Journal of Business Administration and Management Sciences
July 2018 Vol. 02 Issue No. 02

CREDIT RISK MANAGEMENT'S INFLUENCE ON LOAN PERFORMANCE IN COMMERCIAL BANKS IN PAKISTAN

Syed Hasan Raza Naqvi* Zahid Ali Channar** Quratulain Nazeer Ahmed***

ABSTRACT
The aim of this study is to examine the current practice of credit risk in commercial banks in Pakistan. There is no notable empirical evidence found which shows the relationship between dimensions of credit risk management and loan performance in commercial banks in Pakistan and discuss the factors of credit risk management that contribute in the loan performance of commercial banks in Pakistan. Data is collected from primary sources using close-ended questions. There are 35 scheduled commercial banks operating in Pakistan with 12,424 branches across Pakistan, merely 24 commercial banks are selected for the research according to its market capitalization and data ability and reliability for the research. Data collected from managers and credit officers of commercial banks in Pakistan. Data collected by meeting them personally as well as coordinate with them via emails. Client profile, Credit Risk Policy, and Credit Risk Control have been taken as the dimensions of credit risk management as independent variables and loan performance (LP) as the dependent variable. The result showed that the client profile and credit risk control have a positive and statistically significant influence on loan performance (LP) in commercial banks in Pakistan. However, credit risk policy has a statistically significant but negative influence on loan performance in commercial banks in Pakistan. It is recommended that commercial banks in Pakistan should effectively practice these factors studied in this research to maximize the profitability by increases the loan performance of the bank
Key Words: Credit Risk Management, Loan Performance, Commercial Banks
JEL Classification: G2

1. INTRODUCTION

Financial institutions play the main role in the growth of the economy of a country. Banks are the financial institutions essential for the financial transactions either within or between borders and no one can deny the important role they play in the economic activities of the economy and in the growth of the economy of the country.

The economic growth of the country is not achieved without the flawless financial sector. Banks perform an imperative role in developing the economy, especially in developing countries. They not only float the credit flow in the country but also increase the productivity by strengthening the investments. Banking can be defined as generating profit, from lending and borrowing activities.[1]

Now a day's banks are performing more than just the formal banking activities. Banks are funding at government as well as at corporate level, hence facing credit risk. In Pakistan only not, microfinance banks but also commercial banks financing from micro to macro level and from individual to institutional level and earning profits by charging high-interest rate on these financing. In both scenarios individual and institutional financing, banks face the failure rate, uncertainty, and risk regarding repay.

Credit risk management protects banks from any forthcoming loss or crises that harm the bank financial stability. But all the financing on the part of the bank is not bad. Banks undergo a customer assessment process before financing, which is necessary for the survival of the banks. Another side of the customer assessment will ensure banks about the customer and business activities in which he is involved. Credit risk is one of the primary concerns for the financing institutes and assessing accurately all risk associated with the financing will enhance the market efficiency of the bank.[2] Banks and other financial institutes in Pakistan and all over the World are affecting from the dilemma of loan

Corresponding Author, Senior Officer, SME & Commercial, Branch Operation, Dubai Islamic Bank Pakistan Limited. Email: hasan.naqvi@dibpak.com
***Dean, Faculty of Management, Business Administration & Commerce, Sindh Madressatul Islam University, Karachi*
****Lecturer, Department of Business Administration, Sindh Madressatul Islam University, Karachi*

[1] Rajaraman, I., & Vasishtha, G. (2002). Non-Performing Loans of PSU Banks: Some Panel Results. *Economic and Political Weekly, 37*(5), 429 - 435.
[2] McGoven, J. (1993). Why Bad Loans Happen to Good Banks. Journal of Commercial Lending, 75(6), 44.

default which decreases the profitability of the bank but also influences the economic conditions of the country. Loan default is very destructive in the underdeveloped economies like Pakistan which affect very badly the banking sector in Pakistan but also the economic conditions in Pakistan.[3] Major reasons for loan default are insufficient business management and monitoring, delayed in loan approvals by financing banks, ineffective credits policies and clients are not willing to repay loans.[4] In Pakistan financing is also based on political interference result in loan default and big concern in credit risk management.[5] Financing is also based on personal relations without proper evaluation of the institutional projects or individuals profile cause loan default.[6] Because of the significant role banks play in economic activities, banks must evaluate the risk which it faces daily while lending and involve continuously in corporate governance to monitor, screen and maintenance for better credit performance.[7]

Commercial banks performance greatly influences the economic growth of the country, well performing commercial banks accelerate economic activities while poor performing banks hamper the economic growth and enhance poverty in the country.[8] Credit risk management is one of the critical aspects and issue faced by the commercial banks and required due attention. Risk management is necessary for the sustainability but also for the development of banking sector and thus brings stability to local currency and also to the economy of the country.[9] Inefficient provision of credit risk may cause liquidity risk resulted in the insolvency of the commercial banks. In recent years, credit risk gained great importance because of the huge losses faced by the big financial institutes.[10] Since the financial crises, financial institutions especially commercial banks have taken special measures to mitigate any forthcoming financial loss caused by mismanagement in loan offering process and credit recovery.

