## Credit Risk and Financial Performance of Banks: Evidence from Pakistan

Muhammad Sadiq Shahid[1]        Faid Gul[2]        Khawar Naheed[3]

### Abstract

*This paper examines the relationship between credit risk and financial performance of commercial banks of Pakistan. The crucial function of banks is to manage and deal with their credit risk to minimize the credit losses and to maximize profit. For this purpose, Return on Assets (ROA), Return on Equity (ROE), Non-performing Loans (NPL) and capital adequacy ratios have been used. The data has been collected from 24 banks operating in the Pakistan for the period 2010-2017. This study evidenced significant relationship of credit risk through (leverage, non-performing loans and provision for facilities ratios) on the financial performance of banks. The result showed that credit risk is the main parameter for the ascertainment of financial performance of banks. The findings of this research proved that risk regarding credit greatly affects the financial performance of Pakistani commercial banks. Credit risk helps management find systematic solutions for the financial sector that can enhance the performance of banks.*

*Keywords:* Credit risk, Capital adequacy, ROA, ROE, NPL ratio.

### Introduction

Financial experts can pinpoint multiplicity of risks including political, foreign-exchange, market, interest-rate, credit, operational and liquidity in a financial institution. These risks illustrate some decisions that are not well scrutinized when they are made. An example of these decisions is the inappropriate approval of a loan and its consequence i.e. non-payment of loan by the borrower resulting in non-performing loan.

Viewing from bank stakeholders' standpoint, it is strongly required to foresee the intensity of risks, particularly risk regarding credit worthiness of the borrower. Banks are facing the problem of finding an acceptable way of reducing this risk. This problem can be mitigated through rigorous screening in the loan approval procedure or a need to change the by-laws in accordance with international standards of credit provision. Banks can reduce the risk of default by holding sufficient cash balances, but this also reduces the amount available for loan advances and hence can affect banks' profitability. Moreover, banks have to operate within narrow margins to remain safe from credit risk problems and still maintain a reasonable profitability level to pay its stakeholders.

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[1] Bahauddin Zakariya University, Multan, E-mail: sshahidmalik@bzu.edu.pk

[2] National University of Modern Languages, Islamabad, E-mail: fgul@numl.edu.pk

[3] Bahauddin Zakariya University, Multan

Therefore, bank management helps to strike the factual balance of rigorous evaluation of loan proposals to reduce credit risk while earning sufficient profit to compensate the stakeholders including depositors and stockholders. Mitigating credit risk and earning sufficient profits results in increasing stockholders' wealth is often cited as the primary goal of the management of a firm.

More or less in every decision, bank management estimates its impact on the expected rate of return and risk. Efficient risk strategy is essential for a successful and stable organization. Therefore, risk plays a vital role in the banking system, and both the banks and the banking regulators are accountable for controlling risks related to banking activities to avoid financial and economic crises.

Credit risk is the possibility/chance that the real amount of interest or income on loans can be lesser than the expected amount of interest or income. Many studies express the meaning of credit risk; the study of Avery *et al.* (1996) has explained that when a borrower is unable to pay his debt partially or fully on the prescribed time period, it is referred to as credit risk. The composition of credit risk includes imperfect fund levels by the financial institution, unsuitable standards of scrutiny for borrowers, fluctuation in the rate of interest, pitiable administration, incomplete by-laws, inappropriate level of paid up capital and cash reserves, fixed advances, a high number of certificates required for starting banking business, unprivileged advancing, unsuitable credit standards, state snooping, lack of extensive observation by central bank, etc. Now, if the bank wants to reduce or curtail the credit risk, then all of the above blunders must be eradicated or reduced with the passage of time. These measures can include the exchange of borrower data between banks, equilibrium of inflation and interest rates, improvement in the size of deposits, leading to an increase in the lending and control of rate of non-performing loans. Consequently, it will also help increase the profit levels or other major income source of the business. Since advancing credit is the primary activity of generating income in banking sector, therefore credit risk is the most significant risk faced by banks. Consequently, credit risk is very important for profit enrichment and reducing credit cost associated with risk (Li & Zou, 2014).

