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Contribution of Credit Reference Bureau in Managing non-Performing Loans among Commercial Banks in Uasin Gishu County, Kenya

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Abstract

The purpose of this study was investigate the relationship credit reference bureau and management of Non-Performing Loans. The study was anchored on adverse selection theory. Correlational research design was used in the study. The study targeted all the branch and credit managers in 43 commercial banks. Census approach was employed in which all the branch and credit managers were involved in the study. Questionnaire was employed as data collection instruments. Pearson correlational and multiple regression analysis were used to test the hypotheses. The study established that there was a positive and significant relationship between credit scoring ($p=0.000<0.05$), credit information sharing ($p=0.028<0.05$) and management of Non-Performing loans. The study concluded that Credit Reference Bureau has a positive and significant relationship in the management of non-performing loans in the commercial banks. The study recommended that commercial banks should improve credit scoring and credit information sharing to help in the assessment of borrowers with low default rates which will result in the management of non-performing loans.

Key Words: Credit Reference Bureau, Credit Information Sharing, Credit Scoring, Management of Non-Performing Loans

1. Introduction

Credit Reference Bureau was formed first in the USA in 1906. Introduction of CRB was attributed to high mobility of the entrepreneurs. This forced the creation of National Association of Mercantile Agencies (NAMA) in 1906 to process the credit information between different CRBs and in diverse geographical entities (Omari, 2012). Other countries in the developed world that were among the earliest to embrace CRB entities included Germany (1934), France (1946) and Italy, Spain and Belgium 1960s (Ngunjiri, 2012). In 2008, Europe increase in case of Non-Performing Loans (NPLs) led to a financial crisis. This led to decline of the booming banking sector. Majority of the banks found themselves faced with a sudden credit growth halt (Sirtaine and Skamnelos, 2012). The high level of NPLs led the European countries to form Credit reference bureau. The formation of CRB was to increase in access of client information so as to be able to reduce case of serial defaulters.

In Africa, The West African countries particularly the French colonies were the earliest adopters of the CRB system (Alloyo, 2013). In 1962 the Western African countries formed the West African Monetary Union (WAMU) (Alloyo, 2013). Among the countries with public owned CRB companies include Angola, Burundi, Madagascar, Mozambique, Nigeria, Rwanda, Benin, Burkina Faso, Cote D'voire, Guinea Bussau, Mali, Niger, Senegal and Togo (Omari, 2012). The countries with private CRBs include Mali, Niger, Nigeria, Burkina Faso, Kenya, Benin, Senegal, Gambia, Cote D'ivore, Ghana, Uganda, Tanzania, Botswana, South Africa, Swaziland, Namibia, Rwanda and Togo amongst. South Africa had one of the most efficient credit reporting systems in sub Saharan Africa. It was characterized by fixed data retention periods that was correlated with the predictive value, presence of competing private bureaus and use of sophisticated credit scoring models that incorporate high quality data, full file reporting including both positive and negative information. The information gathered on both individuals and entities and a proper regulatory framework that facilitates efficiency and effectiveness in credit reporting (Dankwah, 2013).

The Kenyan banking sector was in the 1980's and 1990's saddled with a momentous Non-Performing Loans (NPLs) portfolio (CBK, 2010). This invariably led to the collapse of some banks Daima Ltd and Delphis Banks Ltd and the major catalyst in this scenario was serial defaulters, who borrowed from various banks with no intention of repaying the loans (Gichimu, 2013). Non-Performing Loans (NPLs) posed the greatest challenge to the banking sector. Kenya's biggest banks such as Kenya Commercial Bank and National Bank of Kenya had 51% and 56 % respectively of total loans being NPLs by 2001. Other banks such as Delphis Bank Ltd and

Daima Bank Limited had 76% and 72% of NPLs (Central Bank of Kenya, 2001). According to the Central Bank of Kenya (CBK), poor credit risk management was the main cause of the large number of bank failures witnessed from the 1984 (Central Bank of Kenya, 2001). The level of NPLs in 1998 stood at Ksh 80 billion and in 2001, it was estimated at 81.3 billion showing a steady upsurge (Osoro, Nyolei, Rotich and Odhiambo, (2015).

As early as 2008, the problem of non-performing loans was one that drags on the economy in that it disintermediation of bank-system lending. It caused erosion of banks' profitability, stagnation of economic resources and cautious behavior of corporations and consumers due to a decline in confidence in the financial system (Waweru and Kalani, 2009). The defaulters thrived in the information asymmetry environment that prevailed due to lack of a credit information sharing mechanism. The credit markets had been faced with adverse selection and moral hazard problems attributed to information asymmetry among lenders and borrower (Japelli and Pagano, 2005). Literature reviewed indicated that the reasons for the banking crisis and failures was the non-performing loans (Alloyo, 2013; Gichimu, 2013; Dankwah, 2013). This attributed the need to have appropriate risks management mitigation strategy which led to introduction of Credit Reference Bureau in order to reduce risk of loan default (Deborah and April, 2003). Even though many conducted studies in developed and developing countries suggest that the existence of CRB leads to a bigger credit market, lower default and interest rates, improved profitability and increased competitiveness within the banking industry, none of the studies have critically examined the relationship between CRBs and management of non-performing. Thus the study was conducted to fill into the knowledge gap.

