



Effect of credit evaluation and selection criteria on credit risk management

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Abstract

Credit risk management is one of the burning issues in all the banks and financial institutions of the world. The 7Cs of credit evaluation consists of Character, Collateral, Capital, capacity, conditions, control and common sense are widely applied by banks in credit appraisal. The study examined the effect of 7cs on credit risk management of banks. The study applied quantitative approach and used descriptive and causal comparative research design. Data for the study were collected by distributing 160 well-structured questionnaires to credit officers and branch manager of the banks in Butwal sub-metropolitan city and only 139 questionnaires were obtained. The regression result of the study showed that control and common sense have positive significant effect on credit risk management. Therefore, it can be concluded that control and common sense should be taken as important criteria to reduce credit risk.

Keywords: credit evaluation, 7cs, credit risk management

Introduction

Financial institutions (FIS) are very important in any economy. Commercial banks and FIS are key providers of financial information to the economy. They act as a mediator between excess capital and no capital. They play critical role to developing economies where borrowers have no access to capital markets. There is an indication that well-functioning Commercial banks accelerate economic growth, while poorly functioning financial institutions hinder economic progress and intensify poverty (Muye & Muye, 2017) [39]. Commercial banks are confronted with various risks that can be categorized into three groups; financial, operational and strategic. These risks have diverse impacts on the performance of Commercial banks. The extent and the level of loss caused by credit risk compared to others are severe to cause bank failures (Ladley, 2013) [31].

Credit risk management involves all means available for person, staff, and organization to minimize or avoid a potential peril (Mcilwraith, 2016) [35]. It is the duty of management to set up a credit supervision team to ensure that credit is properly maintained and administered. (Gibson, 2020) [5] He re-counted that one of the principal functions of an organization should be focused on risk management. Risk management involves identification, measurement, aggregation, planning and management as well as monitoring of the risk. Procedures for measuring a firm's overall exposure to credit risk as well as stringent internal rating system should be adequate (Kalunda *et al.*, 2012) [21]. Effective Credit Risk Management involves establishing a suitable environment; operating under a sound credit granting process; maintaining an appropriate credit administration that involves monitoring process as well as satisfactory controls over credit risk (Gaitho, 2013) [14].

The "7 C's of credit" or "7 C's of banking" refer to the key components of a banker's analysis while taking into account a loan request. In order to improve the credit granting process, the bank must use well defined credit granting criteria. These criteria should include a description of the

bank's target market, a complete understanding of the borrower, the goal and structure of the credit, and the source of repayments (Anuar, 2011) [7].

Njanike (2009) [40] stated poor credit risk management to a greater extent leads banks to bankrupt. Based on the traditional role of Bank, banks assets constitute the bulk of loans. In terms of banks' assets and income, the Significance of lending for banks can be assessed. However, the lending process is quite complex. It requires banks to examine the creditworthiness of customers and their ability to repay the principal and Interest on time. Banks should pay more attention to several factors when providing loans in order to curtail the level of impaired loans.

So the purpose of this study is to identify effect of credit evaluation and selection criteria on credit risk management. The major objective of the study is to examine the effect of credit evaluation and selection criteria on credit risk management. However, the specific objectives of the study is to measure and examine the relationship between 7Cs (Character, Collateral, Capital, Capacity, Control, Condition and Common sense) and Credit Risk Management.

Review of literature

McGoven (1993) Stated that character has historically been a crucial component of credit and a significant determinant in lending for American banks in the United States. As a result of low lending criteria and unguaranteed credits, banks have experienced loan losses. He recommended that banks conduct a fair character evaluation to learn more about the morale and personality traits of existing and potential guarantors and borrowers. Together with personal interactions, the bank should also analyse the borrower's staff morale and loyalty, review the borrower's credit report, verify trade credit references, contact the borrower's current and prior bankers for references, and assess the borrower's stress management skills. In addition to this, the bank can reduce risks by implementing government-guaranteed loan programs, securing the borrower's guarantee, and mandating a conservative loan-to-value ratio.

A model of a recurring game between lenders and borrowers that takes into consideration the use of collateral in loans was created by Boot and Thakor in 1994. Lenders will no longer need collateral after a borrower completes an investment project, and they will also enjoy better pricing terms. Asset-based lending companies have been found to lend more to riskier businesses than commercial banks, according to Carey *et al.* (1998) ^[11].