The risk is an opportunity as well as a threat. Commercial banks introduce various products and thus must face different risk associated with it and adversely affect the profitability of the bank and harm its financial health.11 Banks offer loan to individuals as well as to institutes result they face credit risk, which continues until the last and final installment of the loan is repaid.[12] Credit risk approach of the bank may likely change as the financial conditions of the country, individual or institute changes hence credit risk management is a continuous process and should be investigated very carefully. Although several studies have been conducted regarding credit risk management and loan performance in microfinance banks in Pakistan.

1.1. STATEMENT OF THE PROBLEM

Credit risk management is very important for commercial banks to their survival as well as for the profitability and business development. Credit risk management minimized the probability of losing or failure. Commercial banks profitability largely depends on the effectiveness of the credit risk management since commercial banks earn most of their profit from lending and borrowing activities, charged high interest on the credit amount and earn a profit.

Research works carried out in the poor loan performance, non-performing loan and their effects on banking sector globally. There is also research works done on loan performance in microfinance banks, but no specific research has done on the influence of credit risk management on loan performance in commercial banks in Pakistan. Commercial banks invested hugely in credit risk models. The commercialization of the banking industry in Pakistan started the

---

[3] Masood, O. (2009). Determinants of Non-Performing Bank Loans and Bank loan recovery in Pakistan: A survey approach. Euro-Mediterranean Economics and Finance review, 89 - 104.

[4] Awan, A. G., Nadeem, N., & Malghani, F. S. (2015). Causes of Loan Defaults in Pakistani Banks: A case study of District D.G. Khan. Science International, 27(3), 2593 - 2597

[5] Awan, A. G. (2010). Emerging a New Financial Paradigm. IUB Journal of Social Sciences and Humanities, 8(2).

[6] Awan, A. G., & Azhar, M. (2014). Consumer Behaviour towards Islamic Banking in Pakistan. European Journal of Accounting Auditing and Finance, 2(9), 42 - 65.

[7] Amidu, M. (2014). What Influences Banks' Lending in Sub-Saharan Africa. Journal of Emerging Market Finance, 13(1), 1 - 42.

[8] Barth, J., Caprio, Jr., G., & Levine, R. (2004). Bank Regulation and Supervision: What Works Best? Journal of Financial Intermediation, 13(2), 205 - 248.

[9] Greuning, H. V., & Bratanovic, S. B. (2003). Analyzing and Managing Banking Risk: A framework for Assessing Corporate Governance and Financial Risk Management (2nd ed.). Washington DC: The World Bank.

[10] Nikolaidou, E., & Vogiazas, S. (2014). Credit Risk Determinants for the Bulgarian Banking System. International Advances in Economic Research, 20(1), 87 - 102.

[11] Chakrabarti, M. (2015). Risk Analysis and Management in Indian Banking Sector: An Overview. International Journal of Informative & Futuristic Research, 2(7), 2133 - 2143.

[12] Moti, H. O., Masinde, J. S., Mugenda, N. G., & Sindani, M. N. (2012). Effectiveness of Credit Management System on Loan Performance: Empirical Evidence from Micro Finance Sector in Kenya. International Journal of Business, Humanities and Technology, 2(6), 99 - 108

competition among banks and race for the survival. Commercial banks offer new products and financing services with the objective to increase their profitability. This commercialization not only opened new opportunities for the banking sector but also new threats as well, which also increases the probability of loss. Hence credit risk management emerges as the major concern for the commercial banks.

This study investigates the factors of credit risk management that influence the performance of the loans in commercial banks. The aim of this study is to examine the current practice of credit risk in commercial banks in Pakistan. There is no notable empirical evidence found which shows the relationship between dimensions of credit risk management and loan performance in commercial banks in Pakistan and discuss the factors of credit risk management that contribute in the loan performance of commercial banks in Pakistan. This study will fill that gap and will find the answer to the influence of credit risk management on loan performance in commercial banks in Pakistan.

2. LITERATURE REVIEW

In recent years financial institutes developed formal models for quantifying the credit risk, such models are based on the traditional VAR framework first developed from market risk.[13] Study has been made on credit risk management and loan performance in commercial banks and find that the loan appraisal, financial viability, technical feasibility, credit rating, risk transfer, risk diversifications, and risk retention has no significant relationship with loan performance, hence banks must improve their risk appraisal and risk management techniques to improve their loan performance.[14] Commercial banks have adopted the various risk management system to mitigate losses. Banks also adopted the various tools for minimizing credit losses. These include covenants, collateral, credit rationing, loan securitization and loan syndication as well as borrower's capacity, character, conditions, credits history and collateral are also important in loan appraisal and subsequent approval.[15]

The determinants of credit risk taken by Tunisian banks; globalization, deregulation, internationalization technologies of information and communication have exposed them to several risks and mentioned major challenges for their sustainability. Results show that public ownership increases the credit risk however prudential regulation of capital decreases the credit risk. Results also indicate that credit risk decisions also related to bank macroeconomics indicators.[16]