1.1 Problem

Ideally the commercial banks are supposed to give loans and earn interest. The Kenyan banking sector witnessed an upsurge of non-performing loans adversely affecting the profitability of commercial banks in the 1980's, 1990's and early 2000, (Jappelli, et.al. 2002). The high default rate was due to lack of critical information sharing mechanism, because of information asymmetry that prevailed then, (Jappelli, 2007). However, in spite of the introduction of Credit Reference Bureau in 2008 banks have continued to collapse due to non-performing loans e.g. Dubai Bank, Imperial Bank and Chase Bank. These banks have been put under statutory management (CBK, 2015). According to CBK statistics, there was a gradual increase in the gross non-performing loans in 2016, where the value of gross Non-Performing Loans (NPLs) increased by 5.7% from Ksh.117.2 billion in March 2015 to Ksh. 123.9 billion in June 2016. In addition, the quality of assets, as measured by the proportion of net non-performing loans to gross loans rose from 2.6% in March 2015 to 2.7% in June 2016, (CBK, 2016). Despite Credit Reference Bureau being extensively used to provide information about borrowers' credit worthiness, in a developing countries like Kenya, few studies have been conducted on relationship between Credit Reference Bureaus and the management of Non-Performing Loans among commercial banks from the Kenyan context hence the purpose of this study.

1.1.1 Research Questions

The study was guided by the following research questions:

1) Is there any relationship between credit scoring and management of Non- Performing Loans among commercial banks?
2) Is there any relationship between Credit information Sharing (CIS) on management of NPLs among Commercial Banks?

1.1.2 Hypotheses

The study hypothesized that:

H_1 There is a significant relationship between credit scoring and management of non- performing loans.

H_2 There is a significant relationship between credit information sharing and management of NPLs

2.0 Literature

2.1. Theoretical review

Adverse Selection Theory

The adverse selection theory was put forward by Pagano and Jappelli (1993). The theory postulates that information sharing reduces adverse selection by improving banks information on credit applicants. The theory argues that asymmetric information between banks make it difficult for them to distinguish good from bad borrowers. This resulted to adverse selection of borrowers based on their collateral information but not on their ability to repay the loans. In the adverse selection theory (Pagano and Jappelli, 1993), information sharing improves the pool of bad borrowers who borrow with no intention of paying, decreases defaults and reduces interest rates. It can also lead to an expansion of lending. The theory explains that in the market, the party that possesses more information on a specific item to be transacted (in this case the borrower) is in a position to negotiate optimal terms for the transaction than the other party (in this case, the lender). The party that knows less about the same specific item to be transacted is therefore in a position of making either right or wrong decision concerning the transaction. Adverse selection have led to significant accumulation of Non-Performing Loans in banks (Bester, 1994; Bofondi and Gobbi, 2003).

According to adverse selection theory, information sharing alleviate the problem of information asymmetry in the following ways: Countering adverse selection through elimination of information asymmetry between lenders and buyer which ensure that loans are extended to good borrowers. According to Adverse selection theory, information sharing help to reduce default rates and interest rates and increase lending (Padilla and Pagano, 1996). Pagano and Jappelli (1993) showed that information sharing reduces adverse selection by improving banks information on credit applicants. The theory of asymmetric information tells us that it may be difficult to distinguish well from bad borrowers which may result into adverse selection problems. The theory explains that in the market, the party that possesses more information on a specific item to be transacted (in this case the borrower) is in a position to negotiate optimal terms for the transaction than the other party (in this case, the lender). The party that knows less about the same specific item to be transacted is therefore in a position of making either the right or wrong decision concerning the transaction. Adverse selection have led to significant accumulation of non-performing loans in banks (Bofondi and Gobbi, 2003).