Banks face credit risk, which has evolved through several other types of risks including operational, legal, market and liquidity. Advancing credit is the primary source of income generation in the banking sector, resulting in the credit risks faced by the banks. Consequently, credit risk is an essential part of profitability enhancement which reduces the cost of credit risk (Li & Zou, 2014). In banks, credit risk strategy is essential for advancement of turnover, financial performance and survival of firms.

The banking sector, like other financial sectors, has implemented several measures for managing credit risk. These measures are either in the form of credit scoring

systems, adoption of international credit regulatory measures or benefitting from the experience/expertise of the seniors in the credit department. However, there is no guarantee that these measures will completely eliminate credit risk and bring benefits in shape of enhancement of financial performance or profitability. Necessary steps, however, should be taken for the improvement of the existing situation. A universal credit risk model may not be effective across the world as demographic and cultural aspects of countries vary. As these factors play a vital role in credit risk, therefore, there is a need to adopt measures keeping in mind the norms and values of specific cultural. In this way, commercial banks may be able to implement credit risk policies with necessary modifications to cater to the local needs. This practice may assist in minimizing credit risk that will be a source of enhancing credibility and profitability of banking sector.

Rajan (1994) suggested that there is a need to relax the credit policy when the bank has to speed up the process of advancing loans. If the credit standards are tight, then there will be no lending process and it will threaten the profitability and financial performance. Now, the question is whether the credit rehearsal will improve the bank's profitability and whether it will be significant enough to result in an increase in the stockholder's wealth. There are two counter, though plausible, viewpoints on credit risk and bank performance. Therefore, a balanced approach is required to avoid the dangers of advancing credit to risky borrowers but to also avoid rejecting good loan proposals.

There are many theoretical arguments used to curtail/minimize the credit risk in the financial institutions. The interest rate theory is commonly used to manage the credit risk. It is because an extraordinary rate of interest will lead to upper level of risk that causes the non-payment of loans. The time period of interest rate theory is also the main reason of credit risk' because the longer the term of loan, the higher the risk, and vice versa.

The composition of portfolio theory also can be used for credit risk purpose. Banks can reduce credit risk by diversifying its credit across different borrowers in terms of geography, age group, gender, income level, occupation, individual vs. institutional, etc. Sometimes, a syndicate loan method is preferred for large amounts of lending. In this way, the credit standing of the borrower is not only judged by one bank but, also through mutual partners as well. It is a universally accepted principle that when financial institutions are managed by well-equipped professionals and experienced managers, there are less chances of wrong selection. For instance, when a loan proposal is evaluated by several managers, there are less chances of extending loans to low credit borrowers, thus leading to a decrease in non-performing loans and increasing the banks' profitability.

In Pakistan, the banking sector faces obstacles due to various reasons, but the foremost problem of Pakistan's banks' is related to the credit risk. The major source of

credit risk arises out of loans, as they are inactive in trading derivatives. The primary function of banks in this regard is to control the credit risk to avoid losses, and to maximize the financial performance (ROA & ROE). Therefore, the main purpose of this research is to study whether there is a significant relationship between the credit risk and profitability of Pakistan's commercial banks.

The main objective of this study is to analyze the effect of the credit risk dimensions (capital adequacy, non-performing loans, credit facilities, net facilities, total facilities and control) on banks' financial performance operating in Pakistan.

## Literature Review

Credit risk is the most important risk faced by the financial institutions, particularly by banks. It is defined as the probability that borrowers will not succeed in fulfilling their obligations on the due date (on the terms and conditions agreed in the loan agreement). It is compulsory by law for all the banks to maintain loan loss reserves to protect from such losses. Credit risk arises from the debtor's inability to bear out his/her obligations or the loan in its financial capacity that can result in an economic loss for the bank. The loss reserve should be equal to the whole or a portion of the loan amount. The loss results from a reduction of loan portfolio value and deteriorates actual or perceived loans quality.

