

CREDIT INFORMATION SHARING AND PERFORMANCE OF SELECTED COMMERCIAL BANKS IN KENYA

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ABSTRACT

Many banks in Kenya have been experiencing poor financial performance. Most of these financial problems arise from lack of credit information on the loan applicants which then affect their ability to recover both the principle and the interest. There have been efforts by the Central Bank of Kenya to advance credit information sharing on loan applicants among commercial banks so as to reduce the default rates among loan beneficiaries. This study aimed to establish the effect of credit information sharing on the performance of selected commercial banks in Kenya. The specific objectives were; To establish the effect of competitive information sharing on performance of commercial banks in Kenya; to assess the effect of credit scoring on the performance of commercial banks in Kenya; to establish the effect of efficiency in the information gathering process on the performance of commercial banks in Kenya and to assess the effect of information accuracy on the performance of commercial banks in Kenya. This study employed a descriptive research design. The study was anchored on information asymmetry theory, moral hazard theory and financial intermediation theory. The population of this study entailed all the 43 commercial banks licensed under the banking Act as at 31 December 2015 in Kenya. The study used primary and secondary data. Primary data was collected using closed ended

questionnaires administered on drop and pick method while secondary data was collected from CBK annual supervision reports and the banks specific audited accounts. Data was analyzed using both descriptive and inferential statistics. The qualitative data collected was analyzed using mean, standard deviation, frequencies and percentages while inferential statistics including multiple regression analysis was performed to estimate the changes in performance following changes in credit information sharing variables. The study used tables and charts to present the analyzed data. From the findings, there exist a strong correlation between variables. The study established that the credit information sharing explained for a large proportion of changes in the performance of commercial banks in Kenya. The overall regression model was significant in determining credit scoring on credit information sharing and performance of commercial banks in Kenya as shown by the value of R². The study established that credit scoring system has a significant effect on capability to repay loans. The study recommended that credit scoring system should give information on borrowers' capability to repay loans, credit scorecards tools should be used to assess the behavior of prospective borrowers while good credit track record should reduce credit risks.

Key Words: *credit information sharing, performance, commercial banks, Kenya*

INTRODUCTION

Back in the past decades loans were advanced to acquaintances only, in the 1960s obtaining a loan required a face-to-face application procedure with a bank employee in whom one had to explain the purpose of the loan and demonstrate one's credit worthiness; this was noted by Cavelaars and Passenier (2012). Over time, the development of credit bureaus and credit scoring models enabled banks to obtain information about individual consumer's credit records even though they had no prior relationship with them (Houston, Lin, Lin & Ma, 2010). Therefore, credit referencing not only helps lower transaction costs but also facilitate distant transactions such as, for instance, e-finance or internet transactions and banking (Houston, et al. 2010).

There has been dramatic increase in competition in traditional and non-traditional institutions in the financial services industry with a decline in consumer loyalty (Büyükkarabacak & Valev, 2012). Lending based on hard-information may outperform lending based on relationship-based soft-information, especially in long-distance situations (Cavelaars & Passenier, 2012). However, information sharing occasioned by credit reference bureaus has led to increased competition among banks (Houston, et al., 2010), resulting in a decline in monopoly rents for banks, to the benefit of the bank's customers and society as a whole. Lenders use credit reference databases in order to evaluate a consumer's credit application and his/her creditworthiness.

In the UK, as noted by D'hulster (2012) stated that the lenders need to access borrowers' credit information as part of their assessment of the risks associated with lending. The sharing of credit data between lenders can reduce the problem of borrowers being better informed about their creditworthiness than lenders and support the ongoing monitoring of borrower risk-taking. In the USA, Büyükkarabacak and Valev (2012) in banking crises and invent of credit information sharing has been used to mitigate the problem of adverse selection, whereby lenders are unable to differentiate between borrowers of different risk. Access to credit data for monitoring purposes can also assist lenders in countering the effects of moral hazard, whereby borrowers may change their risk-taking behavior once in receipt of a loan.

According to Adu-AsareIdun and Aboagye (2014) in a Ghanaian study recommends encouraging a more competitive banking system with more innovative products tailored toward mobilization of savings and investment to growth induced sectors of the economy. Thus, as the credit reference practices get firm foothold in the financial industry, credit data can be used for various ends. Brown et al. (2011) noted that importantly, such data have been considered to promote transparency and reduce the information advantage that a lender has over its existing clients, which in turn could lead both to lower prices offered to consumers and greater access to credit. Since information is very vital for the efficient functioning of the credit markets Dierkes et al. (2013) existence of asymmetric information between borrowers and lenders poses problems of bad debts, moral hazard and adverse selection.