2.1.2 Moral Hazard Theory

The moral hazard problem implies that a borrower has the incentive to default unless there are consequences for his future applications for credit. This result from the difficulty lenders have in assessing the level of wealth borrowers will have accumulated by the data on which the debt must be repaid, and not at the moment of application. If lenders cannot assess the borrowers' wealth, the latter will be tempted to default on the borrowing. Forestalling this, lenders will increase rates, leading eventually to the breakdown of the market Alary and Goller (2001). The moral hazard problem implies that a borrower has the incentive to default unless there are consequences for his future applications for credit. This result from the difficulty lenders have in assessing the level of wealth borrowers will have accumulated by the date on which the debt must be repaid, and not at the moment of application. If lenders cannot assess the borrowers' wealth, the latter will be tempted to default on the borrowing. Forestalling this, lenders will increase rates, leading eventually to the breakdown of the market Alary and Goller (2001). There are two approaches to resolving the adverse selection problem (McGuigan et al, 2008): one involves regulatory agencies that can be used to set standards of operations and the second approach is use of hostage mechanisms to support asymmetric information exchange and includes use of warranties, collateral etc. McGuigan et al, (2008) suggest that through application and interview process, the lender attempts to uncover private, impacted information about the applicant's credit history.

2.1.3 Information Asymmetry Theory

Information Asymmetry theory was put forward by Akerlof (1970). The theory postulated that information monopoly of one party created an imbalance of power of transaction. Information asymmetry deals with the study of decisions in transactions where one party has more or better information than the other which then creates an imbalance of power in transactions which can sometimes cause the transactions to go wrong. Information asymmetry describes the condition in which relevant information is not known to all parties involved in an undertaking. Information asymmetry causes market to become inefficient and forces market participants to take risk because it is assumed that information which is provided is always inadequate, inaccurate, incomplete and untimely. Akerlof used the example of the automobiles market where new and used cars are sold. Sellers of used cars thus have more knowledge about the quality of the car than the buyers of new cars. As a result, new cars and good cars must sell at the same price since it is impossible for a buyer to tell the difference between a good car and a bad cars. In commercial banks according to asymmetric information theory it may be complex to distinguish between good and bad borrowers (Auronen, 2003). The theory expounds that in the commercial banks the borrower that possesses more information on a particular transaction is in a position to negotiate optimal terms for the transaction than the lender (Auronen, 2003) and Richard (2011). If the commercial banks has less information about the borrower they are in a position to make either right or wrong decision concerning the transaction. This may result in to adverse selection and moral hazards which led to significant accumulation of nonperforming loans in banks (Bester, 1994; Bofondi and Gobbi, 2003).

According to Jappelli & Pagano (1999) also hint that information asymmetry can cause excessive lending and inefficiency in credit allocation. Claus (2011) in his study concludes that information asymmetry raises the cost of external finance and lowers the long – run level of steady state investment capital and output. Bengt Holmstrom classifies all these problems into either moral hazard or adverse selection problems depending on the type of information asymmetry (Nayyar, 1990). Moreover, banks face more than only two types of borrowers. Banks usually charge more than just one interest rate to all customers. High-risk borrowers pay a higher interest rate and credit rationing is less likely. However, banks cannot distinguish borrowers perfectly and screening them perfectly is impossible. Information asymmetry deals with the study of decisions in transactions where one party has more or better information than the other which then creates an imbalance of power in transactions which can sometimes cause the transactions to go wrong. This can result to some kind of market failure in the worst case scenario (Yun, 2009). Finance theory postulates that information asymmetry can constrain all types of external financing by either limiting availability or increasing costs. Consequently, information asymmetry affects the acquisition and use of bank lines since short-term bank credit is a primary external source of firm liquidity (Giannetti et al., 2010). Information Asymmetry describes the condition in which relevant information is not known to all parties involved in an undertaking (Ekumah, et al 2003). It has been used extensively to explain a diversity of concept, including those different market conditions (Misukin, 1991).

According to Akerlof, (1993), when only the average quality of the good can be assumed in markets with a good of indeterminate quality, over time goods of above-average quality will be driven out and will threaten the viability of the market for the good. In the case of consumer credit markets, the riskiness of a borrower can be thought of as the "good" that the lender "purchases." Joseph Stiglitz and Andrew Weiss extended these insights in their examination of the consequences of information asymmetries in lending. They suggested that even in a competitive equilibrium, credit markets can witness rationing owing to insufficient information. Given information asymmetries, banks rely on a combination of pricing (interest rates) and rationing to maximize returns.

2.2 Empirical review

2.2.1 Credit Reference Bureau and Management of Non-Performing Loans

A survey of 44 commercial banks was conducted by Ng'ang'a (2015) to investigate the effect of Credit Reference Bureaus information sharing on non-performing loans in commercial banks. The study used secondary data and was collected from previously collected data, general business publications, reports from and by financial institutions, CBK reports, census data from past record, library information and academic publications. The study established that CRB reports shared had a negative effect on non-performing loans. This is because Credit Information Sharing allows banks to better manage their credit risk and distinguish between good and bad borrowers. CRB reports has a great effect on non-performing loans since CRB reports enhance credit information sharing which reduces the extent of information asymmetry and reduce the number of the non- performing loans. The study also established that information sharing also reduces borrowers' moral hazard. When customers expect that their borrowing delinquencies will be shared, this information pooling lead to discipline on payment thus lowering delinquency rates and the level of NPLs. The study employed secondary data that could be manipulated and be biased while the current study employed primary data. The study only focused on credit information sharing while the current study focused on credit information sharing and credit scoring and how they assist in the management of non-performing loans.

