8.300	14.569
SZ	285090	351237	4025	2124898
N=280				

### **Correlation Analysis**

The correlation matrix (Table 3) presents mixed results for all variables of the study. The correlation matrix shows mixed results about the statistical significance as well as the correlation of variables. Column 1 in Table 3 shows that except for loan ratio and size, the loan loss provisions, deposit ratio, and capital ratio are negatively affecting the banks(selected banks) ROA. However, all variables in the column, except the loan ratio



and capital ratio are statistically significant, with size being statistically significant throughout the table. Furthermore, all variables, except capital ratio and size, are correlated with ROE of the banks during the period of study, with all variables, except loan loss provisions and size, being statistically insignificant. The table shows that loan loss provisions and deposit ratios are inversely correlated to the NIM of the banks over the period 2006-2015 whereas loan ratio, capital ratio, and size are positively correlated to the NIM. Regarding statistical significance, the table shows that LLP, LR, and CR are statistically insignificant whereas DPR and SZ remain statistically significant during the period of empirical investigation of this study.

**Table 3.** Correlation Matrix.

Variables	ROA	ROE	NIM	LLP	LR	DPR	CR	SZ
ROA	1							
ROE	0.735***	1						
NIM	0.442***	0.383***	1					
LLP	-0.485***	-0.480***	-0.084	1				
LR	0.030	-0.041	0.023	-0.150**	1			
DPR	-0.128**	-0.054	-0.105*	-0.093	-0.095	1		
CAPR	-0.051	0.032	0.006	0.069	-0.137**	-0.540***	1	
SZ	0.321***	0.210***	0.173***	-0.143**	0.100*	0.3040***	-0.471***	1

Note: \*\*\* shows Significance level at 1 %, \*\* at 5 % and \* at 10 % level of significance

## Regression Results

The study uses a fixed effect panel model because it is more appropriate to use (Hausman, 1978) than a random effect. Panel data method is useful to deal with heterogeneity because it is more effective, the data provide sufficient information, the variability is higher with low collinearity or no collinearity, and, finally, because of the higher degree of freedom as well as efficiency. All models have low explanatory power, however, according to Gujarati (2009), it is not solid and meaningful evidence to support the goodness of the model.

The regression results in table 4 show conflicting impacts of the independent variables on the performance measures. Loan loss provisions (LLP), used as a proxy for representing credit risk, negatively affect all the performance measures, suggesting so much for policymakers as well as the banking sector itself. The higher loan loss provisions, without any doubts, dent the profitability of the banks in the medium to long term. The higher allocation of provisions against loans and advances suggests that banks have to either make higher provisions to offset emerging negative consequences for the banks' balance sheets or it has to put a cap on further lending to borrowers. Since banks derive a greater part of their income from interest-based activities, the provisions consequently impact the earning capabilities of the banks. Our results about loan ratio (LR) reveals that it is positively and significantly affect the ROA and NIM at all level of significance but its relationship with ROE is proved positive and insignificant. This shows that additional loans raise the chances of succeeding higher profitability, but the results of table 4 show that in the last model (in NIM case) the relationship is



insignificant, therefore the effect is not conclusive. The positive effect of loan ratio on the performance measures supplements the former one because banks make higher provisions only when there is a parallel increase in loan ratio. Although higher loan ratios bode well for the financial performance of the financial institutions, it, on the other hand, attracts massive loan provisions to preclude any mishap or stress on the profitability. The loan loss provisions, except in model 3, and loan ratio, except in model 2, are statistically significant during the period under investigation. These results are consistent with the [Menicucci and Paolucci \(2016\)](#) study which was conducted by them on measuring the performance of European commercial banks.