The role of banks is to safeguard and help grow clients' resources while extending credit for their economic benefit. Therefore, banks in the year 2007 supported the change in regulation which formalized Credit Information Sharing (CIS) and introduced the country's first Credit Reference Bureaus (CRBs). Not to be mistaken as 'blacklisting', CIS allows credit providers (including banks, utility and telecommunications companies) to share data that is collected by licensed CRBs. This sharing of vital information helps creditors draw a distinction between high and low risk borrowers. Previously, credit providers penalized good borrowers by spreading the risk (and costs of credit) across their portfolio. With this new system, good borrowers are better positioned to negotiate interest rates. Ultimately, CIS enhances efficiency in the credit system and lowers costs making it easier for banks to lend on basis of their clients' individual credit track record (Kenya Credit Information Sharing Initiative, 2011)

Kenya's banks work together with the regulatory and interest groups to increase access to credit through formal banking services. The idea underlying information sharing is, "The best future predictor behavior is past behavior" (Dierkes, et al. 2013). In practice, it is an arrangement by which lenders contribute information about their customers to a common pool which is accessible to all lenders that contribute. This is the work of credit bureaus (Dierkes, et al. 2013). Consumer credit bureaus emerged in the United States in the late 19th century. Other early adopters include; Austria, Sweden, Finland, Canada, Germany and Australia (Brown et al., 2011).

Competitive information sharing is about getting information that helps an organization make decisions and the impact of those decisions give it a competitive edge over its competitors at the market place. Financial institutions have formed credit bureaus and credit scoring models that enable them get information on the borrowers and inform their decision-making process (Adu-AsareIdun & Aboagye, 2014). The financial institutions are going a step forward by doing credit scoring to assess the credit worthiness of borrowers; the firms engage experienced staff to score creditors and make a decision on whether to advance a credit or to deny the applicant. Credit scoring analyses the credit borrowers' likelihood of defaulting in making the repayments. The higher the probability that a borrower would not make a full repayment on the advanced monies; the higher the interest should be charged and the higher the credit risk.

Financial institutions that are able to adhere to higher standards of efficiency in all its operations have a higher likelihood of performing better as opposed with those without. As noted by Moro and Fink (2013), efficiency in information gathering has intensified credit sharing amongst financial institutions which has eventually result in higher performance and lowers the credit risks. Furthermore, firms with strong information gathering techniques are positively related to the size of the credit market. But Goel and Thakor (2015) state that information gathered must be accurate so as not to mislead the credit analysts decision on whether to grant credit advance on not. Inaccurate information negatively affects the performance of financial institutions.

STATEMENT OF THE PROBLEM

Many banks in Kenya have been experiencing poor financial performance. Most of these financial problems arise from lack of credit information on the loan applicants which then affect their ability to recover both the principle and the interest. There have been efforts to advance credit information sharing on loan applicants among commercial banks so as to reduce the default rates among loan beneficiaries. Thus, it is important to understand the effect that credit information sharing has on performance of commercial banks. Various studies have been done on the effect of credit information sharing on performance such as Gaitho (2013), Kipyego and Wandera (2013) and Shisia et al. (2014) have in turn been carried out regarding the new phenomena of CRBs in the Kenyan banking sector and the main focus has been on how the CRBs and information sharing have influenced the NPLs but failing to link information sharing with performance. Kabiru (2002) did a study on the relationship between credit risk assessment practice and the level of non-performing loans of Kenyan banks. Noting that credit risk assessment practices affected the level of NPLs. This study concentrated on risk assessment practices and does not mention the effect of credit information sharing on performance. Adam (2003) did an analysis of the usefulness of annual financial statements to credit risk analysts in Kenyan commercial banks. The study established that annual financial statements are important in determining the riskiness of organizations applying for loans and ultimately their ability to repay the loan. The study doesn't mention information sharing and performance, thus creating a knowledge gap. Mutwiri (2003) studied the use of 6C's credit risk appraisal model and its relationship with the level of nonperforming loans of commercial banks in Kenya. The study fails to mention the effect of information sharing on performance. Credit information sharing is fairly a new concept and little research has been done on the subject. The above studies did not cover the effect of credit information sharing on performance, hence creating a knowledge gap, which this study wished to fill. This study therefore sought to investigate the impact of credit information sharing on the performance of selected commercial banks in Kenya.

GENERAL OBJECTIVE

The main objective of the study was to investigate the effect of credit information sharing on the performance of selected commercial banks in Kenya.

SPECIFIC OBJECTIVES

1. To establish the effect of competitive information sharing on the performance of commercial banks in Kenya.
2. To assess the effect of credit scoring on the performance of commercial banks in Kenya.
3. To establish the effect of efficiency in the information gathering process on the performance of commercial banks in Kenya.
4. To assess the effect of information accuracy on the performance of commercial banks in Kenya.

THEORETICAL LITERATURE

Information Asymmetry Theory

The asymmetric information theory was advanced by George Akerlof, Michael Spence and Joseph Stiglitz who won the Nobel Prize for their contribution to economic theory. Akerlof (1970) posited that there is a potential for market failure in situations where the buyer and seller possess asymmetrical valuation information as illustrated by the 'lemons' problem. Vickrey and Mirrlees, also nobel laureates, explored economic transactions in the real world, where not all players possess the same information about the costs and benefits of a given deal. Information asymmetry refers to a situation where business owners or managers know more about the prospects for, and risks facing their business, than do lenders (Rochaix, 1989). It describes a condition in which all parties involved in an undertaking do not know relevant information. In a debt market, information asymmetry arises when a borrower who takes a loan usually has better information about the potential risks and returns associated with investment projects for which the funds are earmarked.