Kisengese (2014) conducted a study to investigate the impact of credit information sharing on the level of non-performing loans of commercial banks in Kenya. The study employed descriptive survey research design. The study target population was 43 financial institutions operating in Nairobi city of Kenya. The findings were that, all banks had challenges of non-performing loans. Sharing of customer credit information affected the Non-performing loans as it helped the banks to decline loaning chronic defaulters; Including all credit history from other credit suppliers (positive information) would increase credit approval by commercial banks, while low default rate would result from lending to borrowers based solely on all credit suppliers positive information which would increase credit approval by commercial Banks. The study recommended that commercial banks should fully adopt and practice the concept of credit information sharing at every stage of credit appraisal so as to enable them weed out potential loan defaulters.

Moti *et al* (2012) conducted a study to investigate the effectiveness of credit management system on loan performance in micro finance sector in Kenya. This was in light of concern that microfinance institutions in Kenya experience high levels of non-performing loans which threatens viability and sustainability of MFIs and hinders the achievement of their goals. The study sought to establish the effect of credit terms, client appraisal, credit risk control measures and credit collection policies on loan performance. The study employed descriptive research design. The study targeted all the credit officers of the MFIs in Meru town. The study established that collection policy was found to have a higher effect on loan repayment with =12.74, P=0.000 at 5% significance level. The study recommended that effectiveness of credit referencing on loan performance of MFIs.

Mululu (2016) conducted a study to investigate the role of credit information sharing on the performance of commercial banks in Mombasa County, Kenya. The study employed cross sectional survey research design. A sample of 50 credit managers was drawn from a total population of 36 commercial banks in Mombasa County. Questionnaires was used as data collection instrument while secondary was obtained from bank supervision report, bank financial reports and credit reports. The study established that there was a positive correlation between the knowledge of borrowers, informational rent and customer discipline on organizational performance. The study established that CRB reduces adverse selection by improving bank's information of credit applicants. The study also established that CRB has enabled the bank to extend credit to safe borrowers. The study established that borrowers exert more effort in payment to avoid being listed, customer proactively sought ways to honor their commitments to avoid being listed at the CRB and customers were worried on the reputational damage of being listed at the CRB. The study employed cross sectional survey which was considered inappropriate to investigate the effect of credit information sharing on performance. Use of both primary and secondary data was considered appropriate. However, the sample size of 50 credit managers was considered inadequate to generate findings that could be generalized into other countries

A survey was conducted by Kimasar and Kwasira (2014) to investigate the use of credit Reference Bureaus on Loan Recovery among Selected Commercial Banks in Kenya: A Survey of Nakuru Sub-County. The study established that, CRB reports were being used for both secured and unsecured personal and business lending by all (100%) commercial banks. The CRB reports were used in credit scoring to prevent over borrowing and over-committing the customers' pay slips. The use of the CRB report in credit scoring had positive results on loan default rates as 70.8% of the respondents indicated that customers exerted more efforts in paying their credit facility to avoid being listed.

An explanatory study was conducted by Kioko and Wario (2014) to investigate the influence of credit information sharing on performance of licensed deposit taking SACCO businesses in Kenya. The study established that credit information sharing plays a significant role on performance of the deposit taking Sacco's and recommends the extension of credit information sharing to all other Sacco's including non-deposit taking. The study employed explanatory research design which was considered inappropriate to investigate influence of credit information sharing on performance of SACCOs. The study would have employed an experimental research design such as ex-post facto research design.

According to Tanui and Namusonge (2013) study on the effect of credit reference bureau on the level of loan default among commercial banks in Kenya: a case study of Barclays bank of Kenya- Kitale branch. It seeks to establish whether through access of credit reports from the bureaus, commercial banks are able to better distinguish between bad and good borrowers hence reducing the likelihood of default on loan repayments. A case study of Barclays Bank- Kitale branch. The study found out that the bank is taking a keen look at the credit scores of all credit applicants in order to determine good and bad borrowers and thus reducing the likelihood of loan default. Through use of credit rating of customers the bank was able to know and determine the likelihood of default and therefore grants its credit facilities to customers with good credit scores only thus reducing its nonperforming loans portfolio. The study therefore recommends that banks, borrowers and CRBs should work closely to ensure that there is no information asymmetry and thus ensuring that credit flows to deserving borrowers.