Deposit ratio has mixed impacts and that both situations are possible. For example, in the first two models- ROA and ROE, in table 4 show that the deposit ratio negatively affects ROA and ROE of the financial institutions. This is possible because the higher (idle) deposits held by the banks have costs; costs in the form of losing investment opportunities and bearing the cost of 'time value of money'. One possible reason is that banks keep high proportions of deposits because they are reluctant to invest due to unknown uncertainties or they tend to avoid risky investment activities. Another probable reason for banks to keep higher deposits at disposal is the unpredictable nature of the domestic market because the business environment is too often engulfed with multiple sorts of crises. These scenarios, eventually, lead to lower earnings of the banks operating in the country. The positive deposit ratio in model 3- NIM, indicates that higher deposits result in greater NIM for banks. Because banks' earnings are mostly derived from interest-related business activities, the presence of higher deposits plays an instrumental role in positive net interest margins earned by the banks. The monopolistic nature of competition in the banking sector makes it possible because in monopolistic competition banks having high proportions of deposits at their disposal exercise their competitive edge by selling their products, which are not offered by their rivals in the banking market, at relatively higher prices while, at the same time, paying lower to the depositors, thus enabling banks to earn higher margins on their products. Deposit ratio is statistically significant in the first model whereas insignificant in the latter two models of table 3 of the study.

Furthermore, the regression results reveal that the variable namely capital ratio (CR) is positively and significantly linked with banks' profitability in all three models. It means that the leading and well-capitalized commercial banks in Pakistan experience higher returns, and therefore they are facing lesser risks of going bankrupt. Hence the variable is statistically significant in the first two models- ROA and ROE at a 1% significance level, but the stated variable is significantly as well as positively related with NIM at a 10% significance level in the last model. On the contrary, lower capital ratios in banking imply greater leverage and risk, and then higher borrowing costs. Therefore, it is reasonable that the profitability level should be higher for better-capitalized banks. These empirical results are consistent with previous studies of [Pasiouras and Kosmidou \(2007\)](#), [Sufian and Chong \(2008\)](#), [Saeed \(2014\)](#), and [Menicucci and Paolucci \(2016\)](#). The statistically significant capital ratio positively impacts performance indicators, suggesting higher profitability when there is a greater capital ratio. Banks that rely less on debt financing and depend more on the internal mode of financing (equity financing) tend to garner considerable profitability for their institutions. In other words, the cost of external financing is lower when the financial institutions are well-capitalized, consequently, enabling banks to earn massive profits. Simultaneously, the size of the banks too

Table 4. Regression Results

Variables	Coefficient	S.E	Tratio	p-ratio
<b>Model 1. Dependent Variable: ROA</b>				
Constant	-0.007	0.019	-0.36	0.718
LLP	-0.257***	0.024	10.87	0.0
LR	0.025***	0.008	2.97	0.003
DPR	-0.032***	0.009	-3.48	0.001
CR	0.024**	0.010	2.38	0.018
SZ				
N=280				
R <sup>2</sup> = 0.4433	0.002	0.002	1.49	0.138
F(5,247)=39.42				
P(F)=0.000				
<b>Model 2. Dependent Variable: ROE</b>				
Constant	0.171	0.404	0.420	0.673
LLP	-4.549***	0.490	-9.290	0.00
LR	0.007	0.173	0.040	0.966
DPR	-0.307	0.190	-1.620	0.107
CR	0.548***	0.209	2.620	0.009
SZ				
N=280				
R <sup>2</sup> = 0.3308	0.008	0.031	0.260	0.797
F(5,247) = 24.42				
P (F)=0.000				
<b>Model 3. Dependent Variable: NIM</b>				
Constant	-0.053	0.024	-2.240	0.026
LLP	-0.024	0.029	-0.830	0.405
LR	0.029***	0.010	2.830	0.005
DPR	0.012	0.011	1.080	0.280
CR	0.024*	0.012	1.970	0.050
SZ				
N=280				
R <sup>2</sup> =0.0855	0.005***	0.002	3.000	0.003
F(5,247) = 4.62				
P (F) =0.000				

**Note:** \*\*\*shows Significance level at 1 percent, \*\* at 5 percent and \* at 10 percent level of significance.

influences performance indicators of the study positively. Financial institutions with large assets and more branches in the market have more opportunities than vice versa.

