

Effect of Loan Amount Limit on Performance of Mobile Loans Offered by Listed Commercial Banks in Nakuru County, Kenya

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Abstract:

Lending is the core financial activity of commercial banks. With the increasing dynamics in the banking industry where telecommunication firms and unregulated firms have unprecedentedly joined the business, commercial banks have been obliged to join the bandwagon of mobile lending. This notwithstanding the performance of mobile loans has come to question. This has raised pertinent queries with regard to the credit risk management practices being implemented to arrest the situation. It is against this backdrop that this study purposed to determine the effect of the aforesaid practices with a specific focus on loan amount limit and how it affects the performance of mobile loans offered by listed commercial banks in Nakuru County. The study adopted a cross-sectional survey research design. A total of 136 credit officers working with listed commercial banks in Nakuru County constituted the accessible population. A sample of 80 respondents was drawn from the accessible population using purposive and stratified random sampling techniques. A structured questionnaire and secondary data collection sheet were used to collect data. The validity and reliability of the questionnaire were tested. The collected data were analyzed using the Statistical Package for Social Sciences. Data were analyzed using descriptive and inferential statistics. The results of the analysis were presented in tabular form. It was revealed that the loan amount limit did not have a statistically significant effect on mobile loan performance. The study concluded that the limit of mobile loan amount had very little consequence on the performance of mobile loans extended to borrowers by listed commercial banks.

Key Words: Electronic banking; Listed commercial banks; Loan amount limit; Mobile loans

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I. Introduction

Background of the Study

Loan amount limit is a credit risk management practice that ensures that borrowers are lent credit facilities that are within their repayment capacity. The applications of commercial banks have the ability to assess and come up with a loan ceiling that can be advanced to potential borrowers. It is important to ensure that banks extend loans that borrowers are able to pay. This is founded on the fact that the loan portfolio is the largest asset of these financial institutions, hence its poor performance will apparently negate the profitability of the banks. It is also important to note that credit risk remains the primary genesis of non-performing loans (NPLs) in lending institutions.¹ Therefore, it is important for banks to implement effective credit risk management practices.²

Globally, commercial banks are the largest financial institutions, they face a string of risks when carrying out their activities and operations where credit risk is the most prominent. This is founded on the fact that lending constitutes the core business of commercial banks and hence the main source of their income. The ecosystem of mobile financial services is not only robust but also very dynamic and growing at a conspicuously fast rate. According to statistics, there exists more than half a billion registered mobile money accounts in the world, 174 million of which are active. About two-thirds of the citizens in low-income and middle-income countries are able to access financial services on the mobile platform.³

In the case of borrowers who do not have properly kept records on their financial history, the mobile platform comes in handy in accessing their propensity of default. The average number of products holdings including loans, credit cards, mortgages, and certificates of deposit have after consumers' acceptance of mobile banking technology in the United States. It is reported that mobile bankers made 72% more revenue than branch-only bankers due to increased transactions and products holding.⁵ In middle-income South American countries, individuals are more likely to default. The banks, however, use the thin financial histories available in credit bureaus to reduce the credit risk posed by mobile bank lending.⁴

Ghana has relatively low mobile money usage even though it has the highest bank account sign-up when compared to Kenya Tanzania, Uganda, and Rwanda. One of the barriers to the adoption of mobile money is the risk associated with it.⁶ Ghana commercial banks' ratio of non-performing loans to total loans rose to 19% in 2009 from 2% in 2008. The increase is attributed to failure to increase in-house capacity for risk analysis. The bank uses Experian software which helps assess credit scoring to aid in risk ratings, repayment computations, and collateral.⁷

Commercial banks in Kenya have also adopted different credit management practices which are determined by the bank ownership, its credit policies, credit scoring systems, bank regulatory environment, and the type of bank management. Commercial banks have persistently recorded high levels of default and NPLs. It is further indicated that the banking sector gross loans and advances increased from Kshs 1.4 trillion in March 2015 to Kshs 1.45 trillion as at June 20, 2015, which translated to a growth of 3.6%. However, the banks faced a higher loan default rate as the non-performing loan rate rose by 10% from Kshs 70.3 billion in March to Kshs 77.3 billion in June 2015 which has been partially attributed to credit risk in the market.⁸

Many commercial banks in the country have posted impressive results due to the mobile lending platform. However, mobile loan applicants mostly apply for small loans. The probability of default for mobile loans is higher compared to other loans. This is attributed to the inefficiency of bank systems, compromised security of the loans, and poor credit scoring systems which do not capture customers' personal and business details. Additionally, given that the repayment period is significantly short – normally 30 days – at least 50% of all mobile loans are paid late.⁹ All the 11 listed commercial banks in Kenya have branches in Nakuru County. Therefore, they constituted the scope of this study.