Kimani (2016) conducted a study to investigate the Credit Reference Bureau Strategy and Loan Performance at the Commercial Bank of Africa in Kenya. The study found that CRBs are used for providing a person's or entity's credit history, sharing credit information analysis, storing and dissemination of information from lenders on borrowers loans, generating reports for borrowers upon request, helping in identification of serial credit defaulters and providing credit rating or scoring of a customer. The study concludes that Credit Information sharing affects non-performing loans by lowering banks risk level hence reducing the portfolio at risk and the provisioning for NPLS which in turn increases the profitability of the bank. Additionally choosing the right customer for lending through prudent lending plays a significant part in reducing the level of NPLs as the character of the borrower is checked through the credit information obtained and this ensures that banks only lend to customers whose credit history is favorable.

Wairimu (2015) conducted a study to investigate the effect of credit reference bureaus on the level of non-performing loans in the commercial banks in Kenya. This was attributed by the fact that though lending is the main activity of commercial banks in Kenya, the level of Non-Performing loans has been causing significant loss of the banks. The researcher adopted descriptive survey research design. The target population of the study 42 operational commercial banks. Secondary data was collected from published financial statements of commercial banks in Kenya between years 2007 to 2012. The study found that CRBs had an effect on NPLs; there was an average reduction of 4% on the level of NPLs in the years after the introduction of CRBs that is 2010-2012 and the null hypothesis was rejected; there was positive significant effect of CRBs on the level of NPLs. The study also concluded that there is an inverse relationship between the number of credit checks done by the CRBs and the level of NPLs. Therefore, the use of credit reference bureaus by commercial banks in Kenya was found to be value additive and did indeed reduce the level of NPLs in commercial banks in Kenya.

Shisia, Sang, Mutung'ulu and Okibo (2014) conducted an assessment of credit reference bureaus on the management of non-performing loans in the banking industry in Kenya, a case of Nairobi County. The purpose of the study was to establish the extent to which reputation collateral and blacklisting has on management of bad debt in Kenya's banking industry. The study sourced data from secondary sources. The data was obtained from financial reports, library, and banks' records such as in-house magazines, journals, publications as well as website and other resourceful information available for 5 years from 2008 to 2013, the duration when the CRB regulation has been in operation. The study established that CRB plays a major role in managing nonperforming loans. Reputation collateral and blacklisting do have both positive and negative effect respectively on the management of bad debt in Kenya's banking industry. In addition, CRB firms in Kenya should link with other regional CRB firms in other countries as to have information on credit histories of those crossing the borders. The study also revealed that lack of awareness and non-compliance are currently the major challenges of CRB application in Kenya.

Kwambai and Wandera,(2013) found that the main factors that lead to bad loans in most cases are; lending to borrowers with questionable characters, serial loan defaulters, high interest rates that make it hard for some to pay, diversion of funds by borrowers from what they had intended to work on not being disclosed before the bank, lack of commitment by the borrower to pay the loan, poor planning by the borrowers of what and how they will use the loan for which exercise and lack of collateral for the bank. These causes make many borrowers not to pay their loans hence leading to many bad loans and the trend keeps on increasing due to lack of commitment from the Central bank of Kenya and financial institutions to erase and address some of the these problems that lead to the increase in these cases. Waweru and Kalani (2009) in their study on Commercial Banking Crisis in Kenya concluded that many of the financial institutions that collapsed in 90s were due to Non-Performing Loans, they found out that one major cause was due to lack of regulated Credit Reference Bureaus in the country. Earlier studies done in the very area limited themselves in credit risk management within the individual financial institutions and lacked the concept of information sharing found in CRB concept

Mwirigi, (2010) study on Assessment of Credit Risk Management Techniques adopted by Microfinance in touched on credit risk mitigation through CRBs. Banks face the credit risk due to the fact that they don't have comprehensive borrower's information from a historical perspective, the borrower's characteristics and the intention of the borrower thus creating a moral hazard. The removal of the information asymmetry between commercial banks through the use of the Credit Reference Bureau (CRB) assists the bank to make better credit risk assessment of potential borrowers. Information collected by the CRBs in a historical context had powerful default predictive power. The more information was included in the CRB report the better the default predictive models.

3.0 Methodology

3.1 Design

Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with the economy in procedure (Mugenda and Mugenda, 2006). This study employed correlational design. A correlational research design was useful to researchers who are interested in determining to what degree two variables are related, it indicates an association between two or more variables" (Creswell, 2008). When a correlational research design is appropriate for a study, the correlational study aims at examining the relationship between credit reference bureau and management of non-performing loans. Additionally, this method enabled the researcher to infer the findings to a larger population with high level of accuracy.

3.2 Population

The target population is the aggregate of the cases that conform to some designated set of specification (Mugenda and Mugenda, 2003). The study targeted a total of 43 commercial banks licensed in Kenya by the Central Bank of Kenya operating in Eldoret. The study targeted all the branch and credit managers in all the commercial banks numbering 86.