For banks, credit risk is the deviation from the value of losses (actual and expected), due to loan. It is the risk of deterioration of the financial position of the borrower. Credit risk arises from loan agreements signed between a bank and individuals, corporations, financial institutions or state. Banks are exposed to credit risk when they trade in various financial instruments such as bank receipts, inter-bank transactions, exchange rate transactions, future, forward contracts, swaps and options contracts. The credit risk can be categorized according to the reasons of the failure. For example, the failure may be due to the country in which the bank has the exposure or as a result of the problems faced in the performance and completion of the transactions.

### Credit Risk Structure

Among the main obligations of the BOD[4] of the banks is to approve strategic plans, policies, and rules that are concerned with the credit risk, depending on the vision and mission of the bank. These rules must be periodically revisited at least once every financial year. The purpose of these rules and policies is to focus on minimizing the level of credit risk, maintaining a minimum level of paid up capital, critical review of credit risk practices, and an evaluation of expertise and knowhow of those responsible for the credit risk. A sustainable credit risk bank strategy contains plans for sanctioning loans to customers (segments and products), quality of its loan portfolio, financial

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[4] Board of Directors

factors, economic cycles, geographic location, credit terms, and target market based pricing strategies, etc.

Many researchers have tested the effect of credit risk on the profitability of the organization. The study of Hakim and Neaime (2001) checked the relationship of the credit risk, the liquidity and the paid-up capital of banks with the profitability of Egyptian and Lebanese banks. The study found that banks have formulated certain rules and regulations and maintained comprehensive framework the control and management of the credit risk to perform better. Njanike (2009) established that a fruitless credit risk system leads to poor performance. Hosna *et al.* (2009) also came up with similar findings, through using measures for CAR, credit risk and financial performance. However, Alshatti (2015) gives a different opinion on factors like credit risk, financial performance and profitability by incorporating other factors.

Banks generally appoint a committee that manages its credit risk, and is also accountable for executing the rules, policies and critical levels of disclosure of credit risk that are sanctioned by the concerned BOD. It assesses the credibility of bank staff members who are concerned with implementing the policies formulated and sanctioned by the board.

**The Basel Committee**

Basel Committee has identified the areas where banks need to ensure the practice of full and fair transparency in their accounting policies and practices, credit risks, credit quality and earnings. This committee monitors banks for credit risk transparency. Basel II has established regulations about the level of capital adequacy for financial institutions to cover potential losses.

Credit risk explains the possibility of damages arising as an outcome of the borrower's failure to pay the due amount (principal or interest) in compliance with the loan agreement. Credit risk management refers to the procedures which mitigate these non-payment practices, ultimately reducing the chance of bad debts or non-performing loans arising for the banks.

There are studies that have evidenced that credit risk significantly affected financial performance of banks at equitable level (Aduda & Gitonga, 2011; Aruwa & Musa, 2012). Kolapo *et al.* (2012) determined the above-mentioned impact by ROA. In the same vein, Poudel (2012) discovered credit risk's effect on the profitability of banks. Moreover, Musyoki and Kadubo (2012) also concluded that the credit risk factors influenced the profitability of the banks. The study established that all the risk factors had a negative effect on the profitability of the banks; conversely the non-payment of loans was the best interpreter of the profitability's movement, and not the credit risk measures. Nawaz and Munir (2012) opined that the credit risk had a significant impact

on the bank's financial performance. They suggested that credit policy makers should pass their reservations to the loaning department about the sensitivity of credit risk impact. Abdelrahim (2013) indicated that running the finance facility and the magnitude of the bank also mattered when sanctioning the advances that significantly impacted the credit risk.

Adeusi *et al*. (2013) explored the impact of the credit risk dimensions i.e. the capital asset ratio, and unsecured loan effect on the profitability of banks. Ogboi and Unuafe (2013) indicated that a good risk policy and adequacy of capital has positive relation with profitability. Abiola and Olausi (2014) also concluded the same notion that the financial performance of banks is affected by the credit risk dimensions. Singh (2013) also gave an affirmative view point about the relation between the real credit risk and maximizing the bank's profitability. Li and Zou (2014) also indicated that the ratio of non-performing loans had a negative effect on the financial performance of banks, measured through ROE and ROA.  Ndoka and Islami (2016) described that the main source of the Albanian banking system's failure as poor credit risk because they were not hedged in routine banking business. Their research study devised a systematic resolution of credit risk in order to increase the profitability of banking sector.