Management should focus on risk advisory and development support by upgrading data and construct heftier probability of default measure. For the best practice funds managers must conduct a full and fair assessment of their portfolio. Asset-class, size, diversity, exposure to emerging markets, future extension into data-poor environments - these are all aspects to consider, then the methodology and data necessary to improve risk management capabilities.[17]

Credit risk is basically experienced by the investor to forget money from the borrower who is unable to make payments, result in default risk. This may result in loss of interest and principal that can increase the cost of collection and decreased cash flow. Previous studies prominent that high credit risk control (CRC) result in fewer chances of default.[18] However human element cannot be eliminated in making decisions in credit risk management practices.[19]

Theories antagonistic of implicating restricting the range of banking activities, which are negatively related to bank development and stability, and as noted with non-performing loans as well. However, the establishment of the bank allows the bank to diversify income sources and enhance stability.[20] Research finds that Client Appraisal had a

[13] Jorion, P. (2007). Value at Risk: The New Benchmark for Managing Financial Risk (3rd ed.). McGraw-Hill Companies.

[14] Lebbe, A., Rauf, A., & Mulafara, A. H. (2016). Influence of Credit Risk Management on Loan Performance: Special Reference from Commercial Banks of Ampara District in Sri Lanka. International Journal of Advances in Management and Economics, 5(4), 30-35.

[15] Afande, F. O. (2014). Credit Risk Management Practices of Commercial Banks in Kenya. European Journal of Business and Management, 6(34), 21-62.

[16] Zribi, N., & Boujelbène, Y. (2011). The factors Influencing Bank Credit Risk: The Case of Tunisia. Journal of Accounting and Taxation, 3(4), 70 - 78.

[17] Seibel. (2006). Measure of Financial Performance in Loan Lending 5th edition. Journal of Economics and Management Strategy, 11, 487 - 511.

[18] Ross, S. A., Westerfield, R. W., & Jordan, B. D. (2008). *Essentials of Corporate Finance.* Hill International edition. USA: McGraw-Hill Companies Inc.

[19] García, F., Giménez, V., & Guijar, F. (2013). Credit Risk Management: A Multicriteria Approach to Assess Creditworthiness. *Mathematical and Computer Modelling, 57*(7 - 8), 2009 - 2015.

[20] Barth, J., Caprio, Jr., G., & Levine, R. (2004). Bank Regulation and Supervision: What Works Best? *Journal of Financial Intermediation, 13*(2), 205 - 248.

consequence on loan performance and concludes that credit risk management of client appraisal has significantly influenced loan performance.[21] Loans are the main source of profit and have a positive impact on bank performance and found that size of credit portfolio and non-performing loans have a significant negative impact on bank profitability.[22] Non-performing loans portray a distorted and crawling picture of the economy. Bank specific dimensions like credit assessment, credit monitoring, and rapid credit growth have a significant effect on non-performing loan; however, interest has a weak significance on loans. Social factors like political interference and banker's incompetence have a significant effect on loan performance.[23]

Credit risk management is the key requirement to minimize the chances to get bankrupted. The credit risk management system includes clear guidelines for the scope and allocation of the bank credit facilities and the mannerism of the loan orientation, loan approval, supervision and collection policies.[24] Since the financial crises, banks are trying to manage their credit risk effectively and efficiently to overcome any financial loss. As per Basel Committee banks should establish a convenient credit risk environment; administrating in a flawless granting process, maintaining an appropriate credit administration, measurement, and audit and ensuring control over credit risk.25 The banking industry is extremely competitive and constantly changing. Banks must produce new products and services for their survival consciously banks must manage credit risk as well as their liquidity ratio. Banks and regulatory bodies must be very conscious in implementing credit risk policies and promote a systematic system of analyzing, processing, sanctioning, controlling and auditing the credits which simplify credit risk rating in an effective manner.26 The effect of credit risk management on performance on the bank is invariant; study finds that banks should enhance their capacity for credit analysis and loan administration.[27] Loan performance has a positive and strong relationship with loan policy and credit standard.[28]

Literature review gives details picture of the credit risk management practices around the Globe and its importance in banking, causes of loan defaults and its consciousness, credit rating and regulatory body's role in credit management. Loan appraisal process has a significant impact on loan performance.[29] Based on literature review, it is found that in the process of the lending client profile, risk control policies and credit risk policies have a significant impact. Credit manager before grant loan to the client; must take credit risk management measures in the account to counter any lack or gap in the client profile. Credit risk policies consist of the evaluation committee, internal credit rating system, limit of the amount of loan and approval limits. Previous research noted that period of the loan is affected by the credit risk, collateral value, competition in the market and clients profile.[30] Banks must adopt clearly defined credit risk management policies and procedures covering risk identification, acceptance, measurement, monitoring, reporting, and control. Banks management should establish credit policies and administrative procedures as a part of the credit

---

[21] Kiplimo, K. S., & Kalio, D. M. (2014). Influence of Credit Risk Management Practices on Loan Performance of Microfinance Institutions in Baringo County. *International Journal of Science and Research (IJSR), 3*(10), 2260 - 2267.

[22] Alper, D., & Anbar, A. (2011). Bank Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Turkey. *Business and Economics Research Journal, 2*(2), 139 - 152.