The lender on the other hand does not have sufficient information concerning the borrower (Edwards & Turnbull, 1994). Binks and Ennew (1997) point out that perceived information asymmetry poses two problems for the banks, moral hazard (monitoring entrepreneurial behavior) and adverse selection (making errors in lending decisions). Stiglitz and Weiss (1981) pointed out that in a market with imperfect information the lender is not able to discriminate between different types of borrowers. It is difficult for financial institutions to overcome these problems because appraisal and monitoring requires a lot of resources and this may not be economical where lending is for relatively small amounts. This is because information needed to screen credit applications and to monitor borrowers is not freely available to lenders. Bankers face a situation of information asymmetry when assessing lending applications (Binks & Ennew, 1997). The information required to assess the competence and commitment of the entrepreneur, and the prospects of the business is either not available, uneconomic to obtain or difficult to interpret. Thus, creates two types of risks for the Banker (Deakins & Hussain, 1999). Information asymmetry theory is applicable in this study as it shows how credit valuation can be done using information that is accurate and competitively shared as it would be relevant during the credit appraisal process hence positively influencing the performance of commercial institutions like the case of commercial banks operating in Kenya.

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 results 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). According to Klein (1992) credit information sharing motivates borrowers to honor their contractual obligations. Borrowers will likely honor their loans obligations since they know if they default, they will be negatively listed which essentially implies that they will be excluded from formal borrowing in future. Both cases demonstrate that default attract heavy penalty in terms of interest rates or exclusion from future borrowing hence information sharing is a mechanism that helps to overcome the moral hazard challenges postured by borrowers (Padilla & Pagano, 2000). This study in anchored on this theory as it encourages the gathering of accurate and credible information, during the assessment of the credit process so as to reduce credit risks and increase financial performance of financial institutions.

Financial Intermediation Theory

A Financial intermediary is an entity that acts as the middleman between two parties in a financial transaction. Common examples of financial intermediaries include commercial banks, investment banks, insurance companies, pension funds and mutual funds (Seed, 2005). Financial intermediaries have the role to create assets for creditors and liabilities for debtors which are much more attractive for each of them than if the transfer of funds from creditor to debtor were to be made directly between the two parties (Diamond, 1984). Fundamentally, financial intermediation is about enticing investors to buy securities backed by investments whose risks the investors cannot fully evaluate. The intermediary, such as a bank, insurance company, hedge fund, or ordinary corporation, specializes in evaluating risk. According to Saeed (2005), commercial banks are considered to be financial intermediaries due to their nature of mobilizing deposits from entities at low interest rates and creation of credit using the same funds at a relatively higher rate on the deposit rate. When information asymmetries are not the driving force behind intermediation activity and their elimination is not the commercial motive for financial intermediaries, the question arises which paradigm, as an alternative, could better express the essence of the intermediation process. It is the opinion of this author that the concept of value creation in the context of the value chain might serve that purpose. The absorption of risk is the central function of both banking and insurance firms. The risk function bridges a mismatch between the supply of savings and the demand for investments as savers are on average more risk averse than real investors. Risk means maturity risk, counterparty risk, and market risk.

EMPIRICAL LITERATURE REVIEW

Competitive Information Sharing and Performance

Thuo (2016) did a study to determine the effect of sharing of credit information on financial performance of commercial banks in Kenya. The researcher employed a descriptive research design whereby all the 43 commercial banks licensed under the banking Act as at 31 December 2015 in Kenya formed the target population. A regression model was used to determine effects

of sharing of credit information on banks' performance in financial perspective. The study established an insignificant negative relation between credit information sharing assets quality and banks' performance in financial perspective. Results also found a negative but significant relation between capital adequacy and financial performance and an insignificant positive relation between liquidity and banks' performance in financial perspective. From this study it can be asserted that failure by the commercial banks in sharing credit information increases credit risk, which in turn reduces banks' financial performance. There is need for the management of the commercial banks in Kenya to set up appropriate mechanisms of sharing credit information in order to reduce credit risk and enhance their financial performance. Thuo (2016) concentrated on credit information sharing assets quality and capital adequacy as study variables not competitiveness in sharing information, credit scoring and efficiency in information sharing which is the focus of the current study.

