

The Effect of Credit Information Sharing on Credit Risk in Kenya Commercial Banks

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ABSTRACT---- *This study sought to examine the effect of credit information sharing on credit risk in Kenya commercial banks. The specific objectives of the study were to establish the effect of information sharing on borrower's credit history, credit worthiness and repayment history on credit risk in Kenya commercial banks. The study adopted a descriptive survey research design. The target population of the study was the 42 commercial banks in Kenya as licensed by the Central Bank of Kenya. The study was based on both primary and secondary data. The primary data was collected through a questionnaire from the credit managers of the 42 commercial banks while the secondary data was retrieved from the CBK annual reports. The study was based on quantitative data which was analysed using descriptive and inferential statistics. The study established that borrowers' credit history, credit worthiness and repayment history had an inverse relationship with the banks' credit risk level. The study concluded that information sharing on borrower's credit history, comparing the past history of debt repayments as well as the current debt and information on borrower's credit worthiness reduces credit risk. In conclusion credit information sharing has been helpful in credit risk reduction in Kenya commercial banks. Based on the study findings the study recommends that commercial banks and other lenders should adopt adequate credit information sharing systems.*

Keywords--- Credit risk, Credit history, Creditworthiness, Repayment history

1. INTRODUCTION

Credit information sharing is the exchange of information on a client's financial history including aspects such as the client's credit history, credit worthiness and current debt level of the borrower (Jappelli & Pagano, 2010). Globally, the biggest problem commercial banks are facing is the non-repayment of loans. Credit information sharing is one way to screen loan applicants in order to mitigate defaults on loan advances. It is a process where banks and other credit providers submit information about their borrowers to a credit reference bureau so that it can be shared with other credit providers. It enables the banks to know how borrowers repay their loans (Giannetti, Jentzsch & Spagnolo, 2010). Credit scores have immense benefits to both lenders and borrowers. Borrowers are able to negotiate with lenders on better terms. Highly rated borrowers with good credit history can convincingly negotiate for lower interest rates or even waiver of collateral (Doblas-Madrid & Minetti, 2009). It has been found out that in order to minimize loan losses thus credit risk, it is essential for commercial banks to have effective credit risk management systems in place (Jappelli & Pagano, 2010). Given the asymmetric information that exists between lenders and borrowers, financial institutions must have a mechanism that ensures that they not only evaluate default risk that is unknown to them in order to avoid adverse selection, but also that can evolve in order to avoid moral hazards (Stiglitz & Weiss, 2008).

Utilisation of Credit Information Sharing (CIS) has seen an increase in its use since its inception. A report by the World Bank (2009) indicates that institutionalized information sharing through private bureaus or public credit registers is utilized in more than 100 countries in the world. Mishkin (2008) notes that developing and transition economies utilize credit registries or have fostered credit bureaus in order to boost credit growth. Introduction of credit information sharing initiative was aimed at cushioning lender from financial distress resulting from borrowers not meeting their financial obligations.

Credit reference bureaus enable information sharing about borrowers' characteristics and their indebtedness. This improves the banks' knowledge of applicants' characteristics and permits a more accurate prediction of their repayment probabilities. They also operate as borrower discipline devices by eliminating borrowers' incentive to become over-indebted by drawing credit simultaneously from many banks without any of them realizing. This in effect significantly reduces the probability of loan default (Jappelli & Pagano, 2010). An effective system that ensures repayment of loans by borrowers is critical in dealing with asymmetric information problems and in reducing the level of loan losses, thus the long term success of any banking organization. Credit risk management is essential in optimizing the performance of financial institutions (Brown & Zehnder, 2006).