[23] Hassana, H., Ilyasb, M., & Rehman, C. A. (2015). Quantitative Study of Bank-Specific and Social Factors of Non-Performing Loans of Pakistani Banking Sector. *International Letters of Social and Humanistic Sciences, 43*, 192 - 213.

[24] Greuning, H. V., & Bratanovic, S. B. (2003). *Analyzing and Managing Banking Risk : A framework for Assessing Corporate Governance and Financial Risk Management* (2nd ed.). Washington DC: The World Bank.

[25] Basel Committee on Banking Supervision. (2000). *Principles for the Management of Credit Risk.* BIS, Basel, Switzerland

[26] Mohammad, N., & Onni, A. N. (2015). Credit Risk Grading Model and Loan Performance of Commercial Banks in Bangladesh. *European Journal of Business and Management, 7*(13), 83 - 91.

[27] Kolade, A. R., Ojo, O. M., & Funso, K. T. (2012). Credit Risk and Commercial Banks Performance In Nigeria; A Panal Model Approach. *Australian Journal of Business and Management Research, 2*(02), 31 - 38.

[28] Kibor, A. M., Ngahu, S. T., & Kwasira, J. (2015). Influence of Credit Risk Management on Loan Performance in Commercial Banks in Nakuru Town, Kenya. *International Journal of Economics, Commerce and Management, 3*(10), 884 - 902.

[29] Gatimu, E. M., & Frederick, M. K. (2014). Assessing Institutional Factors Contributing to Loan Defaulting in Microfinance Institutions in Kenya. *Journal of Humanities and Social Science, 19*(5), 105 - 123

[30] Ross, S. A., Westerfield, R. W., & Jordan, B. D. (2008). *Essentials of Corporate Finance.* Hill International edition. USA: McGraw-Hill Companies Inc.

risk management framework, which provides guidelines for credit evaluation, client appraisal, credit approval, risk identification and acceptance criteria, loan documentation, roles and responsibilities of the loan staffs.[31]

3. METHODOLOGY

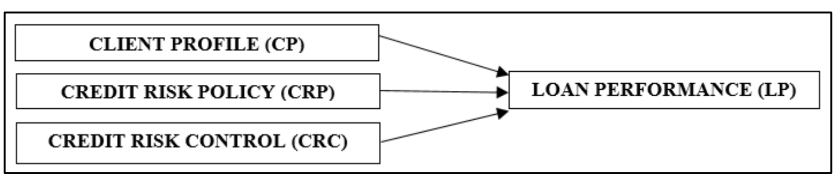
The descriptive research design was adopted in this study. The main reason for adopting the descriptive survey design is to study the entire population and gain as much information from it related to the factors that are under study which influence the loan performance. Survey design helps the researcher in investigating and analyzing interrelationship between factors involved and it is effortful to understand the single factor without considering the association with each other.[32] Moreover, descriptive research design defines the present situations and existing conditions more clearly and attributes more by observation and interpretation. Researchers use other techniques for data collection, but descriptive research design is best among other in doing research in human contexts because it illustrates the accurate current facts and figures for testing and getting answers to the research questions. There are 35 scheduled commercial banks operating in Pakistan with 12,424 branches across Pakistan as per State Bank of Pakistan (SBP) on 30th June 2016, merely 24 commercial banks are selected for the research according to its market capitalization and data availability and reliability for the research. Data is collected through primary sources using questionnaire. The questionnaire is comprised of closed-end questions, which enable the researcher to collect quantitative data. Data collected from managers and credit officers of commercial banks in Pakistan. Data collected by meeting them personally as well as coordinate with them via emails.

3.1. Research Variables

Client profile, Credit Risk Policy, and Credit Risk Control have been taken as the dimensions of credit risk management. The closed-end questionnaire is used adopted from past studies for the collection of the data for bank managers and credit risk officers. The questionnaire used in the research for the dimensions of credit risk management have been adopted from research work of Gatimu and Frederick (2014), Kibor, et al., (2015), Lebbe, et al., (2016) and Afande. F.O. (2014). Questionnaire for loan performance has been adopted from the research work of Kibor, et al., (2015).

The client profile is the detailed statistic of the client, consist of the business history of the client, economic and political background of the client, past records of credit and repayments and the trustworthiness of the client. Banks consider the capacity of the borrower to meet the scheduled of credit payments.[33] Efficient loan sizes fit borrower's repayment capacity.[34] Loan appraisal plays the base role in assuring the lender of minimal chances for losing the credited amount.[35]

Figure 3.1: Conceptual Framework



[31] State Bank of Pakistan. (2011). *Prudential Regulations for Consumer Financing.* Banking Policy & Regulations Department. SBP, Pakistan.

[32] Mugenda, O. M., & Mugenda, A. G. (1999). *Research Methods: Quantitative and Qualitative Approaches.* Nairobi: ACTS Press

[33] Wachira, A. K. (2017). Effects of Credit Risk Management Practices on Loan Performance of Commercial Banks in Nyeri County, Kenya. *European Journal of Economic and Financial Research, 2*(2).