Statement of the Problem

Statistics indicate that the very small instant consumer loans offered on the mobile platform have ballooned from 11 deployments in the year 2011 to 52 deployments in the year 2016 with the largest concentration being in East Africa especially Kenya.³ Tens of millions of Kenyans have borrowed tiny amounts of money over their mobile phones, a factor that has contributed to increased financial inclusion in the country. This is further supported by the survey results which indicated that in Kenya, for example, 60 million loans were issued through M-Shwari where 20% of Kenyans admitted to having borrowed loans through the aforesaid mobile platform.¹⁰ As opposed to traditional banks and microfinance where 6.7% and 1.8% of Kenyans respectively were likely to borrow from, 40.9% of the borrowers cited digital credit as their preferred platform to borrow.¹¹ Though they are in many ways a boon to the borrowers, the aforesaid instant small mobile consumer loans are associated with a high degree of risk.¹² The interest charged on these loans is exorbitant. The fact that algorithms are employed to make quick and automated decisions and the loans are disbursed almost instantaneously increases the chances of incomplete or incomprehensive loan appraisal. Sources indicate that approximately 2 million borrowers have been blacklisted in Kenya majority of them for loans of a few dollars – characteristic of mobile loans. To compound this problem, a lot of time, resources, and efforts are required to clear a blacklisted borrower from the credit reference bureau (CRB). Indeed, the clearance certificate which is charged up to US\$ 20 is a disproportionate amount when one considers the average size of mobile loans.¹³ Although poor appraisal, exorbitant lending rates, and ineffective monitoring mechanisms could be part of the possible causes of mobile loan default and generally poor performance of the aforesaid loans, this is largely hypothetical. It was, therefore, necessary to carry out an empirical investigation on the performance of mobile loans and more so, to evaluate how the aforesaid performance was affected by credit risk management practices adopted by commercial banks in Kenya.

Research Objective

To assess the effect of loan amount limit on the performance of mobile loans offered by commercial banks in Nakuru County

Research Hypothesis

H₀: There is no significant effect of loan amount limit on the performance of mobile loans offered by commercial banks in Nakuru County.

Theoretical Review

The theories reviewed are credit risk theory as well as contract theory. They are discussed relative to loan amount limit (as part of credit risk management practices) and the performance of mobile loans.

Credit risk theory

The theory of credit risk was introduced by Merton and it is alternatively referred to as the structural theory.¹⁴ It states that default events are derived from a firm's asset evolution modeled by a diffusion process with constant parameters. The evolution is represented by a set of models where the loss conditional on default is exogenously specific. In these models, default can happen throughout the life of a corporate bond not only in maturity.¹⁵

The credit risk models developed by Merton used the principles of option pricing.¹⁴ The default process of a company is driven by the value of a company's assets and the risk of a firm's default is, therefore, explicitly linked to the variability of a firm's assets value. The theory holds that the payment of debt holders at debt maturity is smaller than the value depicted by the debt also the value of the assets of the firm at the market rate. There are three quantitative approaches used in analyzing credit risk they include reduced form appraisal, incomplete information approach, and the structural approach.¹⁶

The theory further postulated that there exists an inverse relationship between the probability of default and recovery rate.¹⁴ A quite different approach was proposed by Jokivuolle and Peura.¹⁷ It opined that collateral value is correlated with the probability of default for bank loans. In addition, the framework indicated that the borrowing firm total asset value triggers default but does not determine the recovery rate. Moreover, it was noted that the value of collateral just like the value of other assets is dependent upon economic conditions, that is, if the economy experiences recession recovery rates may decrease while default rates increase.¹⁸

Albeit the fact that the approach has proven very useful in addressing qualitatively the important aspects of pricing credit risk, it has been less successful in its practical applications. This can be attributed to the fact that the theory holds that a firm defaults only at maturity of the debt a situation that is not in line with reality. In order for the theory to be used in valuing default or risky debts of a firm with more than one class of debt in its capital structure, the priority or seniority structures of various debts have to be specified. The theory further assumes that absolute priority rules are adhered to in case of default. Additionally, the theory also uses lognormal distribution which tends to overstate recovery rates.¹⁹

According to Hull and White, a default may occur any time between the issuance and maturity of the debt and it is triggered when the value of a firm's assets reaches a lower threshold level.²⁰ The early literature on credit risk uses traditional actuarial methods of credit risk whose major difficulty lies in their complete dependence on historical data.