Kwambai and Wandera (2013) in the study on the effects of credit information sharing on nonperforming loans in Kenya using Kenya commercial bank as the case study in a 5-year period between 2007 to 2012. The study specifically aimed at establishing the trend of bad loans before and after the introduction of CRB, to identify the factors that account for bad loans and to determine the economic sector that records higher bad loans and the efforts taken to reduce the risk in this sector. Descriptive case research design approach and stratified proportionate random sampling technique was used to select the sample. Quantitative data was analyzed using descriptive statistical tools such as the mean and the percentiles while qualitative data was analyzed using content analysis. The study established that credit information sharing led to overall reduction in the operating costs associated with debt approval and collection. With CIS mechanisms the number of staff employed in the credit department will reduce based on the fact that fewer staff will be required to approve loans and as such the commercial banks to reduce the staff cost by reducing the number of staff involved in loan approval and collection. This implies that banks should come up with strong and appropriate measures that will guide the credit information sharing to boost their overall financial performance. The study by Kwambai and Wandera focused on the level of NPL before and after introduction of credit information sharing. The current study looks into the efficiency of credit scoring and information sharing and its effect on loan disbursement and bank performance

Nyangweso (2013) did a study on the relationship between credit information sharing and loan performance of commercial banks in Kenya. Descriptive and correlation research designs were employed. The study established that loan performance as measured by loan default rate is negatively related to credit information sharing, lending rate and total loans. The study concluded that sharing of credit information in credit appraisal is of great significance in loan recovery. The management of the commercial banks in Kenya, should have clear policies and guidelines to govern loan disbursement and loan recovery. Proper credit appraisal should be done before granting a loan facility to a customer through the use of credit information sharing platform that is established by the Central Bank of Kenya. The study by Nyangweso (2013)

focused on the relationship between credit information sharing and loan performance and not similar variable as those in this study.

Wambui (2012) did a study on the impact of credit information sharing on credit risk for commercial banks in Kenya. Descriptive research design was employed. Both primary data and secondary data were used. To test whether the difference between the expected and observed frequencies was significant, chi-square test was employed. Data was analyzed using SPSS. The study established a significant difference on the reports requested by banks from CRB. It concluded that credit information sharing has a positive impact on credit risk although not statistically significant. The commercial banks in Kenya are also encouraged to make use of the current CRBs in profiling customer risk especially the portfolio at risk. The study by Wambui (2012) focused on reports of CRB to banks and not the efficiency with which the credit scoring is done and the efficiency of information as is the case of the current study.

Mutesi (2011) did a study on information sharing, risk management and financial performance of commercial banks in Uganda. The study specifically sought to examine the relationship between information sharing and risk management, to examine the relationship between information sharing and financial performance, to investigate the relationship between information sharing, risk management and financial performance. A sample of 104 commercial banks branches in Kampala was selected. Across sectional research design was employed. The primary data collected through questionnaires was analyzed using SPSS, correlation and regression analysis. The results of the analysis showed a positive correlation of all the study variables. This implies that there is need for the commercial banks to build strong information sharing facilities such as Credit Reference Bureaus, recruit competent and well-trained staff to increase efficiency in information gathering and accuracy of information used. Mutesi (2011) focused on risk management as the independent variable and not performance as is the case of the current study.

Credit Scoring and Performance

Muturi (2014) did a study on credit scoring practices and the level of nonperforming loans of deposit taking microfinance institutions in Kenya. The study employed descriptive research design whereby a census survey of all the 8 deposit taking microfinance institutions that were registered and operating by the year 2013 was done. Descriptive statistical tools such as the mean and percentiles were used in describing data while inferential statistics was used to generalize samples to populations. Regression analysis was used to analyse the relationship between credit scoring practices and nonperforming loans. The latest SPSS version was used in analysing the data. The study established that deposit taking institutions adopted credit scoring practices in screening and analysing risk before awarding credit to clients. It concluded that there was a negative relationship between credit scoring practices and nonperforming loans. When the percentage of nonperforming loans increases, the financial performance of the financial institutions reduces. This implies that proper and efficient credit scoring measures should be adopted by the financial institutions in order to increase the rate as which their loans lent to

customers are recovered. The study measured performance in terms of NPL and not return on investment or equity as is the case in the current study.

Milimu (2013) examined the relationship between credit scoring by commercial banks and small and medium enterprises' loans accessibility in Kenya. The study sought to establish the relationship between credit scoring by commercial banks and loans accessibility by SMEs in Kenya. The census type of sampling was used comprising of all 43 commercial banks in Kenya. Descriptive analysis was used to analyze the data. Regression analysis was used to establish the relationship between credit scoring and loans accessibility by SME customers in Kenya through the Excel and SPSS statistical tools. The study established that there exists a strong positive relationship between credit scoring and loans accessibility by SME customers in Kenya. This is explained by the various parameters considered while scoring an SME credit customer. The commercial banks and SMEs in Kenya need to improve the adoption of credit scoring. The use of credit scoring will lead to an increase in loan accessibility by customers hence higher chances of greater performance levels. Milimu (2013) considered loan accessibility and not return on investment or equity hence limiting the application of its findings in the current study.

Samreen and Zaidi (2013) studied the design and development of credit scoring model for the commercial banks in Pakistan. The study aimed at evaluating credit risk in commercial banks of Pakistan using credit scoring models. They used logistic regression and discriminant to support the results of developed credit scoring model. The accuracy rate of Credit Scoring Model for Individuals was excellent, logistic regression (LR) had a high level of accuracy rate and the discriminant analysis credit scoring model for individuals. The study established that the Credit Scoring Model for Individuals assessed the creditworthiness of individual borrowers with high accuracy rate and distinguished the high-risk loan applications to low risk prior to default. The banking industry in Kenya should use the advanced credit scoring techniques such as the genetic algorithms, fuzzy discriminant analysis and neural networks.