[34] Adams, D. W., & Pischke, J. V. (1991). Microenterprise Credit Program: Deja VU. *Economics and Sociology Occasional Paper No. 1828,* pp. 1463-1470.

[35] Boldizzoni, F. (2008). *Means and Ends: The Idea of Capital in the West, 1500–1970.* New York: Palgrave Macmillan.

Credit risk policies provide a framework for the loan process. They involve credit ration criteria, amount limit, collateral, evaluation committee, planning, and risk flexibility policies. Credit risk policies must describe the process to ensure appropriate reporting and strict compliance with credit extension beyond prescribed limits.[36] Credit risk policies have a significant impact on loan performance.[37] Credit risk control is the detail process involved policies of how to avoid a credit default. The bank charge penalties on the defaulters, management reports to the directors, even guarantees are asked to provide to the bank and the bank has the recovery process. Credit risk control may differ from every bank but it all must be compliant with the law. Banks have recovery department which has the detail policies of the collection but also the way it should take place.

Loan performance determines the profitability of the bank, an increase in loan performance show the increase in profitability of the bank.[38] Client profile also helps in determining the loan performance.

Efficient loan appraisal is the key to the credit risk monitoring thus result in fewer loan defaults. Loan size also influences loan performance of the bank. A large amount of loan may result in repayment problems, dissatisfactions, and high dropouts. Loan performance involved, given a loan to an own customer, recovery measurement in case of outstanding loans, loan products increase the profitability of the bank, portfolio management and liquidity management associated with the loan.

3.2. Research Hypothesis

H1: Client profile has significant influences on the loan performance in commercial banks in Pakistan.
H2: Credit risk policy has significant influences on the loan performance in commercial banks in Pakistan.
H3: Credit risk control has significant influence on the loan performance in commercial banks in Pakistan.
H4: Dimensions of credit risk management have significant influence on the loan performance in commercial banks in Pakistan.

3.3. Research Model

For the research take the loan performance as the function of the dimensions of credit risk management.

$LP = f(CP, CRP, CRC)$

$LP = \beta 0 + \beta 1CP + \beta 2CRP + \beta 3CRC + \varepsilon$

Where:
LP = Loan Performance
CP = Client Profile
CRP = Credit Risk Policy
CRC = Credit Risk Control
$\beta 0$ = intercept of the equation
$\beta 1$ to 3 = Co efficient of the variables
ε = error term.
Using above defined regression model, significant level tested among variables.

3.4. Data Analysis

Data analysis is divided into two phases; descriptive and quantitative, results are being discussed in this section of research.

3.5. Demographic Data

The targeted population of the research is the scheduled commercial banks in Pakistan. Out of 35 commercial banks, 24 banks are selected based on their market capitalization, data availability, and reliability. Table 3.1 shows the demographic data of the respondent.

[36] Basel Committee on Banking Supervision. (2000). *Principles for the Management of Credit Risk.* BIS, Basel, Switzerland.
[37] Gatimu, E. M., & Frederick, M. K. (2014). Assessing Institutional Factors Contributing to Loan Defaulting in Microfinance Institutions in Kenya. *Journal of Humanities and Social Science*, *19*(5), 105 - 123.
[38] Awan, A. G., Nadeem, N., & Malghani, F. S. (2015). Causes of Loan Defaults in Pakistani Banks: A case study of District D.G. Khan. *Science International, 27*(3), 2593 - 2597.

Table 3.4. Demographic Data

Question	Answer Categories	Frequency	Percentage
1. Gender	Male	158	68.10
	Female	74	31.90
2. Age bracket	18-30 years	52	22.41
	30- 40 years	116	50.00
	40-50 years	35	15.09
	above 50 years	29	12.50
3. Level of education	Graduate	48	20.69
	Masters	137	59.05
	Other specify	47	20.26
4. Work experience in the industry	Less than 1 year	15	6.47
	1-2 years	38	16.38
	2-5 years	45	19.40
	5-10 years	117	50.43
	Over 10 years	17	7.33

From table 3.1, the response rate. 68.10% of the respondents are males while 31.90% are females and the majority belong to the 30 – 40 years of age bracket 50.00%, 22.41% from 18 – 30 years age bracket, 15.09%, and 12.50% are from 40- 50 years and above 50 years age bracket. Most of the respondent's qualifications are Master 59.05%. Work experience of the individual in the industry portrays their knowledge of the policies, regulations and market practice. Most of the respondents 50.43% have 5 – 10 years of work experience. 6.47% have less than 1 year of work experience. 16.38% have 1 – 2 years of experience, 19.40% have 2 – 5 years of experience and 7.33% have above 10 years of working experience in the industry.

3.6. Descriptive Analysis

In this section, descriptive statistical tools are used to analysis the data, mean, and standard deviation which show the mean values of the data and deviation from the mean value. We also find the minimum and maximum values of the variables so getting the picture of the minimum and maximum values. Furthermore, frequency tables indicate the extent to which the factors influence the dimensions of credit risk management and loan performance.