Credit risk is one of the most significant risks faced by commercial banks. In order to reduce potential loan losses caused by unreliable client's banks need to measure and evaluate the credit risk of each client separately.²¹ Banks should therefore use the models of measuring the probability of default of a borrower at a particular time. In particular, the models include credit position models and models of portfolio loss. Another approach that banks can use is asking for collateral and ensuring that it has a market value that tallies with the value of the debt. This means that in case of default the collateral will cover part of or the whole debt. Yet, the aforesaid faces challenges in that the mobile loans are advanced on mobile platforms where physical requirements including depositing collateral with banks are quite difficult to address. On the flip side, the banks can consider assessing the credibility of borrowers by contacting close persons who can give alibi regarding the creditworthiness of the borrower. This, in line with credit risk theory, is bound to minimize the chances of banks advancing mobile loans to borrowers likely to default on loan repayment.

Contract Theory

The theory is accredited to Holmstrom.²² The theory is based on how contractual agreements are made in the presence of information asymmetry. The theory holds that contracts are used to alleviate the conflict of interest between principals and agents. The optimal contract in reference to the theory maximizes the total benefit of the parties involved. Additionally, the theory is also concerned with optimizing incomplete contracts formed without perfect information regarding costs and benefits.²³

The theory assumes that all the contracts can fall along with a relational range from discrete mere transactions to highly relational transactions. An individual evaluates economic outcomes relative to reference points and weighs losses more heavily than similar-sized gains. The theory also postulates that individuals do not evaluate economic outcomes only on the basis of an absolute valuation attached to the outcomes but also relative to subjective reference points. In order to have an optimal contract, it is necessary to consider first the sophisticated or less risky customers.²⁴

Contract theory can be adapted to illustrate the performance of mobile loans offered by commercial banks. In order to ensure that commercial banks maximize their profits through mobile loans, it is necessary for them to have a contractual agreement that binds the borrower to pay the borrowed amount at a certain date and within a certain rate of interest. The foregoing is in tandem with the stipulations of the contingent theory. Commercial banks can also ensure that they enforce more stringent contract rules on mobile loans so as to reduce the rate of default. Additionally, banks should liaise with telecommunication providers to ensure that the borrower fully complies with the terms and conditions of the loan

Empirical Review

Loan amount limit and performance of mobile loans

It is indicated that all over the world, banks operate by setting limits on how much credit they are willing to extend to individual clients.²⁵ This is grounded on the fact that different clients vary extensively with

regard to their needs for credit facilities, and also in tandem with size and industry. As such, some borrowers, when the loan limit is set borrowers could be credit constrained. Therefore, it is incumbent on the loans officers to objectively and rationally determine the extent to which the limit should be set on various credit facilities. It is, however, important for the loan officers to assess the genuine needs of the individual borrowers. This is against the backdrop of the realization that the borrowers who have the greatest need for credit are the ones who are more likely to default. As such, it becomes complicated and unreliable to simply rely on the needs stated by the borrowers in deciding the loan limit.²⁵

An empirical study conducted in Taiwan sought to evaluate banks' credit assessment of corporate customers in the country.²⁶ Questionnaires were employed to collect data from a sample of 18 credit managers who had experience spanning more than 20 years in the banking industry. The questionnaires were administered personally by the researcher. The study acknowledged that bank credit risk management was ensured through among others, confirmation of the credit limit.

A study by Agarwal, Chomsisengphet, Mahoney, and Stroebel sought to know whether or not commercial banks passed through credit expansions to consumers who wanted to borrow.²⁷ The objective of the study was to propose a new approach to studying the pass-through of credit expansion policies that centre on frictions that are occasioned by the interaction between borrowers and lending banks. The study employed panel data on 8.5 million credit cards and 743 credit limit regression discontinuities. A simple model of optimal credit limits was used to illustrate that a bank's marginal propensity to lend (MPL) depended on a small number of parameters that could be estimated using the aforementioned credit limit discontinuities. However, the study fell short of illustrating the implication of credit limits on loan performance.