1.1 Credit information sharing in Kenya

Credit information sharing is a relatively new concept in Kenya: Banking (credit reference bureau) regulations 2008 that govern licensing, operation and supervision of credit bureaus by Central Bank of Kenya were gazetted and operationalized in 2009 (Oludhe, 2011). The Central Bank of Kenya has licensed two Credit Reference Bureaus i.e. Credit Reference Bureau Africa Limited and Metropol Credit Reference Bureau Limited (Kabiru, 2007). For many years, Kenyan banks have had to contend with having incomplete information about borrowers that in turn translated to higher risk premiums on interest rates. Bank industry players also say lack of credit reference information leads to a risk of overpricing low risk borrowers and under-pricing high risk borrowers.

Perennial defaulters had been the cause of high lending rates (Rukwaro, 2001). In view of this, credit information sharing is a mechanism introduced by Central Bank requiring all banks to share data on the credit history of their customers. This information is shared by banks through credit reference bureaus when they want to establish the credit worthiness of a customer seeking a loan. More recently, credit scoring evolved to loss and exposure risk as well (Glennon *et al.*, 2008). Scoring techniques are nowadays used throughout the whole life cycle of a credit as a decision support tool or automated decision algorithm for large customer bases. With increasing competition, electronic sale channels and recent saving, credit and cooperative regulations have been important catalysts for the application of semi-automated scoring systems (Walsh, 2003).

According to CBK (2012) since the commencement of the Credit Information Sharing Mechanism in July 2010, all the 41 licensed commercial banks in Kenya and institutions under the Deposit Protection Fund Board continued to submit negative information to licensed CRBs within the required timeframes. Furthermore, the banks have incorporated the CIS mechanism in their credit reports from the CRBs while reviewing loan requests. The improved utilization of credit reports by banks are estimated to cut information search costs and consequently offer reasonable terms of borrowing to customers with good credit track record (CBK, 2012). Credit Information sharing (CIS) Kenya launched its 2015-2019 Strategic Plan in late October 2014. The Plan is reflective of recent debates and conversations around financial inclusion and access to affordable credit. Motivated by the desire to realize the full benefits of CIS in the next five years, the Strategy seeks to entrench the use of credit reports as part of routine credit management by both lenders and borrowers. Moreover, this Strategy takes cognizance of the need to bring regulators, financial service providers and credit reporting providers together around a model that works for all (CRB, 2016).

2. THEORETICAL FRAMEWORK

The study was based on three theories namely the information asymmetry theory, credit rationing theory and portfolio theory, as presented in the subsequent subsections.

2.1 The information asymmetry theory

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. 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 (Ekumah & Essel, 2013).

2.2 Credit rationing theory

This theory was introduced by Freimer and Gordon (1965) and comprehensively described by Stiglitz and Weiss (1981). Asymmetric information leads to credit rationing, as lenders cannot distinguish between high quality and low quality borrowers. However, this dominate view is not without criticism. In particular, De Meza and Webb (1987) vigorously contest this result. They show that asymmetric information in credit markets can lead to the inverse result, which is an excess of credit (over lending). The more interesting form of credit rationing is equilibrium rationing, where the market had fully adjusted to all publicly, i.e. why banks ration credit free, available information and where demand for loans for a certain market interest rate is greater than supply (Diamond & Rajan, 2001). Stiglitz and Weiss (1981) proved that credit rationing occurs if banks charge the same interest rate to all borrowers, because they cannot distinguish between borrowers and screening borrowers perfectly is too expensive. Both assumptions are very simplifying and do not occur in this manner in the real world. Banks are usually able to distinguish their borrowers up to a certain degree. 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. Thus, credit rationing may occur.

2.3 Portfolio theory

Portfolio theory of investment which tries to maximize portfolio expected return for a given amount of portfolio risk or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. Modern Portfolio Theory (MPT) proposes how rational investors should use diversification in order to optimize their portfolios. It also discusses how a risky asset should be priced. If there are doubts about the quality of the portfolio, it will be hard to mobilize or retain deposits or to qualify for a funding facility with a bank (Drzik, 1995). This is a very important linkage between credit risk and liquidity risk which yield to market confidence. Commercial banks therefore have to combine portfolio of risky and risk free assets in a well-balanced manner. Risk free assets can comprise treasury bonds and treasury bills while risky assets may range from advancing long term loans to blue chips companies to an overdraft facility extended to an individual or start up business. To cost loan products banks have to assess the inherent risk of lending to their clients (Drzik, 1995). However, the theory poses a number of gaps. Some of the issues not addressed by this theory include; how banks can form a portfolio of loans that minimize risk and maximize return. It does not outline ways of determining a risk free portfolio. In addition the theory does not address various risks that are faced by banks when managing a loan portfolio (Jin & Leslie, 2003).