Table 3.2. Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Standard Deviation
CP	232	1.000	5.000	3.180	0.992
CRP	232	1.000	5.000	2.702	0.839
CRN	232	1.000	5.000	3.084	0.813
LP	232	1.400	5.000	3.825	0.809

From table 3.2, it shows that client profile has a mean of 3.180 and standard deviation of 0.992 with minimum and maximum mean values of 1.000 and 5.000 respectively. Credit risk profile has a means of 2.702 and deviates from means by 0.839 with minimum and maximum mean values of 1.000 and 5.000 respectively.
Credit risk control has a mean of 3.084 and deviation of 0.813 with minimum and maximum mean values of 1.000 and 5.000 respectively. However; loan performance has a mean of 3.825 and standard derivation of 0.809 with minimum and maximum mean values of 1.400 and 5.000 respectively. Loan performance and dimension of credit risk management are positively skewed or right tailed distributed.

3.7 Reliability Test

Data is collected by primary sources using Likert scale questionnaire, reliability test being the extent to which variables are internally consistent and are representative of the total populations. Cronbach's reliability coefficient was used to check the reliability of the variables. According to Cronbach's reliability alpha, $\alpha \geq 0.7$ is acceptable. Table 3.3 shows that variables have an alpha value greater than 0.7, which means variables are internally consistent and are reliable enough to test the research hypothesis.

Table 3.3. Reliability Statistics

Variables	N of Items	Cronbach's Alpha
CP	6	0.862
CRP	7	0.752
CRC	8	0.789
LP	5	0.735

3.8 Quantitative Analysis

Two methods are used for quantitative analysis. First, we used correlation to check the relationship between variables we consider in this research and then apply regression to the research hypothesis.

3.9 Pearson's Correlation Analysis

Pearson's correlation analysis is used to identify the relationship between research variables. The positive relationship shows a strong association between loan performance and dimensions of credit risk management.

Table 3.4. Pearson's Correlation Analysis between CP & LP

		CP	**LP**
CP	Pearson Correlation	1	.358
	Sig. (2-tailed)		.000
	N	232	232
LP	Pearson Correlation	.358	1
	Sig. (2-tailed)	.000	
	N	232	232
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 3.4 shows that there is a weak uphill significant relationship (P-value = 0.000) between Client Profile (CP) and Loan Performance (LP). This significant and uphill relationship shows that there is a positive influence of client profile on loan performance in commercials banks. It can say that if managers and credit officers of the commercial banks take interest in client profile analysis then banks can mitigate the risk regarding repaying the loan.

Table 3.5. Pearson's Correlation Analysis between CRP & LP

		CRP	**LP**
CRP	Pearson Correlation	1	.178
	Sig. (2-tailed)	-	.007
	N	232	232
LP	Pearson Correlation	.178	1
	Sig. (2-tailed)	.007	
	N	232	232
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 3.5 show a statistically significant but weak uphill relationship (P-value = 0.007) between Credit Risk Policy (CRP) and Loan Performance (LP). It can be interpreted that if the commercial banks follow the credit risk policies strictly and smoothly then the probability or risk of default can be minimized. Commercials banks must consider the credit risk policy before any financing.

Table 3.6. Pearson's Correlation Analysis between CRC & LP

		CRC	LP
CRC	Pearson Correlation	1	.221
	Sig. (2-tailed)		.001
	N	232	232
LP	Pearson Correlation	.221	1
	Sig. (2-tailed)	.001	
	N	232	232
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 3.6 shows a weak uphill and statistically significant (P-value = 0.001) relationship between Credit Risk Control (CRC) and Loan Performance (LP). It can be interpreted that if commercial banks apply the credit risk control effectively and efficiently than loan performance can be maximized and banks can control the default rate, result in profitability for the banks. Dimensions of credit risk management are positively and significantly correlated with loan performance means, they have influenced the loan performance of the commercial banks.

3.10 ANOVA

Analysis of variance (ANOVA) shows the difference of means or variation between variables of the study. The dimensions of credit risk management (CP, CRP & CRC) as independent variables and loan performance as the dependent variable for the test of the research hypothesis. From table 3.7, ANOVA is statistically significant at $F(3,228) = 15.883$, p-value ≤ 0.05. From table 3.7, the sum of squares under the regression was 26.104 and residual was 124.911, with a degree of freedom (df) = 3.

Table 3.7. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.104	3	8.701	15.883	.000[b]
	Residual	124.911	228	.548		
	Total	151.015	231			

Dependent Variable: LP
Predictors: (Constant), CRC, CP, CRP

3.11 Model Summary

From table 3.8, correlation coefficient R shows that there is a moderate uphill positive relationship ($R = 0.416$) between dimensions of credit risk management and loan performance in commercial banks. The coefficient of determination explains the variability between model and response variable (R square = 0.173), as a general rule of thumb, that values are merely predicted equally to mean.

Table 3.8. Model Summary

Model	R	R Square	Adj. R Square	Std. Error of the Estimate	Durbin-Watson
1	.416[a]	.173	.162	.7402	2.0874

Predictors: (Constant), CRC, CP, CRP
Dependent Variable: LP

Adjusted R square is slightly smaller than R-square (adjusted R square = 0.162), shows that values are merely predicted equally to mean. Durbin-Watson test is used to check autocorrelation between variables, to check the serial correlation among the residuals. Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, value approximately to 2, the residuals are uncorrelated; value near to 0 indicates strong positive correlation while a value near to 4 indicates strong negative correlation[39]. Durbin-Watson statistic between 1.5 and 2.5 shows the values are independent. From table 3.8, Durbin-Watson statistic is 2.0874, showing that values are independent.