In Ghana, a study was conducted to evaluate the sensitivity of loan size to lending rates evidence from the Ghana microfinance sector.²⁸ The study used cross-sectional data drawn from 1800 households across Ghana. The findings of the study indicated that a change in interest rate led to varying responses to the demand for the loan amounts. However, this did not shed light on the implication of credit limits as a result of varying lending rates.

A study conducted by Chikalipah focused on credit risk in the microfinance industry in the sub-Saharan African region.²⁹ The objective of the study was to estimate the relationship between credit risk and loan sizes in the microfinance industry. The study used a sample of 2000 annual observations spanning the period between 1995 and 2013, and a total of 632 microfinance institutions drawn from 37 countries of the SSA region. It was established that there existed a positive relationship between loan sizes and credit risk amongst MFIs operating in SSA countries.

An empirical study by Njeru, Muhamed, and Wachira examined the effectiveness of the credit management system on the loan performance of commercial banks in Kenya.³⁰ The participants of the study included credit managers and credit officers working with the aforesaid banks. A census design was adopted. A semi-structured questionnaire was used in data collection. Descriptive and inferential statistics were used to analyze the collected data. According to the study results, it was established that credit terms affected loan performance. Importantly, the credit limit is part of credit terms. Hence, it was imperative to conclude that credit limits influenced the performance of loans extended by commercial banks in Kenya.

A study conducted amongst commercial banks in Kenya sought to assess the effect of mobile credit on the operational efficiency of the aforesaid banks.³¹ Both primary and secondary data were collected and analyzed. Multiple linear regression analysis was employed. It was revealed that the introduction of mobile credit enhanced operational efficiency in the collection of loans. The study also established that the introduction of mobile credit resulted in a decline in the proportion of NPLs which translated to enhanced operational efficiency in debt collection. The findings led to the conclusion that the introduction of mobile software-enabled automatic flagging of the credit limit.

Mobile loan performance

A loan or credit is regarded as money disbursed to a borrower and is to be repaid on a later date often attracting interest. Loan performance refers to the difference between how a loan is scheduled to be paid and how it is actually paid. Credit is extended to a borrower for a definite purpose and for a predetermined period. Loan performance is measured using the non-performing loans ratio which is calculated as NPLs divided by total loans. Commercial banks ought to develop essential strategies in order to respond to the issues hindering loan performance.³²

An empirical analysis of credit risk and loan performance was conducted by Mulafara in Sri Lanka.³³ The objective of the study was to determine the impact of credit risk on loan performance of selected commercial banks in Ampara District. A census was conducted on all bank branch managers and credit officers. Questionnaires were used to collect data on a study sample of 50 respondents. Data were analyzed using descriptive, correlation, and multiple regression analyses. The findings established that credit risk had a positive

but not significant impact on loan performance. Therefore, in order to improve loan performance, commercial banks should adopt more stringent policies on credit risk management.

Another global study examining credit risk management and loan performance was conducted by Sufi and Malik.³⁴ The study aimed at evaluating the influence of credit risk management practices on loan performance. Data were collected from managers and credit risk management staff of the microfinance banking sector. Descriptive statistics, inferential and multiple regression analysis were used in data analyses. It was indicated that credit terms and credit appraisal had a positive and significant impact on loan performance while collection policy and credit risk control had a positive but not significant impact on loan performance.

An assessment of interest rates and loan portfolio performance in commercial banks was conducted in Uganda.³⁵ One of the specific objectives of the study was to examine how Centenary Bank ensures that its loan portfolio has been maintained within acceptable limits to enhance performance. A case study research design was employed for the study. A sample of 73 employees was selected for the study. Data collection tools were questionnaires and documentary review. The study found that there were still cases of clients defaulting on loan repayment which increased the effect of bad debts in the bank and created risk in loan portfolio performance.

A regional assessment on bank-specific factors and loan performance was conducted by in Ghana.³⁶ The goal of the study was to determine the effect of bank-specific factors on the loan performance of HFC Bank. Data were obtained on a quarterly basis from 2008 to 2015. The study observed that loan interest rate, loan asset ratio, and bank loan loss provision are the factors that influenced loan performance. The study further concluded that bank-specific factors have a significant impact on loan performance.