2.4 Empirical review

2.4.1 Credit History and Credit Risk

Kisengese (2014) conducted a study on the impact of credit information sharing on the level of non - performing loans of commercial banks in Kenya. The research design for this study was descriptive survey while the population of interest consisted of 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.

Gaitho (2013) did a study on the role of credit reference bureaus on credit access in Kenya. The sample of 96 respondents was drawn from the employees working in the headquarters of these banks targeting managers within the finance, strategy and business development portfolios/dockets in the 42 commercial banks in Kenya. It was established that credit bureaus provides reliable and inexpensive system to exchange information on the character and ability to pay of borrowers enhancing credit access. It also reduced cases of multiple borrowing, over-indebtedness and loan defaults. It also offers financial institutions access to databases that capture relevant aspects of clients' borrowing behavior and thereby reducing vetting process and strive to provide credit reports with information that is relevant, complete, accurate and recent to assist the creditor in decision making.

Alloyo (2013) did a study on the effect of credit reference bureaus on credit risk of commercial banks in Kenya. The study adopted a descriptive design and used secondary data in analysis. The target population consisted of 44 banks. Credit information sharing helps correct this imbalance by allowing banks and other lending institutions to collect and share data on millions of potential borrowers, thus allowing lenders to gather information on the creditworthiness of each. By facilitating information sharing among lenders, credit bureaus enables lending institutions sort good borrowers from bad, price loans appropriately, decrease processing time and reduce screening and other transaction costs. In the same way, credit information sharing has also helped banks and other financial institutions recover loans. That is, when borrowers know that their credit information will be shared, they have an additional incentive to pay. Good borrowers also benefit from lower interest rates, as lenders compete for their business.

2.4.2 Credit Worthiness and Credit Risk

According to Weston and Eugene (2014) credit worthiness is measured by the general financial position of the borrower as indicated by a financial ratio analysis, with special emphasis on tangible net worth of the borrower's business. Capital as a measure of credit worthiness is the money a borrower has personally invested in the business and is an indication of how much the borrower has at risk should the business fail. Sindani (2012) tested whether there was any significant relationship between Credit worthiness and loan performance. From the computed chi-square value (33.959) at 2 degree of freedom, there is a significant relationship between Credit worthiness and loan performance since the computed p-value (0.000) is less than 0.05 at 95% confidence level. Macharia (2013) similarly found out that credit worthiness of the business of the client is an important factor that should be considered when appraising clients. This is therefore to suggest that credit worthiness of the business should be an important consideration in client appraisal.

Inkumbi (2009) noted that credit worthiness was a major stumbling block for entrepreneurs trying to access capital. This is especially true for young entrepreneurs or entrepreneurs with no money to invest as equity; or with no assets they can offer as security for a loan. Gakobo (2014) did a study on the effect of credit appraisal procedures on financial performance of commercial banks in Kenya. It was established credit appraisal procedure does affect credit risk reduction

of commercial banks in Kenya. Also norms for providing loans should be flexible and they may differ from case to case, the level of efficiency of the credit appraisal processes is an important rating element considered by various borrowers; banks should take into account all possible factors which go into appraising the risk associated with a loan and that the bank carefully analyses the financial strength of the borrower based on performance & financial indicators.