Mutie (2006) assessed credit scoring practices and nonperforming loans in the Kenyan commercial banks. The study was carried out to achieve two objectives, to evaluate the credit scoring practices in the Kenyan commercial banks and to assess the relationship between these credit scoring practices and non-performing loans. Data was collected using questionnaires from 43 commercial banks in Kenya as at end of the year 2004. The findings were that most of the banks used credit-scoring practices compared to that which never used. Analyzing the level of non-performing loans measured by assets quality ratio and comparing this with the credit scoring practices using correlation analysis achieved the second objective. The results indicated a strong negative relationship between credit scoring practices and nonperforming loans with a correlation. Credit scoring practices should be an area that the bank management has to give a deeper concern in spearheading performance since nonperforming loans is one of the aspects of performance indication in Kenya. The study considered NPL and not return on investment or equity as is the case in the current study.

Efficiency in Information Gathering Process and Performance

Ngetich (2011) did a study to establish the effects of interest rate spread on the level of Non-Performing Assets in commercial banks in Kenya. This study adopted a descriptive research design on a sample of all commercial banks in Kenya operating by 2008 which were 43 in number. The study used questionnaires to collect data from primary data sources and secondary data, collected from Bank Supervision Report, to augment the primary data findings. The study established that interest rate spread affect performing assets in banks as it increases the cost of loans charged on the borrowers, regulations on interest rates have far reaching effects on assets non-performance. It recommended that for such regulations determine the interest rate spread in banks and also help mitigate moral hazards incidental to NPAs. Credit risk management technique remotely affects the value of a bank's interest rates spread as interest rates are benchmarked against the associated non-performing assets and non-performing assets is attributable to high cost of loans. Based on the findings and recommendations of this study, it is essential for the commercial banks in Kenya to assess their clients and charge interest rates accordingly as ineffective interest rate policy can increase the level of interest rates and consequently NPAs. Information gathering and sharing can lower average interest rates in several ways. These dynamics have been borne out both theoretically and empirically. First, without information on borrowers' risk profiles, a lender will mistake good risks for bad, and vice versa

Agarwal and Hauswald (2010) did a study on the effects of physical distance on the acquisition and use of private information in informationally opaque credit markets. The study used a unique data set of all loan applications by small firms to a large bank. The study sample consisted of all applications for new loans over a fifteen-month span falling under the purview of small- and medium-sized enterprise (SME) establishing that borrower proximity facilitates the collection of soft information, leading to a trade-off in the availability and pricing of credit, which is more readily accessible to nearby firms albeit at higher interest rates *ceteris paribus*. Analyzing loan rates and firms' decision to switch lenders provides further evidence for banks' strategic use of private information. However, distance erodes lender's ability to collect proprietary intelligence and to carve out local captive markets.

Houston et al. (2010) did a study to evaluate the viability of credit default swap (CDS) spreads as substitutes for credit ratings. The study focused on CDS spreads based on the obligations of financial institutions, particularly fifteen large financial institutions that were prominently involved in the recent financial crisis. They established that data from 2006 through 2009 showed that CDS spreads incorporate new information about as quickly as equity prices and significantly more quickly than credit ratings. Although CDS spreads did not identify accumulating risk exposures before 2007, they quickly reflected disclosures and developments beginning in the summer of 2007 at the latest. Thus, CDS spreads are a promising market-based tool for regulatory and private purposes, and they may serve as a viable substitute for credit

ratings. This implies that credit information gathering is crucial and consequently associated with higher lending, measured by private credit to GNP ratio, and lower defaults.

Houston et al. (2010) did a study to investigate the impact of lenders' information sharing on firms' performance in the credit market using rich contract-level data from a U.S. credit bureau. The study established that find that information sharing reduces contract delinquencies and defaults, especially when firms are informationally opaque. The study results also revealed that information sharing does not reduce the use of guarantees, that is, it may not loosen lending standards. If banks obtain information about their client's credit worthiness, they can easily determine the quality of non-local credit seekers and lend to them as safely as they do with local clients.

Information Accuracy and Performance

Smith, Staten, Eysell, Karig, Freeborn and Golden (2013) assessed accuracy of information maintained by the United States (US) Credit Bureaus by examining the level and frequency of Errors and their effects on consumers' credit scores. The study examined scoring of one thousand loan applicants from three different credit rating bureaus. Twenty- six percent of study participants claimed to find at least one potentially material error and filed formal disputes with the relevant bureau(s). The findings indicated that every three reports analyzed showed that the credit bureaus altered the credit report accordingly. In summary, the study concluded that credit bureau data were accurate enough to facilitate efficient lending and creditors' management of accounts, but individual consumers need to be vigilant to protect themselves against potentially costly errors in their files.