[39] Durbin, J., & Watson, G. S. (1971, April). Testing for Serial Correlation in the Least Square Regression III: *Biometrika, 58(1), 1 -19*

3.12 Regression Analysis

Table 3.9 shows the influence of dimensions of credit risk management on the dependent variable (LP). From the table 3.9, the model is statistically acceptable (P value $\leq$ 0.05). Regression equation demonstrates a positive relationship between loan performance, client profile and credit risk control, while has a negative relationship between loan performance and credit risk policy.

$$LP = 2.579 + 0.385CP - 0.247CRP + 0.223CRC$$

Table 3.9. Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	**(Constant)**	2.579	.221		11.670	.000
2	**CP**	.385	.068	.473	5.707	.000
3	**CRP**	-.247	.089	-.256	-2.774	.006
4	**CRC**	.223	.070	.224	3.195	.002

From regression equation is it clear that loan performance is dependent on dimensions of credit risk management statistically significant. Quantitatively, client profile has a positive relationship with loan performance, which reveals that if the increase in client profile by 1% will associate an increase in loan performance of 38.5%. Similarly, 1% increase in credit risk policy will decrease loan performance by 24.7% and 1% increase in credit risk control will increase loan performance by 22.3%.

From table 3.9, beta coefficient indicates that a change of one standard deviation in client profile will deviate 0.473 of loan performance from the mean. Similarly, one standard deviation change in credit risk policies will change 0.256 standard deviations in loan performance negatively and one standard deviation change in credit risk control will deviate 0.224 of loan performance from the mean.

4. CONCLUSION

The main objective of this study is to investigate credit risk management procedures in commercial banks in Pakistan, to examine the extent to which dimensions of credit risk management influence the loan performance in commercial banks in Pakistan. The study found effective and efficient credit risk management affect greatly the profitability of the bank, which includes creating an appropriate credit risk environment, proper and regular training of the managers and credit officers to provide in-depth knowledge of the products and services, procedures and regulations of the banks and the regularity bodies, sound and smooth credit granting process, an appropriate credit risk system to monitor, control and implement credit risk policies and procedures. The study revealed that commercial banks in Pakistan have adopted various techniques and controls to minimize credit risk. Commercial banks examine applicant's capacity, character, credit history, trustworthiness and net worth of the applicant. Commercial banks also applied credit risk policies like credit rating system, limits on the amount of loan one can get, lender limit as per the board of director's approval and flexibility in credit risk policies. Commercial banks in Pakistan also used techniques and tools for credit risk control, like vetted applicant before financing, penalties are charged on defaulters, agreement between lender and borrower, reporting to the board of director, securitization, and syndication of loan, applicants ask to provide guarantees as financing is under personal, social and political influence[40], recovery mechanism from the defaulter and review the performance and policies of the financing products and services.[41]

The study found these factors enable to create an environment where credit officers and managers (banks) act as a trusted solution provider and financial advisor for the individual as well as corporations. Continuous monitoring of

[40] Awan, A. G., Nadeem, N., & Malghani, F. S. (2015). Causes of Loan Defaults in Pakistani Banks: A case study of District D.G. Khan. *Science International*, *27*(3), 2593 - 2597.

[41] State Bank of Pakistan. (2011). *Prudential Regulations for Consumer Financing.* Banking Policy & Regulations Department. SBP, Pakistan.

the procedures and policies enable banks to remain updated about the gaps or any possible fall in the procedure and policies, as well as new technologies, rules, and regulation implemented by the regulatory bodies.

The research work concluded that the dimensions of credit risk management (CP, CRP, and CRC) taken as independent variables have a statistically significant relationship with the loan performance (LP). The study also found if the commercial banks in Pakistan follow strict compliance in implementing these explanatory credit risk factors considered in the study in financing, default rate and the non-performing loan can be reduced as a result profitability of the bank will increases.

5. RECOMMENDATION

The dimensions of credit risk management studied in this study has influenced on loan performance in commercial banks in Pakistan. It is recommended that commercial banks in Pakistan should effectively practice these factors studied in this research to maximize the profitability by increases the loan performance of the bank.

This study concentrated on the responses from the credit officer and managers of the commercial banks, it is recommended to do researches concentrated the general public and customers of the commercial banks to highlight their opinion and knowledge on credit risk management and loan performance.

References

Adams, D. W., & Pischke, J. V. (1991). Microenterprise Credit Program: Deja VU. Economics and Sociology Occasional Paper No. 1828, pp. 1463-1470.

Afande, F. O. (2014). Credit Risk Management Practices of Commercial Banks in Kenya. European Journal of Business and Management, 6(34), 21-62.

Alper, D., & Anbar, A. (2011). Bank Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Turkey. Business and Economics Research Journal, 2(2), 139 - 152.