2.4.3 Repayment History and Credit Risk

It has been found out that in order to minimize loan losses thus credit risk, it is essential for financial institutions to have effective credit risk management systems in place (Basel, 2010). Given the asymmetric information that exists between lenders and borrowers, financial institutions must have a mechanism that ensures that they not only evaluate default risk that is unknown to them in order to avoid adverse selection, but also that can evolve in order to avoid moral hazards. An effective system that ensures repayment of loans by borrowers is critical in dealing with asymmetric information problems and in reducing the level of loan losses, thus the long term success of any banking organization (Turner & Varghese, 2007).

Angulin and Scapens (2000) in their study indicated that it is difficult to have accurate information on the financial ability of prospective borrowers and even more difficult to have accurate information on their credit history. This makes it extremely difficult for the lenders to assess the credit worthiness of potential borrowers and their ability to pay the loans. According to Ozdemir and Boran (2008) a study done in Canada on factors affecting loan default among small business borrowers, showed that when a loan is not repaid, it may be a result of the borrowers' unwillingness and/or inability to repay, he recommends that the banks should monitor borrowers and select the clean borrowers from defaulters and monitor them to make sure that funds are utilized for the intended reason. He further argued that the guiding principle in credit appraisal is to ensure that only those borrowers who require credit and are able to meet repayment obligations can access credit.

Furletti (2002) in his study on the overview and history of credit reporting was of the view that credit reports give businesses insights into a consumer's repayment history, similar to the ways in which an insurance company might use a driving record or a prospective employer might use a college transcript. These insights, which include a consumer's record of meeting financial obligations, can be used to make decisions about his or her stability and his or her ability and willingness to repay debt. Without such information, borrowers would likely be required to provide more information about them when applying for any type of credit and pay more for access to credit. In fact, in countries that do not have a well-developed credit reporting system, creditors can make the mistake of lending to consumers who are already over extended or in default with another creditor. These mistakes result in a higher cost of borrowing for all consumers.

3. STUDY POPULATION AND MODEL OF ANALYSIS

Target population in statistics is the specific population about which information is desired. According to Ngechu (2004), a population is a well-defined set of people, subjects, elements, events, group of things or households that are being investigated. This definition ensures that population of interest is homogeneous. The target population of this study was the 42 commercial banks in Kenya as provided for by the CBK.

The sampling design of this study was based on Kothari's (2004) hypothesis which postulates that a sample of 100% of the target population is used when the target population is small. Therefore, this study undertook a census survey of all the 42 commercial banks in Kenya. Cooper and Schindler (2003) indicate that census technique frequently minimizes the sampling error in the population. This in turn increases the precision of any estimation methods used. Census survey is appropriate for this study because the target population was small (Mugenda & Mugenda, 2008).

The study adopted descriptive research design. This was because descriptive research design is appropriate where the study seeks to describe the characteristics of certain groups, estimate the proportion of people who have certain characteristics and make predictions (Cooper and Schindler, 2011). The design was also suitable since it helps to describe the state of affairs as it exists without manipulation of variables (Kothari, 2004).

For the purpose of this study, the researcher used both primary and secondary data. The primary data was collected from the credit managers of the 42 commercial banks through a self-administered questionnaire. Secondary data was obtained from the CBK annual reports for a period of five years (2011-2015).

Data collected was edited, coded and classified into different components to facilitate a better and efficient analysis. In analysing the quantitative data, the study used descriptive and inferential statistics using Statistical Package for Social Sciences (SPSS version 20.0). Pearson's Correlation Coefficient analysis was used to test the strength of the relationship between the dependent and independent variables while Logistic Regression model was used to establish the relationship between the independent variables and the dependent variable.

The regression model specification was as follows;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where;

Y = Credit risk

X₁ = Credit history

X₂ = Credit worthiness

X₃ = Repayment history

ε = Error term

β₁ - β₃ = regression model coefficients

4. RESEARCH FINDINGS AND DISCUSSIONS

The study sought to determine the effect of credit information sharing on credit risk in Kenya commercial banks. The study findings were as outlined in the subsequent sections.