3.3 Sample and Instruments

Census approach was employed where all the 43 commercial banks branch and credit managers were involved in the study. Census approach was considered for the study because the target population was manageable statistically (Kish, 2011).

The study employed both primary and secondary data collection instruments. Questionnaire was employed to collect the responses from the branch and credit managers. The study employed close ended questionnaire (Kohen and Kohen, 2004). The questionnaire was divided into two sections. The first section focused on the demographic characteristics of the respondents while the second section focused on specific information based on the research questions. Annual financial reports from and by financial institutions and library information was employed as secondary data collection instruments.

3.4 Validity and Reliability of the Research Instruments

3.4.1 Validity of Research Instruments

Validity refers to whether the research instrument measures what it intends to measure. In ensuring the research instruments are validate the research instruments (Mugenda & Mugenda, 1999). The study employed content and construct validity. Content validity was determined by consultation with expert from the Credit Reference Bureau and also supervisors from the Catholic University of Eastern Africa. Construct validity was determined by extensive review of literature to ensure that the items in the questionnaire capture all the research questions of the study. The researcher conducted face to face validity. This ensured that the items in the questionnaire measure what they are intended to measure.

3.4.2 Reliability of Research Instruments

A reliable research instrument is one that that give the same results if you used it repeatedly with the same group. The one that is able to fetch the required information. This means that there is high level of clarity of the questions asked in the questionnaire to enable the correspondent to understand the questions being asked. Reliability can also be indicated as the extent to which the measurement is random error- free and produces the same results on repeated trials (Cooper & Schindler, 2011). To determine the reliability of the questionnaire, the study employed test- retest technique. Test retest technique involved administering the questionnaire to the credit and branch managers of 10 commercial banks in Kitale town. The researcher then re-administered the questionnaire after two week. Data obtained from the first test was computed against data obtained from the second test and analyzed using Pearson Product Moment of Correlation. Coefficient index of 0.67 was considered reliable according to Kohen and Kohen (2004).

3.5 Data Analysis

The collected data was analyzed in both descriptive and inferential statistics. Descriptive statistics was analyzed in form of frequencies, percentages, means and standard deviation. The descriptive statistics were presented in form of tables and graphs. Pearson correlational analysis and multiple regression were employed to test the hypotheses. Pearson Correlational analysis was used to establish the relationship and the direct of the relationship that is whether the variables have a positive or negative relationship and the extent of the relationship. Multiple regression analysis was used to determine which variable had the highest relationship on the management of Non-Performing loans. The study employed the following multiple regression model.

$Y=\beta_0 + B_1X_1 + \beta_2X_2 + \varepsilon$ Where,

Y Represent the dependent variable (management of NPLs),

β_0 constant term,

X_1 Credit Scoring

X_2 Credit Information Sharing,

ε is the error term.

Level of Significance- 0.05

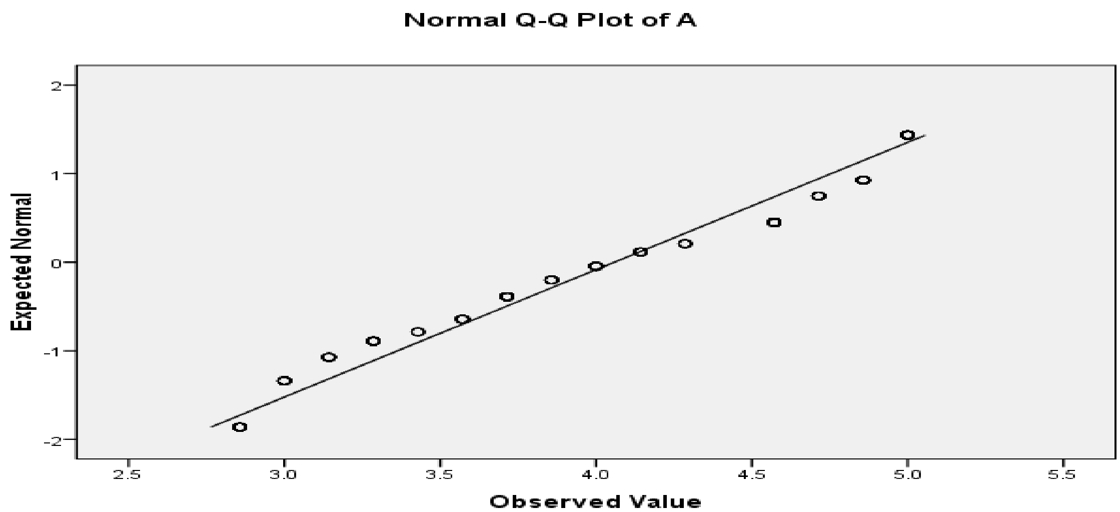
4.0 Results and Discussions

4.1 Test of Normality

The test on normality from the table revealed that the data was significant at 5%.