Amidu, M. (2014). What Influences Banks Lending in Sub-Saharan Africa. Journal of Emerging Market Finance,, 13(1), 1 - 42.

Awan, A. G. (2010). Emerging a New Financial Paradigm. IUB Journal of Social Sciences and Humanities, 8(2).

Awan, A. G., & Azhar, M. (2014). Consumer Behaviour towards Islamic Banking in Pakistan. European Journal of Accounting Auditing and Finance, 2(9), 42 - 65.

Awan, A. G., Nadeem, N., & Malghani, F. S. (2015). Causes of Loan Defaults in Pakistani Banks: A case study of District D.G. KHAN. Science International, 27(3), 2593 - 2597.

Barth, J., Caprio, Jr., G., & Levine, R. (2004). Bank Regulation and Supervision: What Works Best? Journal of Financial Intermediation, 13(2), 205 - 248.

Basel Committee on Banking Supervision. (2000). Principles for the Management of Credit Risk. BIS, Basel, Switzerland.

Boldizzoni, F. (2008). Means and Ends: The Idea of Capital in the West, 1500–1970. New York: Palgrave Macmillan.

Chakrabarti, M. (2015). Risk Analysis And Management In Indian Banking Sector: An Overview. International Journal of Informative & Futuristic Research, 2(7), 2133 - 2143.

Gatimu, E. M., & Frederick, M. K. (2014). Assessing Institutional Factors Contributing to Loan Defaulting in Microfinance Institutions in Kenya. Journal of Humanities and Social Science, 19(5), 105 - 123.

Greuning, H. V., & Bratanovic, S. B. (2003). Analyzing and Managing Banking Risk : A framework for Assessing Corporate Governance and Financial Risk Management (2nd ed.). Washington DC: The World Bank.

Hassana, H., Ilyasb, M., & Rehman, C. A. (2015). Quantitative Study of Bank-Specific and Social Factors of Non-Performing Loans of Pakistani Banking Sector. International Letters of Social and Humanistic Sciences, 43, 192 - 213.

Jorion, P. (2007). Value at Risk: The New Benchmark for Managing Financial Risk (3rd ed.). McGraw-Hill Companies.

Kibor, A. M., Ngahu, S. T., & Kwasira, J. (2015). Influence of Credit Risk Management on Loan Performance in Commercial Banks in Nakuru Town, Kenya. International Journal of Economics, Commerce and Management, 3(10), 884 - 902.

Kiplimo, K. S., & Kalio, D. M. (2014). Influence of Credit Risk Management Practices on Loan Performance of Microfinance Institutions in Baringo County. International Journal of Science and Research (IJSR), 3(10), 2260 - 2267.

Kolade, A. R., Ojo, O. M., & Funso, K. T. (2012). Credit Risk and Commercial Banks Performance In Nigeria; A Panal Model Approach. Australian Journal of Business and Management Research, 2(02), 31 - 38.

Lebbe, A., Rauf, A., & Mulafara, A. H. (2016). Influence of Credit Risk Management on Loan Performance: Special Reference from Commercial Banks of Ampara District in Sri Lanka. International Journal of Advances in Management and Economics, 5(4), 30-35.

Masood, O. (2009). Determinants of Non-Performing Bank Loans and Bank loan recovery in Pakistan: A survey approach. Euro-Mediterranean Economics and Finance review, 89 - 104.

Mohammad, N., & Onni, A. N. (2015). Credit Risk Grading Model and Loan Performance of Commercial Banks in Bangladesh. European Journal of Business and Management, 7(13), 83 - 91.

Moti, H. O., Masinde, J. S., Mugenda, N. G., & Sindani, M. N. (2012). Effectiveness of Credit Management System on Loan Performance: Empirical Evidence from Micro Finance Sector in Kenya. International Journal of Business, Humanities and Technology, 2(6), 99 - 108.

Mugenda, O. M., & Mugenda, A. G. (1999). Research Methods: Quantitative and Qualitative Approaches. Nairobi: ACTS Press.

Nikolaidou, E., & Vogiazas, S. (2014). Credit Risk Determinants for the Bulgarian Banking System. International Advances in Economic Research, 20(1), 87 - 102.

Rajaraman, I., & Vasishtha, G. (2002). Non-Performing Loans of PSU Banks: Some Panel Results. Economic and Political Weekly, 37(5), 429 - 435.

Ross, S. A., Westerfield, R. W., & Jordan, B. D. (2008). Essentials of Corporate Finance. Hill International edition. USA: McGraw-Hill Companies Inc.

Seibel. (2006). Measure of Financial Performance in Loan Lending 5th edition. Journal of Economics and Management Strategy, 11, 487 - 511.

State Bank of Pakistan. (2011). Prudential Regulations for Consumer Financing. Banking Policy & Regulations Department. SBP, Pakistan.

Wachira, A. K. (2017). Effects of Credit Risk Management Practices on Loan Performance of Commercial Banks in Nyeri County, Kenya. European Journal of Economic and Financial Research, 2(2).

Zribi, N., & Boujelbène, Y. (2011). The factors Influencing Bank Credit Risk: The Case of Tunisia. Journal of Accounting and Taxation, 3(4), 70 - 78.