Alshatti (2015) concluded that credit risk depicted significant impact on the financial performance of Jordanian commercial banks. It was also suggested in the study that credit risk management practices must be adopted to increase the profitability. Misman *et al*. (2015) also explored the elements of credit risk in the Islamic banking domain. They found that some banking related variables affected the credit risk. They were of the view that the bank's homework about credit sanctions, and the credibility of the borrower affected the credit risk. But this sort of credibility is different when deciding about resident and non-resident borrowers.

Therefore, the following hypotheses have been established:

$H_1$: *There is a negative relation between the Capital Adequacy Ratio (CAR) and financial performance of banks operating in Pakistan*

$H_2$: *There is a positive relation between the Credit Interest/Credit Facilities Ratio on the financial performance of banks operating in Pakistan*

$H_3$: *There is a negative relation between Facilities Loss/Gross Facilities Ratio on the financial performance of banks operating in Pakistan*

$H_4$: *There is a negative relation between leverage and the financial performance of banks operating in Pakistan*

$H_5$: *There is a negative relation between Non-performing Loans/Gross Loans Ratio and the financial performance of banks operating in Pakistan*

## Research Methodology

The objective of this study is to investigate the effect of credit risk on the financial performance of commercial banks operating in Pakistan. Using panel regression model, the current study employed CAR, credit interest/credit facilities ratio, facilities loss/net facilities ratio, facilities loss/gross facilities ratio, leverage ratio, and non-performing loans/gross loans ratio to measure the credit risk and its impact on banks' financial performance.

This study has collected secondary data of 24 banks for the time period 2010-2017, from published annual reports. The dependent variables (ROA, ROE, etc.) and independent variables (credit risk dimensions, etc.) are defined in Table 1.

Table 1: *Definition of Variables & Measurement*

| Var. | Explanation | Definition |
|---|---|---|
| CAR | Capital adequacy ratio | *Tier 1 capital + Tier 2 capital/Risk weighted assets* |
| CI/ CF | Credit interests/Credit facilities | %age of credit interests have been paid on the granted facilities |
| PFL/NF | Provision for facilities loss/Net facilities | %age of provision for facilities loss out of net facilities |
| LEV | Leverage ratio | Total debt/total equity |
| NPL/GL | Level of Non-performing loans | Non-performing loans/Gross loans and advances |
| ROA | Return on assets | %age of Net income/Total assets |
| ROE | Return on equity | %age of Net income/Total equity |

This study used Ordinary Least Squares (OLS) method to use data of Pakistani Banks from 2010-2017. The following equations are estimated to measure the financial performance (ROE and ROA):

$$ROE_{it} = \alpha_0 + \beta_1 NPLR_{it} + \beta_2 CAR_{it} + \beta_3 CI/CF_{it} + \beta_4 FL/NF_{it} + \beta_5 LEV_{it} + ui_{it}$$

$$ROA_{it} = \alpha_0 + \beta_1 NPLR_{it} + \beta_2 CAR_{it} + \beta_3 CI/CF_{it} + \beta_4 FL/NF_{it} + \beta_5 LEV_{it} + ui_{it}$$

Where:

NPLR=non-performing loan ratio, CAR=capital adequacy ratio, CI/ CFR=Credit interests/Credit facilities; ROE= return on equity; PFL/NF=Provision for facilities loss/Net facilities; LEV= Leverage ratio; ROA=return on assets; and $u_i$=error term.

## Results and Discussion

In this research, the descriptive analysis showed the data behavior of credit risk and financial performance (ROA & ROE) of Pakistani banks from 2010-2017. Results showed in Table 2 signpost the financial performance indicators; ROA mean value is 3.59%, while mean value of ROE is 12.47%, signifying that on average, Pakistani banks remained profitable during this study's time period. Both the measures are reasonable keeping in view the 2007-08 post financial crises time period. The mean value of CAR is 14.68% which is well above the minimum requirement of Basel II recommendations. The

mean value of credit interest/credit facilities is 9.12%, whereas provision for facilities loss/net facilities' mean value is 16.13%. The leverage ratio is 76.48%, and non-performing loans/total loans and advances is 9.10%. For all the variables, the median and standard deviations values are also reported in Table 2.