In another study, Getter (2017) focused on consumer and credit reporting, scoring, and related policy issues. The study acknowledges the importance of consumer information in screening for the risk that consumers are likely to engage in behaviors that are costly for businesses. lenders rely upon credit reports and scores to determine the likelihood that prospective borrowers will repay their loans. The study notes that reporting inaccuracies arise from a number of reasons including: consumers inadvertently providing inaccurate data when applying for financial services. Furnishers inadvertently inputting inaccurate information into their databases. Challenges in matching information to the proper individual, such as in cases when multiple individuals have similar names and spellings. In some cases, the information may be properly matched, but the individual could be a victim of fraud or identity theft.

Kiplagat (2013) did a study on effect of technological innovation on loan recovery in a student financing organization: a case study of Higher Education Loans Board. The study made use of qualitative data readily available from the Higher Education Loans Board database; the data gave the yearly amounts of money collected by respective payment mechanisms for the last ten years. Descriptive research design was employed. A multi linear regression model was used to analyze the net effect of all these methods of payment on the total loan recovery. The results showed that

there is a positive relationship between the various technological innovations and the amount of loan recovered in a given year. Mobile phone payments, electronic funds transfers and the use of standing orders showed a positive effect on loan recovery while the use of debit and credit cards showed a negative relationship with the amount of loans recovered.

Gorla et al. (2010) did a study on organizational impact of system quality, information quality, and service quality. Their study sought to establish the relationship between information systems' (IS) quality and organizational impact. They hypothesized greater organizational impact in situations in which system quality, information quality and service quality are high. They also hypothesized a positive relationship between system quality and information quality. They tested their hypotheses using survey data. Using the structural equation model exhibited a good fit with the observed data. The study results showed that IS service quality is the most influential variable in the model (followed by information quality and system quality), thus highlighting the importance of IS service quality for organizational performance. Based on the findings of this study, it is evident that IS success models through the system quality-to-information quality and IS quality-to-organizational impact links. The study also concurs that on historical must be verified ex-post, since it is difficult for a financial institution to validate the accuracy of future information at the time of its issuance because the associated realizations have not yet occurred. Since financial institutions may not validate the accuracy of such information, then it becomes difficult to make accurate predictions on whether the clients of the financial institutions will be able to repay their obligations or not. A bank's ability to assess the accuracy of the information obtained during contract negotiations depends on the information source.

RESEARCH METHODOLOGY

Research Design

Research design refers to the method used to carry out a research. Orodho (2003) defines a research design as the scheme, outline or plan that is used to generate answers to research problems. A descriptive research design was adopted in this study as it explains a subject by creating a pool of events, people and problems through data collection. This design was preferred for this research because it enabled generalization of the findings on the effect of credit information sharing on performance and the findings can be shared to the entire industry. In addition, descriptive research design accommodates analysis and relation of variables based on questionnaires and secondary data to be used in this study.

Empirical Model

This study adopted a multiple linear regression model; so as to test the relationship that the independent variables have on the dependent variable. The following analytical model was used.

$$P = \alpha_0 + \beta_1 CIS + \beta_2 CS + \beta_3 EIG + \beta_4 IA + \epsilon_i$$

Where: P = Bank Performance which is measured by Return on Investment (ROI) and Return on Equity (ROE); α_0 - intercept coefficient; ε_i - error term (extraneous variables); CIS - Competitive information sharing; CS - Credit Scoring; EIG - Efficiency in Information Gathering; IA - Information Accuracy; $\beta_1, \beta_2, \beta_3$ and β_4 =regression coefficients

The findings from the analysis was presented in charts, pie charts, figures, graphs and tables.

Target Population

Elmore et al, (2006), defines the target population as the population from which we would want to collect data if we were conducting a complete census rather than a sample survey. For this research project, all the 43 commercial banks licensed under the banking Act as at 31 December 2015 (Appendix VI) in Kenya formed the target population. A census approach was employed since the numbers of banks are few and the information can easily be accessed.

Sampling Design

The study shall adopt purposive sampling and target senior staffs from the finance and credit departments in the bank who have information on credit sharing and how it affects the performance of their specific banks. The study will exclude Savings and Credit Societies.

Data Collection Process

The study used primary and secondary data. Primary data was collected using questionnaires which were both open and close-ended questions. The closed ended questions were used to test the rating of various attributes for each of the four study variables (Competitive information sharing; Credit Scoring; Efficiency in Information Gathering and Information Accuracy) and this helps in reducing the number of related responses in order to obtain more varied responses. The open-ended questions provided additional information that might not have been captured in the close-ended questions. Secondary data was collected from CBK annual supervision reports and the banks specific audited accounts through the document review guide. This data relates to, total assets, total NPLs, total loans and advances. In addition, the annual credit reports pulled from the bureaus normally known as referencing were collected for the period covering 2011 to 2016. This period was selected since that is the time that banks started actively sharing information through generating and sharing information through credit referencing bureau (CRB).