An analysis of the effects of credit risk management practices on loan performance of commercial banks in Kenya was carried out by Wachira.³⁷ The study sought to identify how various credit risk management practices affect the performance of commercial banks in Nyeri County. A census study was conducted with a population of 86 respondents who comprised of branch managers, credit officers and credit managers. The findings established that credit risk management had an effect on loan performance amongst the commercial banks.

Another local study analyzing the effect of lending rate on loan performance of commercial banks in the country was conducted by Ngondo.³² The purpose of the study was to determine the effect of lending rates on loan performance in commercial banks. A descriptive research design was employed for the study. Secondary data was also utilized. Descriptive statistics and multiple regression analysis were used in analyzing data. The results of the study indicated that the effect of lending rate on loan performance was statistically significant. The study also noted that with interest rate capping banks have either registered an increase or decrease in their loan performance.

Conceptual Framework

A conceptual framework is defined as how the research problem is best explored, the specific direction the research will have to take, and the relationship between the different constructs or variables in a study as illustrated in Figure 1. It can also be described as a system of concepts, assumptions, and beliefs which support and guide the research study.³⁸ It aids in specifying and defining concepts within the research problem.³⁹

The conceptual framework shown in Figure 1 outlines two categories of variables, which are independent and dependent. The loan amount limit is the independent variable while mobile loan performance is the dependent variable. The performance of mobile loans was measured using non-performing mobile loan (NPML) ratio. The aforesaid ratio is calculated by dividing NPMLs by total loans.³² It was presumed that there existed a relationship between the aforementioned loan amount limit and the performance of mobile loans and that the stated relationship was influenced by the prevailing inflation.

The variables were operationalized using measurable indicators. In relation to loan amount limit, the indicators that were used include variation in loan limit, determinants of loan limit as well as adherence to loan limit. With regard to the present study, the performance of mobile loans was determined by dividing the non-performing mobile loans against the total mobile loans extended to borrowers by the surveyed commercial banks.

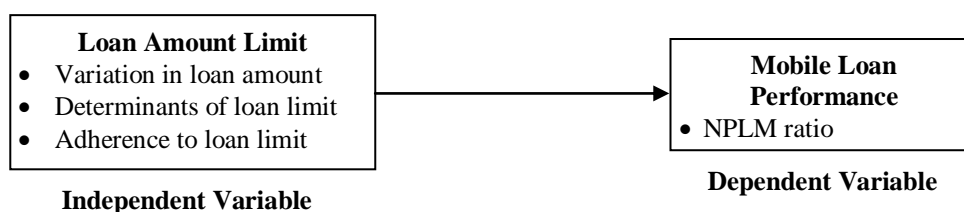


Figure 1: Conceptual Framework

II. Material and Methods

Research Design

A research design is defined as a roadmap that guides how a study is carried out.⁴⁰ Given that a cross-section of CBOs operating in Kakamega County were projected to take part in the study that was conducted over a relatively short and specified period of time, a descriptive survey design was adopted. Besides the aforesaid research design, a quantitative approach was employed. The choice of this approach is founded on the fact that the current study sought to collect numerical (quantifiable) data from the members of a cross-section of CBOs in Kakamega County. In line with scholarly assertion, this approach facilitated the collection of data that was not only easy to analyze and interpret in line with the study objectives, but also appropriate in drawing inferences guided by the stipulated hypotheses.⁴¹

Target Population

Target population which refers to the aggregate of individuals sharing related characteristics pertinent to a given phenomenon⁴² comprised of credit officers working with the 43 commercial banks in Kenya. The 136 credit officers working with listed commercial banks with mobile banking applications and operating in Nakuru County constituted the accessible population.

Sampling Procedure

The relatively large accessible population (136 credit officers) necessitated sampling. A sample size of 85 credit officers was calculated using Nassiuma's formula.⁴³ Purposive and stratified random sampling techniques were employed in obtaining the sampled respondents from the accessible population. Purposive sampling is characterized by the identification and selection of individuals who have particular knowledge about or experienced a phenomenon of interest.⁴⁴ Purposive in that, only credit officers working at the listed commercial banks which offer mobile loans were included in the study whereas other staff and other banks were effectively excluded from the study. Credit officers were considered to be the most informed bank staff on issues pertinent to credit risk management practices and mobile loans.