Table 2: *Descriptive statistics of all variables used in the system*

| Var. | Mean | Median | Std. Dev. |
|---|---|---|---|
| CAR | .147 | .144 | .173 |
| CI/ CF | 6.126 | 6.038 | .016 |
| FL/NF | .161 | .150 | .019 |
| LEV | .765 | .649 | .369 |
| NPL/GL | .091 | .051 | .090 |
| ROA | .036 | .013 | .398 |
| ROE | .125 | .118 | .145 |

To check the multi-co-linearity issue, this study employs the correlation test. The correlation matrix results are provided in Table 3 which show that multi-co-linearity among the predictor variables is not a major issue. The values for some variables are significant, but their level of correlation is small. The highest correlation coefficient value in the given data is .211, which falls under the weak correlation category (Gordon *et al*., 2013). On the other hand, all predictor variables are correlated with ROA and ROE.

Table 3: *Correlation Matrix of the Variables use in Analysis*

| Variables | CAR | CI/CF | FL/NF | LR |
|---|---|---|---|---|
| CI/ CF | -.043** | | | |
| FL/NF | .039* | .056 | | |
| LR | -.211*** | -.026 | .047 | |
| NPL/GL | -.158*** | .019 | -.026* | -.072 |
| ROA | -.185*** | .147*** | -.287* | -.015** |
| ROE | -.129*** | .110** | -.179** | .184*** |

*Note: *** Significant at 1%; **Significant at 5% & * significant at 10% level respectively.*

Further, this study tests the hypotheses using the "Pooled OLS models". The results are presented in table 4 for each hypothesis and the two measures of financial performance.

Table 4: *Regression results for the two models of the study*

| Variable | ROE Model | ROA Model |
|---|---|---|
| C | -1.077 | -1.498 |
| | (1.369) | (1.638) |
| CAR | -.129* | -.185* |
| | (.079) | (.969) |
| NPLR | -.169*** | -.287* |
| | (.011) | (.134) |
| CI/ CF | .014*** | .018 |

|  |  |  |
|---|---|---|
|  | (.004) | (.001) |
| FL/NF | -.046*** | -.037** |
|  | (.001) | (.012) |
| LEV | -.088*** | -.041 |
|  | (.009) | (.794) |
| R-squared | .174 | .244 |
| Mean dependent var | .771 | 2.220 |
| Adjusted R-squared | .124 | .198 |
| S.D. dependent var | .530 | 1.730 |
| Akaike info criterion | 1.516 | 1.675 |
| Hannan-Quinn criter. | 1.562 | 1.598 |
| Durbin-Watson stat | .631 | .699 |
| F-statistic | 3.468** | 3.178** |

*Note: \*\*\* Significant at 1%; \*\*Significant at 5% & \* significant at 10% level, respectively. The standard error values are shown in parentheses*

The F-statistic, which measures the model fitness of the explanatory variables, is statistically significant at the 5% level, which concludes that the model used is appropriate. Result of the ROE model shows that the coefficient NPLR is statistically significant at the 5% level and implies a negative correlation with ROE. Keeping all other coefficients constant, an increase of 1 unit in the variable NPLR leads to a reduction in the variable ROE by 0.1689 units. A high level of NPL means more losses for the bank, and therefore, reduced profits. The leverage and provision for facilities loss/net facilities ratios also have a negative impact on the financial performance (ROE) of commercial banks. Moreover, credit interest/credit facilities ratio has a positive and significant effect on the financial performance of Pakistani banks. The adjusted $R^2$ suggests that 12.36% of the total variation in ROE of Pakistani commercial banks is explained by joint variation in the independent variables. The coefficient of CAR is statistically insignificant at 5% level of significance; however, it is significant at 10% level of significance. The coefficient is negative which indicates that a higher CAR results in lower ROE and vice versa. This finding looks plausible as a higher level of equity results in a lower rate of return on it, keeping all other factors constant.