The macroeconomic implications of collateral dependency in loan agreements were examined by Kiyotaki and Moore in 1997 ^[23]. Information asymmetries between borrowers and lenders are a common explanation for the procyclicality of the financial system. In times of economic depression, low collateral values can make it difficult for even profitable borrowers to obtain funding. As economic conditions improve and collateral values rise, these firms can access external finance, contributing to economic growth. This phenomenon is known as the financial accelerator theory. Mutwiri (2003) ^[38] finds that the most critical factors of the model are character, capacity and common-sense in that order. These findings are in agreement with assertion by Komen (2008) ^[25] who also found out that character is the most important criteria in credit risk assessment by commercial banks and other financial institution followed by capacity to repay the loan and the reasonableness of the cash flow from the intended investment.

Arora and Singh (2014) ^[8] identified the issue and barriers in Indian Public Sector Banks' management of credit risk for business loans. The paper's main conclusions can be summed up as follows: The bank has a well-designed credit risk strategy and policy. Al-tamimi and Al-mazrooei (2007) ^[4] looked at how the banks in the UAE dealt with various forms of risk by utilizing various risk management methods and techniques. According to this analysis, the three main forms of risk affecting UAE commercial banks are foreign exchange risk, credit risk, and operating risk. Also, it found that the UAE national banks and foreign banks differ significantly in how they approach risk assessment, analysis, and monitoring. Based on the Zimbabwean financial crisis, Njanike's (2009) paper investigated the reasons why banks in Zimbabwe failed to handle credit risks efficiently. The results unequivocally supported the claim that the bank failures in Zimbabwe were mostly caused by poor credit risk management.

Haile (2015) ^[17], conducted a study on the determinants of loan defaulting using a credit scoring model commonly used by conventional financial institutions. The research discovered that various factors, such as the customer's characteristics, profitability, activity, revenue stability, financial situation, contractual relationship, financial institution customers' relationship, and credit risk control all influence a financial institution's credit risk. The study found that certain factors, including being married, being female, having a bank located nearby, and being older, positively influence a better technology system that can be adjusted to market changes more easily. On the other hand, the study revealed that frequent loan maturity, project diversification, collateral and personal guarantees had an adverse effect on default risk.

Data envelopment analysis (DEA) was established by Yin, Xie, and Xu (2016) ^[50] to examine the effectiveness of credit risk management based on current effectiveness. It has been determined that the state-owned commercial banks in China are less effective at managing credit risk than the

non-state-owned ones. Moreover, Fatemi and Fooladi (2009) ^[13] study noted that credit risk would result from ambiguity regarding certain counterparty's capacity to fulfill its obligation. The survey of financial institutions based in the USA identifies counter party default risk as the single most important purpose served by credit risk models utilized. Richard *et al.* (2008) ^[43] focused on developing conceptual models for credit risk management systems in an economy with least developed financial sectors.

Kononova *et al.* (2016) ^[26] projected a model of credit risk assessment on the basis of factor analysis of retail client's borrowers in order to ensure predictive control of the level of risk posed by potential clients in commercial banks engaged in consumer lending. It demonstrated the creation of a model of borrowers' internal credit ratings and the development of the methods of improving credit risk management in commercial banks.

Shuya and Sharma (2018) ^[45], found that the main reason for poor loan repayment was the delay in loan disbursement to beneficiaries and burdensome disbursement procedures. Additionally, some participants reported that political affiliation played a role in influencing loan approvals. To summarize, the study revealed that loan disbursement delays, complicated procedures, and political influence were factors contributing to poor loan repayment rates.

Abdirahman's (2020) research focused on the relationship between performing and non-performing loan practices in conventional financial institutions. The study revealed a need for financial institutions to adopt effective non-performing loan management practices, including limited lending, sufficient collateral, loan securitization, clear lending assessment facilities, and proper procedures for addressing loans. The study also found a positive relationship between financial performance and effective non-performing loan practices and management. This suggests that improved management of non-performing loans can lead to better financial performance based on credit risk.

Research methodology

Research design

This study is based on descriptive research design and casual comparative research design to deal with the fundamental issues associated with the Effect of Credit evaluation and selection criteria on credit risk Management. The research is descriptive in nature as it describes data and characteristics about the population being studied, solely based on statistics, without any form of manipulation. The research is also explanatory since it is conducted to identify the extent and nature of cause-and-affect relationships among the independent and dependent variables.