4.1 descriptive statistics

4.1.1 Respondents' Level of Agreement on Effect of Credit History on Credit Risk

Table 4.1 Respondents' level of agreement on the effect of borrower's credit history on credit risk

	Mean	Std Deviation
The institution relies on borrower's credit history in awarding the loan.	4.28	0.452
By comparing the past history of debt repayments as well as the current debt, banks reduce credit risk.	4.38	0.490
Credit history from other credit suppliers would increase credit approval by commercial banks	4.20	0.405
Low default rate would result from lending to borrowers based solely on all credit suppliers positive information	4.20	0.405
Through analysis of credit history, there is decrease in processing time and reduced screening and other transaction costs	4.10	0.304
When borrowers know that their credit information will be shared, they do have an additional incentive to pay	4.10	0.304
Information sharing reduces cases of multiple borrowing, over-indebtedness and loan defaults	4.08	0.267
Credit information sharing provide imprecise knowledge of a borrower's likelihood of repaying	1.88	1.017

Table 4.1 above indicates that the respondents agreed that banks relied on borrower's credit history in awarding loans, credit history from other credit suppliers would increase credit approval by the banks, low default rate would result from lending to borrowers based solely on all credit suppliers' positive information, through analysis of credit history, there is decrease in processing time and reduced screening and other transaction costs and information sharing reduces cases of multiple borrowing, over-indebtedness and loan defaults with a mean of more than 4 in a scale of 5. However, the respondents disagreed with the view that credit information sharing provides imprecise knowledge of a borrower's likelihood of repaying as indicated by a mean of 1.88. This showed that majority of the respondents were of the opinion that credit history is key in customer appraisal by banks implying that information on borrower's credit history affected the credit risk of Kenyan commercial banks. This agreed with Kisengese (2014) who noted that sharing of customer credit information affected the non-performing loans as it helped the banks to decline loaning chronic defaulters. This was also consistent with Alloyo (2013) who observed that by facilitating information sharing among lenders, credit bureaus enables lending institutions sort good borrowers from bad, price loans appropriately, decrease processing time and reduce screening and other transaction costs.

4.1.2 Respondents’ Level of Agreement on Effect of Credit History on Credit Risk

Table 4.2 Respondents level of agreement on the effect of borrower’s credit worthiness on credit Risk

	Mean	Std. Deviation
The institution relies on the applicants’ current debt level when appraising credit allocation	4.10	0.304
The bank considers the institutions where loans were borrowed previously by the applicant before advancing a loan.	4.03	0.480
High default rate would result to lending to borrowers based solely on only the absence of default (negative) information from Credit Reference Bureau.	4.05	0.597
Low default rate would result from lending to borrowers based solely on all credit suppliers (positive information) would increase credit approval by commercial Banks.	4.13	0.516
Your organization forwards list of credit defaulters (negative information) only to credit reference bureau	1.93	0.888
You use credit rating and look for evidence of a business’s ability to repay the loan, in the form of past earnings or income projections	4.15	0.483
Your organization forwards list of credit defaults, overall loan exposure, guarantees and data from past credit history to Credit Reference Bureau.	4.15	0.533

Table 4.2 above indicates that the respondents agreed that banks relied on the applicants’ current debt level when appraising credit allocation, the banks consider the institutions where loans were borrowed previously by the applicant before advancing a loan, high default rate would result to lending to borrowers based solely on only the absence of default (negative) information from Credit Reference Bureau, the banks used credit rating and looked for evidence of a business’s ability to repay the loan, in the form of past earnings or income projections and that the banks forward list of credit defaults, overall loan exposure, guarantees and data from past credit history to Credit Reference Bureau with a mean of more than 4 in a scale of 5. However, the respondents disagreed with the view that the banks forwarded the list of credit defaulters (negative information) only to credit reference bureau as indicated by a mean of 1.93. This implied that credit worthiness of the borrower had a significant influence on the commercial banks’ credit risk. This is consistent with Sindani (2012) who found a significant relationship between credit worthiness and loan performance. This also agreed with Macharia (2013) who found out that credit worthiness of the business of the client is an important factor that should be considered when appraising clients. They asserted that credit worthiness of the business is an important consideration in client appraisal.