Given that the distribution of credit officers working with the aforementioned commercial banks in Nakuru County was heterogeneous, a stratified sampling technique was dully adopted. This method ensured that there was minimal bias since respondents were fairly and equitably distributed across the aforesaid banks. This was in tandem with the assertion that the purpose of stratified random sampling is to ensure that every stratum (bank) is adequately represented.⁴⁵

Research Instruments

Two distinct research instruments were used to facilitate collecting both primary and secondary data. In reference to the former, a structured questionnaire was employed while the latter were collected using a secondary data collection sheet. Questionnaires are the most recommended tools for collecting data in survey studies,⁴⁶ hence their choice. The questionnaire was structured in line with the quantitative approach that the study adopted.

The questionnaire was first subjected to a pilot test with the intent of assessing its validity and reliability in aiding the collection of data for the main study. The foregoing assists in ensuring that questionnaires evoke truthful responses and accurately reflect the subject of interest,⁴⁷ which in the context of the current study, was loan amount limit and performance of mobile loans amongst listed commercial banks. The content validity of the research questionnaire was determined by seeking the views of the assigned university supervisor relative to all the data items under each of the study variables captured in the questionnaire. Alongside, validity, reliability increases transparency in research.⁴⁸ Since the data questionnaire was structured such that it contained categorical data items which were on a Likert scale, the Cronbach's alpha coefficient was used to test the instrument's reliability. Although, Cronbach's alpha coefficient valued at 0.6 is considered acceptable, this study considered a minimum threshold of 0.7 which is more generally recommended.⁴⁹ The collected pilot data were analyzed using the Statistical Package for Social Sciences.

Data Analysis

The primary and secondary data collected were first subjected to screening with the view of getting rid of outliers emanating from either non-responses or inappropriately filled data collection instruments. The cleaned data were coded into the Statistical Package for Social Sciences (SPSS) Version 24 program ready for analysis. After data entry, the analysis took the form of descriptive and inferential statistics. The following regression model guided the aforesaid regression analysis.

$$Y = \beta_0 + \beta_1 X_1 +$$

Y represents 'mobile loan performance'

β_0 represents 'constant'

X_1 represents ‘loan amount limit’

ϵ represents ‘error margin of the regression model’

β_1 represent ‘coefficient of independent variable’

The null hypothesis was tested at 95% confidence level (p-value = 0.05). The results of data analysis were presented in tabular form and were in line with the study objective.

III. Result

Descriptive Statistics

In this section, the results emanating from primary data analysis in respect of loan amount limit as well as those of mobile loan performance obtained from analysis of secondary data are presented. Their interpretation and discussion are also explained

Loan amount limit

The study sought the opinion of credit officers on issues relative to loan amount limits advanced to borrowers by commercial banks in Nakuru County. The data collected and consequently analyzed were on the following Likert scale: Strongly Agree (SA) = 5, Agree (A) = 4, Neither Agree nor Disagree (NAND), Disagree (D) = 4, and Strongly Disagree (SD) = SD. The descriptive statistics used to analyze the collected primary data are presented in form of percentages, means, and standard deviations (Std. Dev) which represent measures of distribution, measures of central tendencies, and measures of variation respectively. The results of the descriptive analysis are presented in Table 1.

Table 1: Descriptive statistics for loan amount limit

	SA	A	NAND	D	SD	Mean	Std. Dev
Our bank has put a ceiling on total amount of loans extended on the mobile platform	65.7	28.6	0	5.7	0	4.54	.780
There is variation in loan limit across our bank’s customers	62.9	31.4	2.9	0	2.9	4.51	.818
Credit limit is on individual borrower’s basis	17.1	80.0	2.9	0	0	4.14	.430
There are clear determinants on mobile loan limit	22.9	65.7	2.9	8.6	0	4.03	.785
Our bank strictly adheres to the loan limit before extending credit to its customers	37.1	48.6	0	5.7	8.6	4.00	1.188
The determination of mobile loan limit is the same as limit on other bank loans	28.6	17.1	5.7	34.3	14.3	3.11	1.510