Population and sample, and sampling design

The population of this study is all branch manager and credit officer of commercial banks in Butwal sub-metropolitan City. There are altogether 60 branches of various commercial banks in Butwal sub-metropolitan city and 160 are branch manager and credit officers. Therefore, population as well as sample for the study in 160 branch manager and credit officer. Only 139 responded to the questionnaire. Hence, the result is based on 139 observation.

Nature and sources of data

Quantitative nature of primary data has been used. This study is based on the primary source of data and required data have been collected via survey. The survey questionnaire had distributed in various forms of on-line and off-line question aire.

Data analysis

Both descriptive and inferential analysis statistical tools have been used for analysis in this research. The descriptive statistics contains frequency, percentage, mean and standard deviation. The study was based on various statistical tests and analysis. For this purpose, Statistical Package for Social Science (SPSS) software and Microsoft Excel were used to analyze and interpret the quantitative data. Correlation analysis, Regression analysis and Hypothesis testing were carried out in the process of this research.

Definition of variables and hypothesis

Credit risk management

The cornerstone of credit risk management is the establishment of a framework that defines corporate priorities, loan approval process, credit risk rating system, risk adjusted pricing systems, loan review mechanisms and comprehensive reporting system. The two distinct dimensions of credit risk management can be identified as preventive and curative measures. Preventive measures include risk assessment, risk measurement, early warning signs that will pick early signals of future defaults and better credit portfolio diversification. The curative measures on the other hand aim at minimizing the post-sanction loan losses through such steps as securitization, risk sharing and legal enforcement. It is believed that an ounce of prevention is worth a pound of cure (Rekha *et al.*, 2005) ^[42].

Character

This refers to the overall opinion of the prospective borrower formed mostly based on prior interactions with the current lender or previous lenders. Such data are obtained in large part from credit bureaus. Banks are paying a lot of attention to problems that are consistent with the borrowers' personalities. The bank has a duty of protecting its interests and hence it must protect itself from dishonest, incompetent or overly subjective borrowers through investigating their credit background. Other sources of information that can be used in assessing the borrowers' character are records held by suppliers and past banking relationship with the customers. Where the client promptly services principal and interest, it is likely that the future loan balance will be adequately repaid. Where the client has been late in servicing past debts, the reason should be sought. Where previous creditors have experienced losses, the loan officer should almost out rightly reject the application (Hempel *et al.*, 1994) ^[19].

H1: There is a significant effect of Character of borrower on Credit risk management.

Collateral

These are additional forms of security or guarantee that are provided by the borrower to the bank. They represent those assets the borrower has pledged to the bank that can be sold if he defaults and collection efforts have become futile. Though cash flows from the business operation are deemed to be the main source of loan repayment, where sufficient

cash flows fail to materialize, the bank can mitigate loss if it has secured a secondary source of repayment (collateral). Collateral value should cover the loan amount and the interest due, legal costs of foreclosure and interest during foreclosure proceedings (Jaeger *et al.*, 2015).

H2: There is a significant effect of Collateral of borrower on Credit risk management.

Capital

According to Matter (1972) ^[33], some customers expect their banker to provide a substantial part of the capital required in a business, though the customer may be endowed with the skills, drive, knowledge and an original idea, but with little cash. The customer approaches the bank instead of colleagues or the market for the capital. Prospective lenders/bankers expect the business before asking them to commit any funding, the more of your own money you invest as a down payment or capital the more likely that you will do all you can to maintain your payment obligation. It is not definitely the function of a modern bank to find the capital or invest in the clients business and usually the major stake should be that of long-term lenders.

H3: There is a significant effect of Capital of borrower on Credit risk management

Capacity

This is measured using information related to income/stability in relation to loan repayments. The bank will always be interested in knowing exactly how the customer intends to repay the loan. Under this circumstance the banks analysts accounting, legal and finance skills are crucial in determining the ability of the borrower to repay the loan from the cash flows generated by the business. For a seasonal working capital loans, cash flows are generated by means of orderly liquidation of built up of inventories and receivables. For term loans, cash flows are generated from earnings and non-cash expenses such as depreciation and depletion charged against earnings. The analyst must determine the timing and sufficiency of the cash flows and evaluate the risk of the cash flows falling short (MacDonald *et al.*, 2006) ^[32].

H4: There is a significant effect of Capacity of borrower on Credit risk management.