4.1.3 Respondents’ Level of Agreement on Effect of Repayment History on Credit Risk

Table 4.3 Respondents’ level of agreement on the effect of borrower’s repayment history on credit risk

	Mean	Std. Dev
The bank takes into account the repayment history of the applicant when advancing the loan	4.18	0.549
It is difficult to have accurate information on the financial ability of prospective borrowers and even more difficult to have accurate information on their credit history	1.88	0.911
The past history of debt repayments determines the ability of the borrower in loan repayment	4.20	0.564
The bank considers the timing of the repayment when advancing the loan	4.08	0.656
Consumer's record of meeting financial obligations, can be used to make decisions about his or her stability and his or her ability and willingness to repay debt	4.18	0.636
The bank considers the successful repayment of the loan through cash flow analysis when advancing the loan	4.28	0.452
Banks should monitor borrowers and select the clean borrowers from defaulters and monitor them to make sure that funds are utilized for the intended reason	4.15	0.483

Table 4.3 above indicates that the respondents agreed that the banks take into account the repayment history of the applicant when advancing the loan, the past history of debt repayments determines the ability of the borrower in loan repayment, the bank considers the timing of the repayment when advancing the loan, the bank considers the successful repayment of the loan through cash flow analysis when advancing the loan and consumer's record of meeting financial obligations, can be used to make decisions about his or her stability and his or her ability and willingness to repay debt with a mean of more than 4 in a scale of 5. This implied that majority of the respondents were in consensus that the borrower's repayment history had a significant effect on commercial banks' credit risk. This agreed with Anthony (2006) who found a significant relationship between repayment history of the client and loan performance which means that repayment history is critical in client appraisal and financial institutions should consider the capability of the customers they are awarding loans to repay. However, this was in contrast with Hansen (2004) who highlighted that many borrowers make a lot of effort to repay their loans, but do not get rewarded for it because this good repayment history is not available to the bank that they approach for new loans.

4.1.4 Non-performing loans Ratio

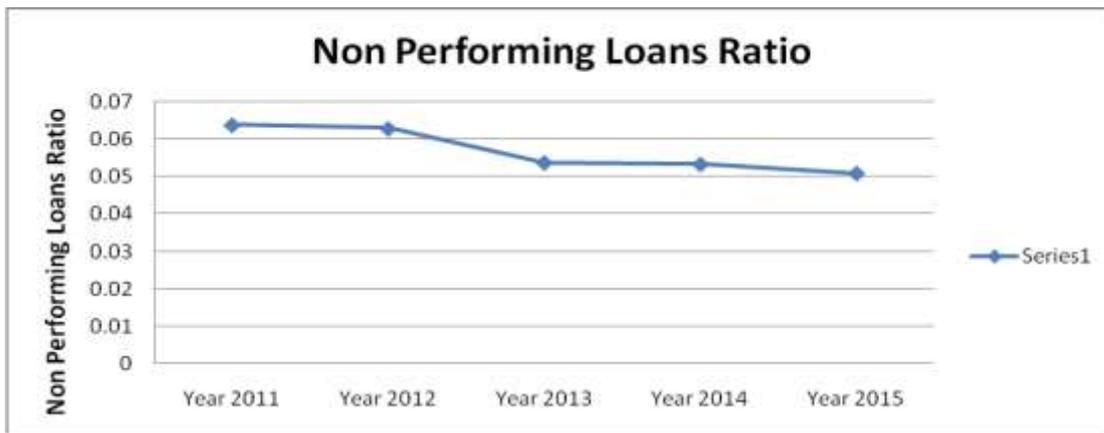


Figure 4.1 Non Performing Loans Ratio Trend Analysis

The study established that non-performing loans ratio has reduced across the banks in the last five years. The ratio reduced from 0.064 in year 2011 to 0.063 in year 2012. It reduced further to 0.054 in year 2013, 0.053 in year 2014 and 0.051 in year 2015. The reason is as a result of credit information sharing and thus credit risk reduction. This agreed with Miller (2013) that credit information sharing plays a key role in improving the efficiency of financial institutions by reducing loan defaults. The banking sector in Kenya was saddled with a momentous NPLs portfolio before the advent of CIS mechanisms.