The views of the credit officers working with commercial banks in Nakuru County on the amount limit of mobile loans were examined. The results, as shown in Table 4.7, indicate that the credit officers strongly admitted that banks had put a ceiling on the total amount of loans that could be extended on the mobile platform (mean = 4.54), and that there was variation in loan limit across the banks’ customers (mean = 4.51). Their views on these two aspects of loan amount limit were largely similar (std dev < 1.000). The majority of the participating credit officers agreed that credit limit was based on individual borrowers (97.1%), there were clear determinants on mobile loan limit (88.6%), and that the banks strictly adhered to the loan limit prior to extending credit to their customers (85.7%). Similarly, the respondents were found to be generally in agreement with the aforesaid issues (mean ≈ 4.00) (Tsai, et al., 2016). These findings concurred with the results of a past study which indicated that confirmation of credit limit was one of the credit risk management practices adopted by banks in Taiwan. Nevertheless, the respondents were generally neutral with regard to the assertion that the determination of mobile loan limit was the same as the limit on other bank loans (mean = 3.11; std dev = 1.510). Interpretatively, while some of the credit officers were in agreement (45.7%) in respect of the aforesaid assertion, others disputed (48.6%) the proposition.

Mobile loan performance

In reference to the performance of mobile loans, pertinent data were obtained from the published and audited financial reports of all the 11 listed commercial banks in Kenya as at the year 2021. The listed banks include KCB, NBK, Absa Bank, Equity, DTB, I&M, Stanbic Bank, Standard Chartered Bank, Housing Finance, NCBA, and Cooperative Bank of Kenya. The financial data were drawn from the end-of-year financial reports of the respective bank spanning a period of 5 years, that is, from 2016 to 2020. It is indicative that albeit the fact that all the aforesaid had apparent data with regard to their respective total loan portfolio, they did not precisely comprehensively report on the status and/or performance of their mobile loans. Their reportage is covered in the narrative under the descriptive statistics illustrated in Table 2.

Table 2: Descriptive statistics for mobile loans in listed commercial banks

FY	TLP(B)	MLP(B)	PML(%)	MLR(B)	MLD(B)	MLT(M)	MLRR(%)	NPMLR
2016	1698.69	39.7	0.06	N/A	N/A	N/A	N/A	N/A
2017	1843.25	57.47	0.06	N/A	N/A	N/A	95.00	0.018
2018	1914.00	74.58	0.11	53.44	0.98	0.98	95.40	0.046
2019	2208.00	275.86	0.34	202.34	9.76	9.76	98.20	0.050
2020	2672.71	516.23	0.46	N/A	N/A	N/A	N/A	N/A

It is important to note that the financial results of the NBK for FY 2020 were integrated with those of the KCB. This is founded on the fact that the NBK was fully acquired by KCB in year and, hence, its subsequent results were under Kenya Commercial Bank. Prior to 2019, the NCBA was not listed. It assumed the listing status after its merger with the NIC Bank which was already trading on the Bourse. As depicted in Table 2, various data on mobile loans are not captured. This results from the failure by all the banks from documenting them in their financial reports for the years indicated.

For instance, in the years 2016, 2017, and 2020, there were no data documented by all the listed commercial banks with regard to mobile loans repaid and defaulted, and mobile loans transacted. Moreover, in both 2016 and 2020, none of the listed banks reported mobile loans repayment rates as well as non-performing mobile loan ratios. It is also important to note that the Kenya Commercial Bank and Cooperative Bank of Kenya were the most open in reporting on mobile banking. Notably, these two are the ones where the national government has a controlling stake. Therefore, their increased openness in their financial reporting could have largely alluded to the fact that the government plays a key role (albeit indirectly) in their management. This is an issue that invokes further empirical investigation to establish the reasons behind the lack of straightforwardness and comprehensiveness in reporting on mobile banking by listed commercial banks in Kenya.

As indicated in Table 2, the total loan portfolio for the 11 listed banks consistently increased over the five years' period, from a low of Ksh 1,698.69 billion in 2016 to a high of Ksh 2,672.71 billion in 2020. The results implied that the banks continued to increasingly lend money to their customers, the prevailing circumstances notwithstanding. Interestingly, the cumulative loan portfolio for these banks increased with the highest margin during the Corona Virus Disease 2019 (Covid-19) pandemic. The total loan portfolio rose from Ksh 2,208 billion in 2019 to Ksh 2,672.71 billion in 2020. This reflected a 21.05% increase compared to 15.36% recorded the preceding financial year. These results could have been orchestrated by the direction from the CBK that banks restructure their loans by giving their hitherto borrowers a moratorium on repaying their loans. It is reported that Tier 1 banks (all are listed at the NSE) restructured loans totaling 13.02% of their total book value (Tut, 2020). In the event that the banks continued to lend (irrespective of the slowing economy), the total loan portfolio was bound to increase.