Conditions

Some thoughts must be given to the nature and prospects of the business of the borrower with particular reference to the prevailing economic conditions. The natural optimism of every potential borrower has to be discounted and the real prospects of the venture addressed in light of known conditions. Here the field is limited to the possibility of success or otherwise of the venture for which finance is sought from the bank. With the experience or otherwise of the borrower, is the project likely to succeed. If it fails, the bank is likely to fall back on its security to recover its advances and the lending will fundamentally be unsound (Matter, 1972) ^[33].

H5: There is a significant effect of Condition of borrower on Credit risk management.

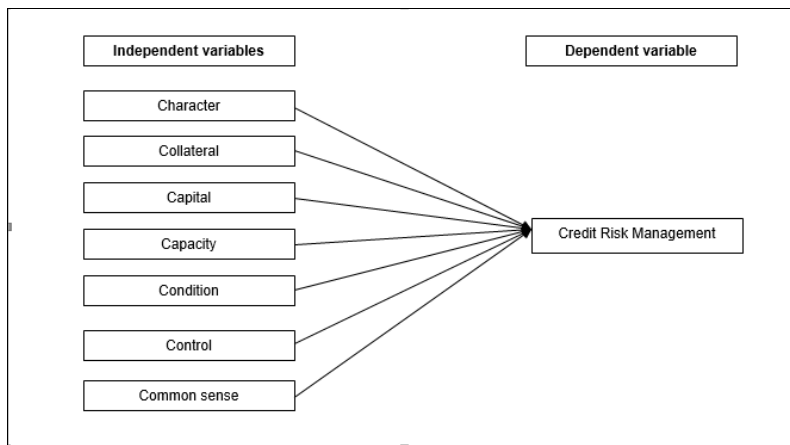
Control

While financial analysis of the loan applicant is important in capacity analysis other factors also come in play. These include the quality of management and the operating

effectiveness of the information systems used by the borrowers in managing (Thygerson, 1995) ^[48]. Control aims at serving the dual purpose of increasing sales revenue by extending credit to customers who are deemed a good credit risk and minimizing risk of loss from bad debts by restricting or denying credit to customers who are not a good credit risk. Effectiveness of credit control lies in procedure employed by judging prospectus creditworthiness, rather than in procedures used in extracting owned money (Yeager *et al.*, 2008) ^[49].

H6: There is a significant effect of Control of borrower on Credit risk management.

Theoretical framework



Source: Adopted from MacDonald *et al.* (2006)

Model

As the first approximation, the model estimated in the study assumes that credit risk management of the commercial banks in butwal sub metropolitan city depends on character, collateral, capital, capacity, condition, control and common sense of borrowers based on the theoretical relation study has estimated the following regression model.

$$CRM = a + \beta_1 CC + \beta_2 CD + \beta_3 CE + \beta_4 CF + \beta_5 CG + \beta_6 CH + \beta_7 CI + E_i$$

Where,

CRM= Credit risk management

a = y-intercept (Constant term)

β_i = Slope coefficient for each explanatory variable

CC= Character of borrower

CD= Collateral of borrower

CE= Capital of borrower

CF= Capacity of borrower

CG= Condition of borrower

CH= Control of borrower

CI= Common sense of borrower

Results and analysis

Descriptive statistics

Table 1 shows the descriptive-mean and standard deviation values of variables associated sample banks. Firstly, Character has the mean value of 4.0360 with standard deviation of 0.7557. The variable Collateral has the mean value of 4.2486 with standard deviation of .80716. Likewise, the variable Capital has the mean value of 4.0552 with standard deviation of 0.7252. The variable Capacity

Common sense

Common sense is the natural ability to make good judgement and behave in a practical and sensible way. This calls for prudence and reasonableness in analysis, presentation and using data and all other data in relation to the business and processing them into useful information. Common sense can also be perceived as the reasonableness of the financial information provided to support the case for financing a project as an indication of the ability of the project to generate sufficient cash flows to pay for it (Mutwiri, 2015) ^[37].

H7: There is a significant effect of Common sense of borrower on Credit risk management.

has the mean value of 4.2705 with standard deviation of 0.72865. The variable Condition has the mean value of 3.6673 with standard deviation of 0.76931. Similarly, the variable Control has the mean value of 4.1205 with standard deviation of 0.77223. The variable Common sense has the mean value of 3.9856 with standard deviation of .72405. Lastly, the variable Credit risk management has the mean value of 4.1595 with standard deviation of 0.78607.