## Conclusion

Banks continues to play pivotal role as intermediaries in supplying credit to a different sector of the economy. Besides its role in the financial system, banks have been a major source of finance for the government in terms of meeting fiscal needs. This has offered banking market an opportunity to park their monies in safer avenues as the investment

is risk-free and sovereign in nature. The provision of credit to the government has, albeit, increased and sustained profitability for banks, it, on the other hand, has implications for the private sector. For example banks are left with less money for the private sector because it is obliged to first meet government needs and then the private sector. It is, therefore, not good for banks in the long term as lending to the government is quite cheaper than it lends to the private sector at considerable rates. These developments and priorities in lending have also changed nature of credit market. Stated otherwise, the banking sector credit portfolio to the private sector (on aggregate basis and as compared to previous years) too has experienced a downward trend, with plummeting infectious ratios (to around 10 percent at the end of year 2016). It is, for these reasons, immensely important to investigate whether the risk of the credit, measured by LLP, has any significant impact on the banks (selected 28 commercial banks of Pakistan) profitability measures or not.

The results attach great significance to the LLP as it negatively impact performance measures of the banks over the period under investigation. The negative impact of the credit risk on profitability (financial gains) of the financial institutions is suggestive of revisions in credit policies by the management of the respective banks. The positive capital ratio indicates that well-capitalized banks in the country are faced with lower cost of external financing; hence they have better opportunities to translate lower costs into higher profitability over the times. Loan ratio positively affects the profitability of commercial banks operating inside Pakistan. The inverse linkage between deposits (in the first two models) and profitability indicates that banks should find new ways and avenues for the high ratio of deposits at their disposal. Finally, size positively influences ROA, ROE and NIM of commercial banks, showing that size greatly helps banks in achieving high proportions of profits.

The positive influence of certain variables of the study on the profitability of Pakistan commercial banks provides interesting insights. Firstly, the positive influence of capital, loan ratio and size show successful operations of the financial institutions in the economy. Banks however need to focus on strengthening the capital of the banks to raise less expensive capital that can be, subsequently, translated into massive sustained profitability. The positive loan ratio can be further strengthened and reinforced with the sound processing of loans, prudent management of credit portfolio and making appropriate allocations over the course of the relationship. Although banks' assets base has expanded at decent pace over the period under investigation, they can strengthen it further by branching out and fulfilling their responsibility of 'reaching the unbanked populations' as envisioned in their annual reports.

The study also has policy relevance. Policy makers, for instance, should ensure micro-prudential regulations are sound, fully implemented and strictly followed by the banks. Further, policymakers need to focus on the credit portfolio of the financial institutions due to existence of negative impact of loan loss provisions and presence of high loan ratios on balance sheets of the banks. It is appropriate to say that the maximization of risk-adjusted profits with highly supervised credit portfolio by the banks' managers as well as by banking sector regulator is of paramount significance in ensuring a competitive banking sector. Similarly, due to relevance of the variables taken into the study with commercial banks profitability inside Pakistan, sound knowledge of these variables is of utmost significance both for policymakers, management of the banks, and all concerned stakeholders.

Finally, the study provides important future directions so that the banking sector performance can be further improved and strengthened, to the greater good of the society, in particular, and economy, at large. Firstly, to attain precision relating to credit risk, individual bank study should be conducted so that more risky banks can be identified and distinguished from the banks less risky banks because banks are operating under the same regulatory environment and laws. Secondly, it should be explored and tested whether the credit risk is more common in large, medium or small-sized banks. Such studies will help central banks and the associated bodies to identify problem banks so that all relevant remedial measures can be taken to safeguard safety of the banking market and ensure a stable financial system. Thirdly, it is of utmost relevance to investigate whether the credit is concentrated in a few sectors and subsequently, if it holds true, measure the associated cost of default and credit risk of these concentrated loans. Finally, future studies should take into their studies the regulatory measures and investigate whether the regulations are culpable for the presence of high deposits on balance sheets of the financial institutions. This is because SBP, in prudential regulations, has put a cap and limit on exposures to investors of various nature (for example, among others, individuals/related party/group).

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