Data Analysis and Presentation

The data that was collected was cleaned, coded and entered into computer application for further analysis. The data was analysed using Statistical Package for Social Science (SPSS version 23.0) program. Descriptive analysis was done where frequencies, means and percentages (the central measures of tendencies) was used to organize, describe and summarize the data. The study used panel regression analysis. Before carrying a regression analysis, the researcher conducted

diagnostic tests to determine the suitability of dataset for regressing. These diagnostic tests included Multicollinearity, Normality, and Heteroscedasticity. Normality test was done using Kurtosis and Skewness. Data analysis proceeds if the kurtosis and skewness is between +2 and -2 as this will be an indicator that the data has a normal distribution (Kothari, 2004). Multicollinearity was detected using the Variance Inflation Factor VIF. Heteroscedasticity is useful in examining whether there is difference in residual variance of the observation period to another period of observation (Godfrey, 2008), and it was done using Test Glejser. The regression model was used to determine if the regression assumptions used in the study was valid before performing the inference. Since if there any violations, subsequent inferential procedures might be invalid resulting in faulty conclusions. And in constructing our regression models we assumed that the responses Y to the explanatory variables were linear in the parameters and that the errors were independent and identically distributed. Multiple regression was done to test the level of relationship between the independent variable (Competitive information sharing; Credit Scoring; Efficiency in Information Gathering and Information Accuracy) and the dependent variable (Bank Performance).

RESEARCH RESULTS

The study sought to investigate the effect of credit information sharing on the performance of selected commercial banks in Kenya. The specific objectives of the study were to establish the effect of competitive information sharing on the performance of commercial banks in Kenya, to assess the effect of credit scoring on the performance of commercial banks in Kenya, to establish the effect of efficiency in the information gathering process on the performance of commercial banks in Kenya and to assess the effect of information accuracy on the performance of commercial banks in Kenya. On competitive information sharing, the study established that respondents concurred that complete information about the borrower's payment characteristic helped recover credit. Respondents also agreed that competitive information on borrowers helped in pooling risks for financial institutions. The study established that repayment probabilities would be predicted by sharing accurate information by the banks.

In view of credit scoring, the study established that scoring was done to predict the probability of a credit borrowers' likelihood of defaulting. The study found that respondents agreed that credit scoring improved their accuracy in decision making hence higher returns on investment. Technology had increased speed in the response during the loan processing and integration of technology in credit scoring benefited financial institutions' lending process. In regard to efficiency in information gathering, the study established that efficient information on client's credit worthiness, determined the quality of non-local credit seekers. The study found out that exchange information about borrowers' types increased lending to safe borrowers hence increased the volume of lending. Commercial banks benefited from credit sharing institutions as they safely lend realizing higher returns.

On information accuracy, the researcher found that the respondents concurred that borrowers' historical information was verified by financial firms to validate the accuracy of information for future use. The respondents agreed that Accuracy of the borrower's prospective disclosures improved financial performance as loans were fully repaid. Historical accuracy of the borrower's earnings predictions served as a credible projection for credit repayment. The study established that management forecasts using public and private information determined the accuracy of the earnings. The study made use of qualitative data readily available from the Higher Education Loans Board database; the data gave the yearly amounts of money collected by respective payment mechanisms for the last ten years.

REGRESSION ANALYSIS

In order to determine the effect of credit information sharing on performance of commercial banks in Kenya, the researcher conducted regression analysis. The findings of the Model Summary, ANOVA and Regression coefficient are indicated in subsequent sections. The coefficient of correlation R and coefficient of determination R² are indicated in the Table 1.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.847 ^a	.717	.681	1.43993

a. Predictors: (Constant), information accuracy, competitive information sharing, efficiency in information gathering, credit scoring

From the findings, the coefficient of determination R² is 0.717 hence 71.7% change in bank performance is explained by information accuracy, competitive information sharing, efficiency in information gathering and credit scoring among commercial banks in Kenya. The independent variable cannot explain 28.3% change in the dependent variable, it therefore means that there are other factors that were not covered in the current study, thus an effect credit information sharing and performance of commercial banks in Kenya.

An ANOVA was conducted at 5% level of significance. A comparison of F_{calculated} and F_{critical} is shown in Table 2 below.

Table 2: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	15.487	4	3.872	17.133	0.000 ^b
Residual	6.113	27	0.226		
Total	21.60	31			

a. Dependent Variable: Bank performance.

b. Predictors: (Constant), information accuracy, competitive information sharing, efficiency in information gathering and credit scoring.

From the ANOVA Table above, $F_{\text{calculated}}$ is 17.33 while F_{critical} is 2.72776531, this shows that $F_{\text{calculated}} > F_{\text{critical}}$ thus $17.33 > 2.7277$ therefore the overall regression model was significant in determining credit scoring on credit information sharing and performance of commercial banks in Kenya. The p value is 0.000, an indication that at least one of the independent variables significantly influenced factors determining credit information sharing and performance of commercial banks in Kenya. The Beta coefficients and the p values of the study are indicated Table 3 below

Table 3: Regression Coefficient

	Unstandardized Coefficients	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	4.723	1.849		2.554	.016
Competitive information sharing	.277	.107	.285	2.597	.022
Credit scoring	.164	.053	.257	3.088	.026
Efficiency in information gathering	.126	.141	.192	.892	.380
Information accuracy	.732	.337	.535	2.176	.039

a. Dependent Variable: Bank performance.