According to the table Reliability test for all component of questionnaire regarding the Effect of Credit evaluation and selection criteria on credit risk were computed through SPSS. Pallant (2001) ^[41] states Cronbach's Alpha above 0.60 or higher which shows that internal consistency of variable are acceptable or good.

Table 1: Descriptive analysis of all sample banks

Variables	N	Mean	Std. Deviation	Cronchbach's Alpha
Character	139	4.0360	.7557	0.673
Collateral	139	4.2486	.80716	0.850
Capital	139	4.0552	.7252	0.760
Capacity	139	4.2705	.72865	0.844
Condition	139	3.6673	.76931	0.709
Control	139	4.1205	.77223	0.842
Common sense	139	3.9856	.72405	0.796
Credit Risk Management	139	4.1595	.78607	

Pearson's correlation test

Table2 shows the relationship between the dependent and independent variable. The correlation between Character and Credit Risk Management is found to be 0.537 which is

positively correlated. Its p-value is also recorded to be 0.000 which is less than 0.05 i.e. $0.000 < 0.005$. Therefore, it can be inferred that there is positive and significant relationship between character and Credit risk management ($r=0.537$, $p=0.000 < 0.05$). The correlation between Collateral and Credit Risk Management is found to be 0.559 which is positively correlated. Its p-value is also recorded to be 0.000 which is less than 0.05 i.e. $0.000 < 0.005$. Therefore, it can be concluded that there is positive and significant relationship between Collateral and Credit Risk Management ($r=0.559$, $p=0.000 < 0.05$). The correlation between Capital and Credit Risk Management is found to be 0.625 which is positively correlated. Its p-value is also recorded to be 0.000 which is less than 0.05 i.e. $0.000 < 0.005$. Therefore, it can be concluded that there is positive and significant relationship between Capital and Credit Risk Management ($r=0.625$, $p=0.000 < 0.05$). The correlation between Capacity and Credit Risk Management is found to be 0.623 which is positively correlated. Its p-value is also recorded to be 0.000 which is less than 0.05 i.e. $0.000 < 0.005$. Therefore, it can be concluded that there is positive and significant relationship

between Capacity and Credit Risk Management ($r=0.623$, $p=0.000 < 0.05$). The correlation between Condition and Credit Risk Management is found to be 0.363 which is positively correlated. Its p-value is also recorded to be 0.000 which is less than 0.05 i.e. $0.000 < 0.005$. Therefore, it can be concluded that there is positive and significant relationship between Condition and Credit Risk Management ($r=0.363$, $p=0.000 < 0.05$). The correlation between Control and Credit Risk Management is found to be 0.619 which is positively correlated. Its p-value is also recorded to be 0.000 which is less than 0.05 i.e. $0.000 < 0.005$. Therefore, it can be concluded that there is positive and significant relationship between Control and Credit Risk Management ($r=0.619$, $p=0.000 < 0.05$). The correlation between Common sense and Credit Risk Management is found to be 0.772 which is positively correlated. Its p-value is also recorded to be 0.000 which is less than 0.05 i.e. $0.000 < 0.005$. Therefore, it can be concluded that there is positive and significant relationship between Common sense and Credit Risk Management ($r=0.772$, $p=0.000 < 0.05$).

Table 2: Correlation matrix for Showing the relationship between dependent and independent variables

	Character	Collateral	Capital	Capacity	Condition	Control	Common_sense	Credit_Risk management
Character	1							
Collateral	.688**	1						
Capital	.569**	.623**	1					
Capacity	.494**	.626**	.688**	1				
Condition	.222**	.252**	.423**	.388**	1			
Control	.504**	.586**	.566**	.659**	.355**	1		
Commonsense	.495**	.513**	.621**	.584**	.510**	.573**	1	
Credit Risk management	.537**	.559**	.625**	.623**	.363**	.619**	.772**	1

Note: ** Correlation is significant at the 0.01 level (2-tailed)

Table 3: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.821 ^a	.675	.657	.46010

In the model summary section of the table, the value of R2 is 0.675 this means 67.5% of changes in the dependent variable is explained by independent variable after adjusting the value of coefficient of determination.

Table 4: ANNOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	57.539	7	8.220	38.830	.000 ^b
Residual	27.731	131	.212		
Total	85.271	138			

The F-value for the model is 38.830 and is significant, as shown by the p-value below 0.05, that the relationship between dependent and independent variables is statistically significant and that the model is a good fit for the data.