4.2 correlation analysis

Pearson correlation results shown in Table 4.4 indicate that there is a significant negative correlation between credit history and credit risk ($r=0.527$, p value <0.05). This implies that a unit increase in credit history reduces credit risk. Table 4.3 also shows that there is a strong negative correlation on between credit worthiness and credit risk ($r=0.614$, p value <0.05) implying increase in credit worthiness reduces credit risk. Table 4.3 further shows a strong negative correlation between repayment history and credit risk ($r=0.685$, p value <0.05) implying an increase in repayment history reduces credit risk. Hence all the independent variables had a negative relationship with credit risk.

Table 4.4 Correlation Matrix

		Credit Risk	Credit history	Credit worthiness	Repayment history
Credit Risk	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	40			
Credit history	Pearson Correlation	-.527*	1		
	Sig. (2-tailed)	.000			
	N	40	40		
Credit worthiness	Pearson Correlation	-.614*	-.049	1	
	Sig. (2-tailed)	.000	.126		
	N	40	40	40	
Repayment history	Pearson Correlation	-.685*	.056	.014	1
	Sig. (2-tailed)	.000	.000	.011	
	N	40	40	40	40

Pearson's product moment correlation analysis was used to assess the relationship between the study variables.

* Significance at 5%

4.3 regression analysis

4.3.1 Test of the Model and Data

Before running the regression model, the researcher performed a test of the model and data using normality tests. Use of inferential parametric statistical procedures requires that the assumptions of such tests of normality are tested. This is to assist the graphical tests to be performed about the normality of the data to check for skewness and kurtosis coefficients. This test helps to confirm whether the data follows a normal distribution or not. If the normality is not achieved, the results may not depict the true picture relationship amongst the variables. In this study, normality was tested using Kolmogorov-Smirnov Test and the Shapiro-Wilk Test. The Shapiro-Wilk Test is more appropriate for small sample sizes (< 50 samples), but can also handle sample sizes as large as 2000. For this reason, this study used the Shapiro-Wilk test as our numerical means of assessing normality. If the Sig. value of the Shapiro-Wilk Test is greater than 0.05, (P-value test statistic) the data is normal. If it is below 0.05, the data significantly deviate from a normal distribution.

Table 4.5 Tests of Normality

Variables	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Credit history [X ₁]	.309	40	.210	.611	40	.164
Credit worthiness [X ₂]	.384	40	.210	.404	40	.164
Repayment history [X ₃]	.315	40	.210	.782	40	.164
Credit risk [Y]	.272	40	.210	.763	40	.164

a. Lilliefors Significance Correction

Source: Field data (2016)

Table 4.5 above indicates that the significance values for the Shapiro-Wilk tests were 0.164 for credit history, credit worthiness, repayment history and credit risk, each. For the Kolmogorov-Smirnov tests, the significance values were 0.210 for credit history, credit worthiness, repayment history and credit risk, each. This implies that since the p-value of Shapiro-Wilk tests and Kolmogorov-Smirnov tests were greater than the chosen alpha level of 0.05 then we accept the hypothesis that the data came from a normally distributed population. The results of the tests are therefore of a normally distributed population.