The results were as shown in the figure 4.1 below;

Figure 4.1 Showing Normality Test



Source: Researcher Data, 2017

The study results on the test of normality graphically revealed that the data points stray from the line indicating non-linear distribution, the data are not normally distributed. This shows that from the normal Q-Q plot above, the data is normally distributed

4.2 Pearson Correlation Analysis
To explore the relationship between Credit Reference Bureau and management of Non-Performing Loans Pearson Correlation Analysis was conducted. The results of the Pearson Correlational analysis are summarized in table 4.1 below.

Table 4.1 Pearson Correlation Analysis

Statement	1	2	3	4
Management of NPLs	1			
Credit sharing information	0.894	1		
Credit Scoring	0.781	0.855	1	

Source: Researcher Data, 2017

Table 4.1 above shows that, there is a strong positive relationship between credit reference bureau and management of Non-Performing Loans. The study established that Credit sharing information (r=0.894) and credit scoring (r=0.781) had a positive and significant relationship with management of Non-performing Loans.

4.3 Regression results

4.3.1 Multiple Regression Results

Multiple Linear Regression analysis was employed to test the relationship between credit reference bureau and management of non-performing loans. The results are as shown in Table 4.2 and Table 4.3

Table 4.2 Regression Analysis of Independent Variables and Management of Non-Performing Loans

Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	F	Sig.
1	0.600[a]	0.36	0.821	0.2967	9.287	0.000

Source: Researcher Data, 2017

a. Predictors: (Constant), credit scoring, credit information sharing, timeliness of obtaining information

b. Dependent Variable: Management of NPLs

The findings established that the linear relationship between credit scoring and credit information sharing and management of non-performing loans had a positive and significant. The coefficient of determination (r2) was 0.821, and this shows that 82.1% of the variations in the management of NPLs could be explained by the adoption of Credit Reference Bureau while 13.9% of the variations in management of NPLs could be explained by other macro-economic factors such as inflation rate and interest rates not captured in the model.

Table 4.3: Multiple Regression Model

Model Summary

Coefficients[a]

Model	Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
(Constant)	0.002	0.692		0.003	0.000
Credit Scoring	0.279	0.069	0.418	4.042	0.000
Credit Information Sharing	0.216	0.097	0.529	2.241	0.028

Source: Researcher Data, 2017

a. Dependent Variable: management of NPLs

The regression equation based on the regression model was as follows;

$Y= \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \varepsilon$

Management of NPLs = 0.002 + 0.418 (Credit Scoring) + 0.529 (Credit Information Sharing) +0.692 (Error rate)

From the regression equation, it can be deduced that credit information sharing was the most important factor in the management of NPLS variable contributing approximately 52.9% followed by credit scoring contributing 41.8% of management of NPLs. From the study all the independent variables had a positive predictive power this implies in absence of CRB, management of NPLs will be significant at 0.002, p=0.000. This implies that, the management of NPLs will be positive and significant.

4.4 Test of Hypotheses

The 5% level of significance was taken as the level of decision criteria whereby the null hypothesis was rejected if the p-value was less than 0.05 and fail to reject if otherwise. Management of NPLs (y) was calculated as an aggregate of all the parameters measuring management of NPLs in the research instrument.

H_{o1}: There is no significant relationship between credit scoring and management of NPLs in commercial banks in Uasin Gishu County.

The study results indicated that there was a positive and significant relationship between credit scoring and management of NPLs (p=0.000). The study findings indicated that there was a positive and significant relationship between credit scoring and management of NPLs and a beta of 0.418 is at statistically significant level and is a good predictor of management of NPLs implying that an increase in credit scoring by one unit would result to significant increase in performance by 0.418. From this results, the reject the null hypothesis as P=0.000<0.05 and affirm that credit scoring has significant relationship with the management of NPLs among commercial banks in Uasin Gishu County.