The second pooled OLS model reports the results of credit risk dimensions and ROA of the commercial banks. The F-statistic value is significant at the 5 % level, which indicates that the model used for the analysis is appropriate. Results show that the coefficient of NPLR is statistically significant at 10% level of significance; however, the value is negative, implying a negative relation between NPLR and ROA. The leverage and provision for facilities loss/net facilities ratios have a significant negative impact on the financial performance (ROA). Moreover, credit interest/credit facilities ratio has a positive and significant effect on the financial performance. The relation between CAR and ROA is statistically insignificant. The results of other variables also show a

significant relationship with the performance, which is in accordance with historical studies and the general theory of finance. A high level of credit risk, or inadequate credit risk results in lower financial performance. The adjusted $R^2$ suggests that 19.76% of the total variation in ROA is explained by the joint variations in the set of predictor variables included in this study. The findings of the two models are consistent with the findings of Raheman and Nasr (2007), and Roden and Lewellen (1995).

## Conclusion

This study measured the effect of credit risk on Pakistani commercial banks' profitability. ROA and ROE are employed as a performance measure and NPLR, facilities loss/net facilities ratio, credit interest/credit facilities and CAR as indicators of credit risk. The econometric results confirmed an association between the credit risk and the financial performance of banks in Pakistan. The dimension of credit risk has been found to have a significant impact (positive/negative) on the financial performance of banks. The results of the current study suggest that an efficient management of the banks can improve the risk associated with credit through effective and efficient strategies, and policies that can increase the Pakistani commercial banks performance.

The results of this study are consistent with the study of Alshatti (2015) that have found a negative relation between credit risk and ROA. Among the risks that banks face, credit risk has substantial impact on banks' performance as it is the main source of revenue for banks (commercial banks). Banks trade-off between extending credit to generate income and the negative impact of credit risk that they face while giving loans to borrowers. It is also mentioned in this study that there is an adverse relation between NPLR and ROA, and NPLR and ROE. The findings of the current study are consistent with the study of Li and Zou (2014), with the exception of CAR and NPLR with ROA, where the coefficients are insignificant.

Based on the findings of the above-mentioned studies and this study, it is suggested that Pakistani commercial banks should focus on managing their risk with regards to credit, which in turn can improve their performance. Adopting relevant, operative and particular policies and procedures regarding credit risk can help the management of banks in evaluating loan proposals. The main source of income for banks is through the provision of loans to their borrowers, but it also increases the credit risk. Hence, for banks it is significant to improve their credit risk strategies, policies and procedures to increase banks' income, while reducing the credit risk exposure. Using this practice will help banks not only reduce credit risk, but also progress their profitability. Future studies can used market-based measures of financial performance (dividend yield, stock price and returns) to check the impact of credit risk exposure and stock market performance of commercial banks. There is a need to explore comparative studies

(Islamic and conventional banks) on other avenues for future research and to add further to it by adding other credit risk factors in a model, to assess the most important risks on a bank's ROE/ROA.

# References

Abdul-Rahman, A., Abdul Latif, R., Muda, R., Abdullah, M.A. (2014). Failure and potential of profit-loss sharing contracts: a perspective of New Institutional, Economic (NIE) Theory. *Pacific-Basin Finance Journal, 28*(3), 136-151.

Aduda, J., & Gitonga, J. (2011). The relationship between credit risk management and profitability among the commercial banks in Kenya. *Journal of Modern Accounting and Auditing, 7*(9), 934-946.

Abiola, I. & Olausi, S. (2014). The Impact of credit risk management on commercial banks performance. *International Journal of Management and Sustainability, 3*(5), 295-306.

Abdelrahim, K.E. (2013). Effectiveness of Credit Risk Management of Saudi Banks in the Light of Global Financial Crisis: A Qualitative Study. *Asian Transactions on Basic and Applied Sciences*, *3*(2), 73-91.