4.3.2 Regression Analysis Results

To determine the relationship between the study’s independent variables and the dependent variable, the study used the following regression model;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Table 4.6 Regression Analysis Results

	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	1.026	.316		3.310	.027
Credit history	-0.341	.118	-0.427	-2.890	.032
Credit worthiness	-0.493	.128	-0.381	-3.852	.015
Repayment history	-0.576	.116	-.412	-4.966	.012

Based on the results in Table 4.6, the regression analysis equation thus became as follows;

Equation 1: $Y = 1.026 - 0.341 X_1 - 0.493 X_2 - 0.576 X_3 + \varepsilon$

According to the equation 1 above, taking all factors (that is, credit history, credit worthiness and repayment history) constant at zero, credit risk of the commercial banks would be 1.026. A unit increase in information on borrowers’ credit history would lead to a 0.341 decrease in the banks’ credit risk; a unit increase in information on borrowers’ credit worthiness would lead to a 0.493 decrease in the banks’ credit risk while a unit increase in information on borrowers’ repayment history would lead to a 0.576 decrease in the banks’ credit risk. This means that there exists an inverse relationship between credit information sharing and the commercial banks’ credit risk level with the most significant aspect being repayment history followed by credit worthiness and credit history, respectively.

4.3.2.1 Credit history and credit risk

Table 4.6 shows that There is a fairly negative relationship between credit history and credit risk ($\beta = -0.341$, p value < 0.05). This implies that a unit increase in credit history would reduce credit risk by 0.341 units. This agreed with Kisengese (2014) sharing customer credit information affected non-performing loans, as it helped banks decline loaning chronic defaulters. This also agreed with Alloyo (2013) who noted that by facilitating information sharing among lenders, credit bureaus enable lending institutions sort good borrowers from bad, price loans appropriately, decrease processing time and reduce screening and other transaction costs.

4.3.2.2 Credit worthiness and credit risk

Table 4.6 also shows that There is a significant negative relationship between creditworthiness and credit risk ($\beta = -0.493$, p value < 0.05). This showed a unit increase in creditworthiness would reduce credit risk by 0.493 units. This is consistent with Sindani (2012) who found there is a significant relationship between credit worthiness and loan performance. Macharia (2013) similarly found out that credit worthiness of the customer business is an important factor that should be considered when appraising a client.

4.3.2.3 Repayment history and credit risk

Table 4.6 also indicates that There is a significant negative relationship between repayment history and credit risk ($\beta = -0.576$, p value < 0.05) implying a unit increase in repayment history would lead to a decrease on credit risk by 0.576 units which was in harmony with Arko (2012) since banks consider the repayment history, the timing of the repayment, and the successful repayment of the loan which in turn reduce credit risk. This was consistent with Turner & Varghese (2007) who argued that an effective system that ensures repayment of loans by borrowers is critical in dealing with asymmetric information problems and in reducing the level of loan losses, thus the long term success of any banking organization.

5. CONCLUSION

By comparing the past history of debt repayments as well as the current debt, banks reduce credit risk. Credit history from other credit suppliers would increase credit approval by commercial banks and low default rate would result from lending to borrowers based solely on all credit suppliers’ positive information.

The banks use credit rating and look for evidence of a business's ability to repay the loan, in the form of past earnings or income projections. They also forward list of credit defaults, overall loan exposure, guarantees and data from past credit history to Credit Reference Bureau. Low default rate would result from lending to borrowers based solely on all credit suppliers' positive information while high default rate would result to lending to borrowers based solely on only the absence of default negative information from Credit Reference Bureau.

Commercial banks in Kenya should consider the successful repayment of loans through cash flow analysis and the past history of debt repayments to determine the ability of the borrower in loan repayment.

6. RECOMMENDATIONS

The researcher recommends that commercial banks and other lending institutions should share full information since sharing of both negative and positive information on customers is important as it enables risk based pricing through credit scoring. The banks should monitor borrowers and select the clean borrowers from defaulters and monitor them to make sure that funds are utilized for the intended reason. There is also a need to ensure that both lenders and borrowers are sufficiently sensitized on the merits of a robust credit information sharing mechanism and are able to use it to their advantage. The researcher also recommends that CBK enforce laws and regulations on reporting loan defaulters. The errant commercial banks that fail to report loan defaulters to credit reference bureau should be sanctioned and punished. This will ensure that all loan defaulters are reported to a central place and will be on a common database.

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