H_{o2}: There is no significant relationship between credit information sharing and management of NPLs in commercial banks in Uasin Gishu County, Kenya.
The study findings indicated that there was a positive and significant relationship between credit information sharing and management of NPLs. Credit Information Sharing with a beta of 0.529 is at statistically significant level and is a good predictor of management of NPLs. The findings implied that use of Credit information sharing from CRB will result to significant increase in management of NPLs by 0.529. Since the p=0.028<0.05 the null hypothesis was rejected. Therefore, there was a positive and significant relationship between credit information sharing and management of NPLs.
H_3: there is no significant relationship between credit reference bureau and management of NPLs. With a correlation of R=0.600, p=0.000 and coefficient of determination r^2 =0.821, the study findings implied that there was a positive and significant relationship between Credit Reference Bureau and management of NPLs. From the results, the null hypothesis was reject the null hypothesis as P=0.000<0.05 and affirm that Credit Reference Bureau had a positive and significant relationship with management of NPLs

4.5 Discussion

The study findings revealed that there was a positive and significant relationship between credit reference bureau and management of non-performing loans among commercial banks in Uasin Gishu County, Kenya. The findings revealed that credit scoring helped the commercial banks to assess the credit worthiness of the borrowers' credit scoring, lowered delinquency and default and guided the lending institutions on the quality of collateral request from borrowers. The findings also revealed that credit information sharing had a positive and significant relationship with the management of non-performing loans. The findings revealed that commercial employing CIS had helped in lowering of credit cost for good borrowers which has motivated many borrower to repay their loans. CIS had also acted as a pivotal role in reducing information asymmetry that exist between banks and the borrowers thus helping in the assessment of credit requests which has helped to mitigate risks of bad debts. CIS had also reduced moral hazards and adverse selection and has prevented borrowers from overcommitting to credit facilities all which has helped in the management of NPLs.

The findings supported Tanui and Namusonge (2013) study which established that through use of credit rating of customers the bank was able to know and determine the likelihood of default and therefore grants its credit facilities to customers with good credit scores only thus reducing its non-performing loans portfolio. The findings were also in line with Kimani (2016) who highlighted that credit information sharing was used to help in identification of serial credit defaulters and provide credit rating or scoring of a customer which improve the loan performance in the commercial banks. The findings reiterated Beck (2007) who established that increased information sharing allows for more informed risk assessment, improves access to credit for groups that have traditionally underserved, enables greater and broader access to capital for small businesses and entrepreneurs, and generally enables better lending decisions with lower rates of delinquency and default.

The findings were consistent with Ng'ang'a (2015) study which CRB reports has a great effect on non-performing loans since CRB reports enhance credit information sharing which reduces the extent of information asymmetry and reduce the number of the non- performing loans. The study also established that information sharing also reduces borrowers' moral hazard. When customers expect that their borrowing delinquencies will be shared, this information pooling will lead to discipline on payment thus lowering delinquency rates and the level of NPLs. The findings also supported Kisengese (2014) study which established that sharing of customer credit information reduced Non-performing loans as it helped the banks to decline loans to chronic defaulters, positive credit information increased credit approval by commercial banks which helped in the reduction of NPLs. The findings also supported Mululu (2016) study which established that CRB had reduced adverse selection by improving bank's information of credit applicants. The findings were in line with Pagano and Jappelli (2003) study on Information Sharing in Credit Markets which established that information sharing reduced adverse selection by improving banks information on credit applicants and when banks exchange credit information about borrowers' kinds, there is increase in lending to good credit borrowers. By reducing information asymmetry between lenders and borrowers, credit registries allow loans to be extended to safe borrowers who had previously been priced out of the market, resulting in higher aggregate lending. The findings were also consistent with Kimani (2016) study which established that Credit Information sharing affects non-performing loans by lowering banks risk level hence reducing the portfolio at risk and the provisioning for NPLS which in turn increases the profitability of the bank. The findings were also consistent with Brown & Zehnder (2006) study which highlighted that the existence of public credit reference bureaus has motivated borrowers to repay their loans within the required time. As such, better information on potential borrowers should mean that it would be both cheaper and easier to obtain loans as good borrowers could benefit from lower interest rate, easier terms and/ or less collateral all which has helped in the management of non-performing loans.

4.6 Conclusions

The study concluded that credit scoring had a positive significant relationship with the management of non-performing loans in the commercial banks. The study concluded that credit scores and rating helped the commercial banks to assess the credit worthiness of the borrowers which helped to mitigate risky borrowers from accessing loans from the commercial bank, this resulted in reduced default rate and helped in the management of Non-performing loans. The study also concluded that there was a positive and significant relationship between credit information sharing and management of non-performing loans. The study concluded that credit information sharing had helped to lowering of credit cost for good borrowers, had helped the assessment of credit requests which has helped to mitigate risks of bad debts and had prevented borrowers from overcommitting to credit facilities which helped in the management of non-performing loans.

4.7 Recommendations

The study recommended that the banks have been using the CRB information for credit scoring and, therefore, it is advised that, there is need to educate the customers on the role of the reports for credit scoring especially customers listed by non-bank institutions such as HELB and Mshwari. The study also recommends that CRB firms in Kenya should link with other regional CRB firms in other countries as to have information on credit histories of those crossing the borders. This is because liabilities of trans-border borrowing which account for debt owed to foreign lenders may not be captured by the local credit reference systems bureau hence posing another barrier for credit bureau application.

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