Coefficients of regression model

The coefficients of regression model show the different contributing variables to measure the dependent variable. Different contributing variables in this study are Character, Collateral, Capital, Capacity, Conditions, Control and Common sense and dependent variable is effect of credit evaluation and selection criteria on credit risk management.

Table 5: Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.070	.281		.250	.803
Character	.085	.075	.081	1.131	.260
Collateral	.024	.078	.025	.313	.755
Capital	.097	.086	.090	1.137	.258
Capacity	.126	.086	.116	1.458	.147
Condition	-.079	.061	-.077	-1.298	.197
Control	.151	.073	.149	2.059	.041
Common sense	.597	.079	.549	7.531	.000

a. Dependent Variable: Credit risk management

In above table, higher beta value indicates higher dominant influence of independent variable on dependent variable. Under this study, it can be inferred that common sense has significant positive impact over key success drivers with standardized beta value of highest value 0.549.

$$CRM = 0.070 + 0.081*CC + 0.025*CD + 0.090*CE + 0.116*CF - 0.077*CG + 0.149*CH + 0.549*CI$$

Where,

CRM=Credit risk management; CC= Character; CD= Collateral; CE= Capacity; CF= Capital; CG= Condition; CH= Control; CI= Common sense

The constant score indicates that coefficient of effect of credit evaluation and selection criteria on credit risk other than the independent variables considered under the study are 0.070. From this table, fitted model indicated that Control and Common sense has positive and significant impact on credit risk management and other explanatory variable has insignificant effect at 5% level of significance.

Table 6: Hypothesis test result

Hypothesis	(P-value)	Accept/Reject
H ₁ : There is significant effect of Character of borrower on credit risk management.	0.260	H ₁ rejected
H ₂ : There is significant effect of Collateral of borrower on credit risk management.	0.755	H ₂ rejected
H ₃ : There is significant effect of Capital of borrower on Credit risk management.	0.258	H ₃ rejected
H ₄ : There is significant effect of Capacity of borrower on Credit risk management.	0.147	H ₄ rejected
H ₅ : There is significant effect of Condition of borrower on Credit risk management.	0.197	H ₅ rejected
H ₆ : There is significant effect of Control of borrower on Credit risk management.	0.041	H ₆ accepted
H ₇ : There is significant effect of Common sense of borrower on Credit risk management.	0.000	H ₇ accepted

Discussion

The study result shows there is significant relationship between Character of customer and credit risk management which is similar to the findings of (Moulton, 2007) ^[36]. There is significant positive relationship between Collateral of customer and credit risk management which align to the findings of (Kodongo & Kendi, 2013) ^[24]; (Berger & Black, 2011) ^[9]. The study has found a positive relationship between the capacity of a borrower and credit risk management which align with the finding of (Kodongo & Kendi, 2013) ^[24]. The study shows that Capital has positive impact on the credit risk management of the banks. The result is consistent to the findings of (Greenwood *et al.*, 2010) ^[16]. The negative impact of Condition of a loan contract on the credit risk management is aligned to the findings of Daly (2010) ^[12]. There is significant positive effect of Control of customer on Credit risk management. The findings are similar to the result of McGoven (1993); Abedi (2000) ^[1] and Mutwiri (2003) ^[38].

Conclusion and implications

The study intended to examine the effect of Character, Capacity, Capital, Collateral, Condition, common sense and control on credit risk management. The study result shows character, Collateral, Capital and Capacity has positive and statistically insignificant effect on credit risk management. Condition has negative and statistically insignificant effect on credit risk management. However, Control and Common sense have positive and significant effect on credit risk management. Out of all the variables taken in the study common sense has greater effect on credit risk management. It can be concluded that bank should give importance and thoroughly examine all the criteria 7cs and should pay more focus on common sense, control and capacity to reduce credit risk.

Effective and prudent credit risk management technique can help banks to contain the rate of non-performing advances thereby improving the financial performance of the banks. It is necessary for the banks to have a comprehensive framework in place to manage credit risk effectively. This research can be useful at formulating such framework since this tells the variables that have influences on the credit risk management technique. It is necessary for the banks to tap into the common sense and control of customers before making any lending since the finding shows that common sense has greater degree of impact on the credit risk management in case of Nepalese commercial banks. However, they should consider the other criteria of credit appraisals as well before granting loans.

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