The resultants become

$$Y = 4.723 + 0.277X_1 + 0.164X_2 + 0.126X_3 + 0.732X_4$$

Where: Y= Bank performance; X_1 = Competitive Information Sharing; X_2 = Credit Scoring; X_3 = Efficiency in Information Gathering; X_4 =Information Accuracy.

When all the variables are held constant bank performance would be 4.723, a unit increase in competitive information sharing would result to 0.277, credit scoring would result to 0.164 and an increase in information accuracy would result to 0.732 increase in credit information sharing and performance of commercial banks in Kenya.

In terms of the significance and hypothesis testing, competitive information sharing had p value 0.022 which is less than 0.05. Its beta coefficient (0.277) is positive. Therefore, it can be inferred that competitive information sharing has a positive significant effect on performance of commercial banks. The finding contradicts Thuo, (2016) whose study established an insignificant negative relation between credit information sharing assets quality and banks' performance in financial perspective.

Credit scoring had p value ($p=0.026$) which is less than 0.05. The beta coefficient (0.164) is positive. This can be interpreted that credit scoring has a positive and significant effect on performance of commercial banks. The finding contradicts Muturi (2014) who concluded that

there was a negative relationship between credit scoring practices and nonperforming loans. The finding further contradicts with Mutie (2006) whose results indicated a strong negative relationship between credit scoring practices and nonperforming loans with a correlation.

Efficiency in information gathering ($p=0.380$) with beta coefficient (0.126). The p value (0.380) is greater than 0.05. Therefore, it can be inferred that efficiency in information gathering has a positive and insignificant effect on performance of commercial banks. The finding is consistent with Houston et al. (2010) who noted that information sharing does not reduce the use of guarantees, that is, it may not loosen lending standards. Houston et al. (2010) further noted that credit information gathering is crucial and consequently associated with higher lending, measured by private credit to GNP ratio, and lower defaults.

Information accuracy ($p=0.039$) with beta coefficient (0.732). The beta coefficient is positive and the p value is less than 0.05. Hence, it can be inferred that Information accuracy has a positive and significant effect on performance of commercial banks. The finding concurs with Kiplagat (2013) whose results showed that there is a positive relationship between the various technological innovations and the amount of loan recovered in a given year. Similarly, Gorla et al. (2010) showed that information sharing service quality is the most influential variable in the model (followed by information quality and system quality), thus highlighting the importance of IS service quality for organizational performance.

CONCLUSIONS

The study concluded that their credit scoring system gave information on borrowers' capability to repay loans. Complete information about the borrower's payment characteristic helped recovery of credit, using CRB enhanced borrowers' chances of repaying loans, documenting borrower behavior positively impacted borrower repayment thus bank performance. Competitive information on borrowers helped in pooling risks for financial institutions. Repayment probabilities can be predicted by sharing accurate information by the banks and timely credit reports about borrowers' repayment history quickens credit processing.

The researcher concludes that respondents do scoring to predict the probability of a credit borrowers' likelihood of defaulting, credit scoring improved their accuracy in decision making hence higher returns on investment, technology had increased speed in the response during the loan processing and integration of technology in credit scoring benefited financial institutions' lending process.

From the findings, the researcher concludes that respondents agreed that efficient information on client's credit worthiness, determines the quality of non-local credit seekers. Agarwal and Hauswald (2010) did a study on the effects of physical distance on the acquisition and use of private information in informationally opaque credit markets and the study used a unique data set of all loan applications by small firms to a large bank.

The study concludes that exchange information about borrowers' types increased lending to safe borrowers increasing the volume of lending and financial institutions benefited from credit sharing institutions as they safely lend realizing higher returns. These findings concurred with the asymmetric information theory advanced by George Akerlof, Michael Spence and Joseph Stiglitz who won the Nobel Prize for their contribution to economic theory.

RECOMMENDATIONS

On competitive information sharing, a significant was established between competitively sharing information and performance. The study recommends that top management of all commercial banks in Kenya strengthen their channels and systems of sharing information which shall enhance their performance. Commercial banks need to share information about borrowers on a timely basis so that the CRBs can compile and give accurate scoring. The study established significant relationship between credit score and financial performance of commercial banks. Based on this finding, the study recommends to the management of Credit Reference Bureau CRB in Kenya to improve on their credit monitoring in the country to allow generate scores that commercial banks use for lending purpose. The study recommends that credit scorecards tools should be used to assess the behavior of prospective borrowers and also recommended that advanced computer technology should popularize credit scoring across the bank.

Efficiency in information sharing had insignificant effect on performance of commercial banks. In view of this finding, the study recommends to top management of all commercial banks to pay little attention and emphasis on it. More emphasis should be placed on competitive information sharing, credit scores and information accuracy since they significantly influence performance. On information accuracy the study established that it significantly influenced performance of commercial banks, the study therefore recommends that financial institutions in Kenya safeguard the accuracy of information sharing platforms for increased performance. There should be regular site visits that should give credence to the accuracy of the information given by the borrowers.

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