Inferential Statistics

Inferential statistics used to analyze the collected data were Spearman's correlation analysis and simple linear regression analysis.

Correlation analysis

The results of correlation analysis are presented in Table 3. According to the results shown in Table 3, it is apparent that the relationship between loan amount limit ($r = -0.066$; $p = 0.582$) and non-performance (mobile) loan ratio was negative, weak, and statistically not significant at p -value = 0.05. The results were interpreted to mean there was a minimal likelihood that any alteration (reducing or increasing) effected on the aforesaid credit risk management practice could result in a change in the ratio of non-performance mobile loans offered by listed commercial banks in Kenya. Moreover, the results implied that the minimal chances of the loan amount limit affecting the NPL ratio were negative. These results departed from the findings of a study conducted amongst commercial banks in Kenya which indicated that credit limits influenced loan performance (Njeru, et al., 2017).

Table 3: Results of correlation analysis

		Cash Flow Cycle	Sustainability
Loan amount limit	Pearson Correlation	1	-.066
	Sig. (2-tailed)		.582
	n	72	72
NPL ratio	Pearson Correlation	-.066	1
	Sig. (2-tailed)	.582	
	n	72	72

Simple linear regression analysis

In assessing the effect of mobile loan amount limit on the performance of mobile loans, simple linear regression analysis was employed. The pertinent results are presented in Table 4 and Table 5. The results shown

in Table 4 ($r^2 = 0.023$) implied that only 2.3% of the variation in the performance of mobile loans could be explained by limit of the amount of loan extended to borrowers on mobile platforms. This meant that the said limit was largely inconsequential to their likelihood to be timely repaid or defaulted in their repayment.

Table 4: Model summary of loan amount limit against NPML

Model	r	r Square	Adjusted r Square	Std. Error of the Estimate
1	.151 ^a	.023	.009	1.42151

a. Predictors: (Constant), Loan amount limit

According to the results of analysis of variance shown in Table 5 ($F_{1,70} = 1.628$; $p = 0.206$), there was no linear relationship between loan amount limit and NPML at p -value = 0.05. The results implied that the null hypothesis (There is no significant effect of loan amount limit on the performance of mobile loans offered by listed commercial banks in Nakuru County) was not rejected. Essentially, the collected sample data could not fit the linear regression model linking the two constructs ($Y = \beta_0 + \beta_2 X_2 + \epsilon$). Therefore, the model was not feasible in assessing the effect of loan amount limit on the non-performance of mobile loans given by listed commercial banks. The aforesaid contradicted results of a previous study on commercial banks which indicated that credit limit influenced the performance of bank loans.

Table 5: ANOVA of Loan Amount Limit against NPML

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.290	1	3.290	1.628	.206 ^b
	Residual	141.448	70	2.021		
	Total	144.738	71			

a. Dependent Variable: NPL ratio

b. Predictors: (Constant), Loan Amount Limit

IV. Conclusions and Recommendations

Conclusions

The study concluded that all the listed commercial banks had put a ceiling for each borrower above which they could not lend on the mobile platforms. Essentially, it was inferred that the loan limit was not generalized; rather, it was personalized to each borrower. The ceiling could have been informed by the appraisal done prior to effecting the lending. It was also concluded that the banks strictly adhered to the loan limits. This was due to the fact that the issuance of mobile loans was computerized and was hardly under human influence. The amount generated by the system, therefore, is the one that the bank advanced to the respective borrowers. Yet, it was deduced that the loan amount limit was not consequential to the performance of mobile loans.

Recommendations

The article has made several recommendations relative to the cash flow forecast and financial sustainability of CBOs. It is recommended that all CBOs, irrespective of their sizes and industry, should always make short-term, medium-term, and long-term cash flow projections. This would enable these organizations to be in a vantage position to determine how well their cash flows are or are likely to be in the near and far future. Consequently, they are likely to be more effective in developing mechanisms and strategies for ensuring that the CBOs are financially sustainable. It was also recommended that the CBOs should increase the scope of their income-generating activities so that they can be financially stable in the long-term and thus reduce their dependence on donations and grants.

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