Adeusi, S.O., Akeke, N.I., Adebisi, O.S. and Oladunjoye, O. (2013). Risk Management and Financial Performance of Banks in Nigeria. *Journal of Business and Management, 14*(6), 52-6

Alshatti, S. (2015). The effect of credit risk management on financial performance of Jordanian Commercial banks. *Investment Management & Financial Innovations*, *12*(1), 338-345.

Aruwa, A. and Musa, A. (2014). Risk components and the financial performance of deposit money in Nigeria. *International Journal of Social Sciences and Entrepreneurship*, *1*(11), 1-8.

Avery, R. B., Bostic, R. W., Calem, P. S., & Canner, G. B. (1996). *Credit risk, credit scoring, and the performance of home mortgages*. Fed. Res. Bull., 82-621.

Bank for International Settlements (2000). *Principles for the management of credit risk final document*. Available at: http://www.bis.org.

Basel Committee on Banking Supervision. (2008). *Principles for Sound Liquidity Risk Management and Supervision.* Available at www.bis.org).

Gordon, B. R., Goldfarb, A., & Li, Y. (2013). Does price elasticity vary with economic growth? A cross-category analysis. *Journal of Marketing Research*, *50*(1), 4-23.

Hakim, S. and Neaime, S. (2001). Performance and credit risk in banking: A comparative study for Egypt and Lebanon, *Working paper-Published by the Economic Research Forum* (ERF=0137). Available at: http://www.erf.org.

Hosna, A., Manzura, B. & Juajuan, S. (2009). *Credit risk management and profitability in commercial banks in Sweden*, Unpublished Master Thesis. Available at: https://Gupea.ub.gu.se.

Kolapo, T.F., Ayeni, R.K. and Oke, M.O. (2012). Credit risk and commercial banks' performance in Nigeria: A panel model approach. *Australian Journal of Business and Management Research*, *2*(2), 31-38.

Li, F., Zou, Y., & Lions, C. (2014). The Impact of credit risk management on profitability of commercial banks: A study of Europe. *Journal of Business and Economics*, *4*(8), 1-93.

Misman, F. N., Bhatti, I., Lou, W., Samsudin, S., & Rahman, N. H. A. (2015). Islamic Banks Credit Risk: A Panel Study. *Procedia Economics and Finance*, *31*(3), 75-82.

Musyoki, D. and Kadubo, A.S. (2012). The impact of credit risk management on the financial performance of Banks in Kenya for the period (2000-2006). *International Journal of Business and Public Management*, *2*(2), 72-80.

Nawaz, M. and Munir, S. (2012). Credit risk and the performance of Nigerian. *Interdisciplinary Journal of Contemporary Research in*, *4*(7), 49-63.

Ndoka, S., & Islami, M. (2016). The impact of credit risk management on profitability of Albanian commercial banks during 2005-2015. *European Journal of Sustainable Development*, *5*(3), 445-452.

Njanike, K. (2009). The impact of effective credit risk management on bank survival. *Annals of the University of Petroşani, Economics*, *9*(2), 173-184.

Poudel, R.P. (2012). The impact of credit risk management on financial performance of commercial banks in Nepal, *International Journal of Arts and Commerce*, *1*(5), 9-15.

Rajan, R. G. (1994). Why bank credit policies fluctuate: A theory and some evidence. *The Quarterly Journal of Economics, 109*(2), 399-441.

Raheman, A., & Nasr, M. (2007). Working capital management and profitability–case of Pakistani firms. *International Review of Business Research Papers*, *3*(1), 279-300.

Roden, D. M., & Lewellen, W. G. (1995). Corporate capital structure decisions: evidence from leveraged buyouts. *Financial Management*, *24*(2), 76-87.

Singh, A. (2013). Credit risk management in Indian commercial banks. *International Journal of Marketing, Financial Services & Management Research*, *2*(7), 47-51.

Ogboi, Ch. and Unuafe, O.K. (2013). Impact of Credit Risk Management and Capital Adequacy on the Financial Performance of Commercial Banks in Nigeria. *Journal of Emerging Issues in Economics, Finance and Banking*, *2*(3), 703-717.